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Editor's Introduction

Volume 50, Issue 3, presents six papers representing the breadth of psychological science and practice in Aotearoa. These include 'standard' empirical papers investigating whether emotion regulation buffers negative outcomes associated with habitual gaming (based on analysis of large-scale survey data) and a two-wave survey of student wellbeing. I am particularly pleased to see three papers broadly relating to practice – investigations of student and supervisor attitudes to incorporation of aspects of ACT into CBT training, and of the use of Pūrākau in psychological practice, and analysis and commentary on Pasifika Youth offending. The issue is rounded out with an analysis of the equivalence of alternative forms of the Repeatable Battery for the Assessment of Neuropsychological Status in our context (RBANS).

As a test of how many people read this editorial I shall use the opportunity to remind potential contributors about the expectations of submission form for NZJP. These include general adherence to the current APA conventions (we're up to the 7th Edition which includes a small number of changes affecting reporting and format), the requirement to anonymise submissions and, of course, our own specific requirements (see below). Anonymisation is a requirement for our peer-review process and, while I do anonymise manuscripts where necessary it does mean a hold-up in the review process.

Consistent with the imperative of the Journal, *any* submission must clearly articulate relevance in the context of Aotearoa New Zealand. Information about the Journal, and general author guidelines can be found here.

For now, I wish all contributors (and particularly reviewers – thanks!) a Meri Kirihimete and a safe and refreshing holiday.

Marc Wilson

New Zealand Journal of Psychology

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CONTENTS

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Emotional Stability Buffers the Link between Habitual Gaming and Negative Psychological Outcomes

Maria Carmela A. Basabas and Chris G. Sibley

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This study aims to assess whether frequent computer and video gaming necessarily leads to negative psychological outcomes, or if some people are at higher risk than others. Analysing a national probability adult sample (N=21,120), this study found that habitual gamers (≥5.0 hours/week) experienced increased psychological distress, reduced self-esteem, and poorer body satisfaction than non-gamers and casual gamers (.1-5.0 hours/week). Critically, consistent with general personality-diathesis models, habitual gaming was more strongly linked with psychological distress and self-esteem among gamers with low Emotional Stability. Personality did not moderate the link between gaming and body satisfaction. These findings document a classic personality x situation interaction in a large-scale national probability sample and identify a personality characteristic that predicts who may be at greater risk of negative outcomes linked with habitual gaming.

Keywords: *Emotional Stability; Habitual Gaming; Psychological Outcomes*

Introduction

Psychological research has established that video gaming is linked with both positive (Brand & Todhunter, 2017; Przybylski, Ryan, & Rigby, 2009; Russoniello, O'Brien, & Parks, 2009; Snodgrass, Lacy, Dengah, Fagan, & Most, 2011; Ryan, Rigby, & Przybylski, 2006) and negative outcomes (Andreassen et al., 2016; Brunborg, Mentzoni, & Frøyland, 2014; Lemola et al., 2011; Ogletree & Drake, 2007; Rehbein, Kleimann, & Mößle, 2010; Skoric, Teo, & Neo, 2009). However, research has not yet assessed whether the strength of these links depends upon, or is modulated by, individual differences in personality. The personality-diathesis model suggests that predispositional vulnerabilities, such as specific personality traits, can interact with situational factors to predict negative psychological outcomes (Ingram & Luxton, 2005; Zuckerman, 1999). In particular, research has consistently shown that low Emotional Stability (high Neuroticism) is a personality diathesis that, when coupled with significant stress, precipitates the onset of mental health issues including depression, anxiety, psychosis, and personality disorders (de Beurs, Deeg, & van Dyck, 2001; Jeronimus, Kotov, Riese, & Ormel, 2016; Jacobs et al., 2011; Jylhä & Isometsä, 2006; Krabbendam et al., 2002; Ormel, Rosmalen, & Farmer, 2004; van Os & Jones, 1999; Saulsman & Page, 2004). This study aims to assess whether Emotional Stability moderates the link between frequent gaming and measures of psychological well-being.

High Engagement, Problematic Gaming, and Psychological Well-being

Psychological research on gaming distinguishes between high engagement (i.e. gaming frequently or for long hours) and problematic/addictive gaming (i.e. gaming to the point of substantial interference with social, occupational, or psychological functioning; Billieux, Flayelle, Rumpf, & Stein, 2019; Brunborg et al., 2013, 2014; Charlton, 2002; Charlton & Danforth, 2007; Mentzoni et al., 2011; Peters & Malesky, 2008; Rehbein et al., 2010). Literature indicates that gaming is not necessarily detrimental; individuals can be highly engaged with gaming without it being problematic (Brunborg et al., 2013, 2014; Billieux et al., 2013, 2019; Charlton, 2002; Charlton & Danforth, 2007; Király, Tóth, Urbán, Demetrovics, & Maraz, 2017; Peters & Malesky, 2008; Skoric, Teo, & Neo, 2009). However, it is important to note that studies identify a correlation between the two behaviours, and there is evidence of a developmental process whereby gamers are first highly engaged before their gaming becomes problematic (Charlton & Danforth, 2007; Király et al., 2017; Peters & Malesky, 2008).

High engagement can be linked with negative outcomes for some people. For example, a study using NZAVS data examined whether time spent gaming per week correlated with negative psychological outcomes (Basabas & Sibley, 2020; N=21,060). Most participants from this study (77%) did not game at all as the general population, rather than a specific gaming community, was sampled. Results showed that relative to non-gamers, regular/habitual gamers (≥5.0 hours/week) experienced higher psychological distress (men $\beta = .042$, women $\beta = .042$), lower self-esteem (men $\beta = -.061$, women $\beta = -.033$), and lower body satisfaction (men $\beta = -.071$, women $\beta = -.032$). Casual gaming (.1-5.0 hours/week) was linked with poorer body satisfaction for men ($\beta = -.057$) and women ($\beta = -.032$), and lower self-esteem for men only ($\beta = -.061$). These findings support past research (e.g. Peters & Malesky, 2008) and broadly indicate that negative

outcomes are more prevalent among habitual gamers, while less frequent gamers experience fewer adverse outcomes. It remains an open question as to what factors may contribute to greater risk of problematic gaming or negative outcomes associated with gaming for some people.

Personality and Gaming Behaviours

Research on the links between personality and gaming behaviours is relatively new. Findings in this area are somewhat inconsistent as studies use different models of personality (Collins & Freeman, 2013; Potard et al., 2019; Worth & Book, 2014) and a diverse range of fairly informal sampling strategies (including snowball samples of gaming forum users or players of particular games; e.g., Abbasi et al., 2021; Phillips, Butt, & Blaszczynski, 2006; Shceck, Lee, & Pyo, 2015; Worth & Book, 2014, 2015; Zeigler-Hill & Monica, 2015). One key strength of extant research is that it tends to provide in-depth and specific measures of gaming behaviour, though this often comes at the expense of large-scale sampling that includes representative samples of both gamers and non-gamers.

This caveat aside, prior research indicates that personality traits are correlated with gaming behaviours. In a study with users of French-language gaming forums, participants who gamed daily tended to report lower Extraversion, Conscientiousness, and higher entitlement than less frequent gamers, and participants who gamed for longer sessions tended to report higher Neuroticism than those who played shorter sessions (Potard et al., 2019). In a study with MMORPG players, time spent gaming and Neuroticism were independently linked with problematic gaming, suggesting that personality differences may indicate who is at risk of experiencing negative outcomes linked with gaming (Peters & Malesky, 2008).

A study that did analyse a national probability sample (N=6,518) found that higher Openness to Experience and lower levels of Extraversion, Agreeableness, and Conscientiousness were associated with spending more hours gaming per week (Sibley et al., 2011). The NZAVS is a broad-ranging questionnaire that does not focus specifically on gaming. The study complements psychological research on gaming by providing national probability data, but measured gaming behaviour using only a single item asking for self-reports of how many hours people spend playing computer/video games per week. The NZAVS thus has different strengths and limitations that complement past research with more detailed measures (e.g. Shceck et al., 2015; Worth & Book, 2014), but less representative samples. Regardless, the body of work in this area, including NZAVS data, generally indicates that personality and gaming frequency are indeed linked—specifically, lower Conscientiousness and Extraversion are associated with higher frequency of gaming (Greitemeyer, 2015; Potard et al., 2019; Sibley et al., 2011; Ventura, Shute, & Kim, 2012).

Emotional Stability as a Personality Diathesis

The diathesis-stress model asserts that predispositional vulnerabilities can interact with situational factors to develop psychopathology (Ingram & Luxton, 2005; Zuckerman, 1999). Vulnerabilities are factors that predispose an individual to mental health problems, and situational factors refer to major or minor life events that disrupt individuals' physiological, emotional, or cognitive stability (Monroe & Simons, 1991; Ingram & Luxton, 2005). Low Emotional Stability, or high Neuroticism, is a well-established personality diathesis due to its characteristics such as reactivity to stress, sensitivity to threat, and propensity towards negative affect (Bolger & Schilling, 1991; DeYoung, 2010; Jacobs et al., 2011; Krabbendam et al., 2002; McCrae, 1990).

Low Emotional Stability/high Neuroticism plays a prominent role in predicting the onset of psychopathology in various domains including significant life events (Osborne & Sibley, 2013), marital relationships (Brock & Lawrence, 2014), clinical research (Jeronimus et al., 2016; Krabbendam et al,. 2016; Saulsman & Page, 2004), and internet use (Abbasi & Drouin, 2019; van der Aa et al., 2009). With regards to internet use, researchers speculate that although individuals—particularly those low in Emotional Stability—may use technology to improve their mood, doing so many actually exacerbate negative emotions and increase risk of addiction (Abbasi & Drouin, 2019; Charlton & Danforth, 2007; Kardefelt-Winther, 2014; Papacharissi & Mendelson, 2011; Peters & Malesky, 2008). This particular finding may hold implications for gaming.

To our knowledge, only one study has assessed the link between personality traits and problematic gaming: in a study with adult Filipino gamers, Reyes et al. (2019) found significant correlations between problematic gaming and lower Agreeableness, Conscientiousness, Extraversion, Openness, and high Neuroticism. Forward stepwise regression analyses revealed that Agreeableness and Conscientiousness accounted for the largest amount of variation in problematic gaming (13%) among these personality traits whilst Openness and Neuroticism accounted for very little unique variance.

Research has yet to better understand whether the link between gaming and poor psychological well-being is more or less pronounced for some people depending upon their underlying personality, and in particular, whether the negative correlates of gaming are more pronounced, or perhaps only occur, for those with higher Neuroticism/lower Emotional Stability specifically. The present study addresses previous calls for research to build an understanding of when and how gaming may have positive or negative impact, for whom, the factors that influence this, and where moderating relationships exist (Johnson et al., 2013).

Overview and Hypotheses

The present study uses data from Wave 8 of the New Zealand Attitudes and Value Study (NZAVS), a large-scale national probability sample of adults, to first test whether gaming regularly/habitually (≥5.0 hours/week) is correlated with three concurrent psychological outcomes (higher psychological distress, reduced self-esteem, and poorer body satisfaction) compared to non-gamers and casual gamers (.1-5.0 hours/week). These three outcomes were selected to concurrently encompass distinct aspects of psychological well-being: psychological distress is a broad measure of

psychological well-being (Kessler, 2002), self-esteem is a general, subjective evaluation of one's worth (Rosenberg, 1965), and body satisfaction is a more specific evaluation of one physical aspect about oneself (Dittmar, 2009). Past research generally shows that psychological distress is linked with both frequent (Mathers et al., 2009) and problematic gaming (Brunborg et al., 2013), and self-esteem may either be a cause or consequence of gaming (Hoare, Milton, Foster, & Allender, 2016; Ko, Yen, Chen, Chen, & Yen, 2005; Lemmens et al., 2011). Findings on the link between gaming and body satisfaction are more scarce: studies indicate that time spent gaming (Basabas & Sibley, 2020) and playing games that depict idealised male and female bodies (Barlett & Harris, 2008) can be linked with poorer body satisfaction, but internet gaming disorder symptoms were not significantly linked with body satisfaction (Kircaburun, Griffiths, & Billieux, 2019).

The study then tests whether, as with more general and widely replicated personality-diathesis interactions, the links between habitual gaming and the three outcomes differ depending on individual differences in personality—specifically, low versus high levels of Emotional Stability (Neuroticism). Consistent with general personality × situation interactions observed in other areas (e.g. Van der Aa et al., 2009), we hypothesize that low Emotional Stability (high Neuroticism) may exacerbate the link between habitual gaming and poorer psychological well-being.

This is the first known study to utilise a nationally representative adult sample to explore whether adverse psychological outcomes linked with gaming vary depending on levels of Emotional Stability. Understanding these possible links and profiling the personality traits that may lead to some people experiencing poorer psychological well-being concurrent with habitual gaming, whereas these negative outcomes are ameliorated or absent for others, is critical to understand as computer and video gaming becomes increasingly prevalent in our culture.

Hypotheses

We based our three hypotheses on the assumption that greater time spent gaming is linked with increased psychological distress, reduced self-esteem, and poorer body satisfaction (Basabas & Sibley, 2020; Peters & Malesky, 2008). First, we predicted that habitual gamers low in Emotional Stability would report higher psychological distress than non-gamers (Hypothesis 1; Jacobs et al., 2011). Second, we predicted that habitual gamers low in Emotional Stability would report lower self-esteem than non-gamers (Hypothesis 2; Amirazodi & Amirazodi, 2011; Jackson et al., 2010). Third, we predicted that habitual gamers low in Emotional Stability would report lower body satisfaction than non-gamers (Hypothesis 3; Neumark-Sztainer, Goeden, Story, & Wall, 2004; Swami, Hadji-Michael, & Furnham, 2008). We made no hypotheses for casual gaming interactions given past findings showing non-significant links between casual gaming and the three outcomes (Basabas & Sibley, 2020).

METHODS

Participants

We analyze data from wave 8 (2016) of the NZAVS which contained responses from a total of 21,936 participants. There were 3,252 people who were categorised as casual gamers and 1,605 people categorised as habitual gamers. Demographic information of the sample (N = 21,120) are presented in Table 1.

Sampling Procedure

The NZAVS is an ongoing 20-year longitudinal national probability study that began in 2009. Wave 8 was chosen for this study as it contained the largest available sample at time of analysis. The NZAVS collects nationally representative data on social attitudes, personality, and health outcomes using national probability samples of New Zealanders sampled from the electoral roll. Participants were sent a paper copy of the questionnaire, or if participants provided an email address, they were able to complete an online version of the questionnaire. Detailed information about the sampling procedures and yearly retention rates are provided by Sibley (2019).

The NZAVS performs relatively well with regards to representativeness, but contains biases including over-representation of women (62.6% sample; 50.6% census; Statistics New Zealand, 2019) and under-representation of Māori (11.2% sample; 16.5% census) and Asian (4.4% sample; 15.1% census) individuals. The standard NZAVS post-stratification weighting procedure for gender, ethnicity, and region was used to adjust the sample to be representative of the general population.

Sampling Procedure

Gaming behaviour was measured using the open-ended item "Please estimate how many hours you spent doing each of the following in the past week… Playing computer games". In previous work using the same NZAVS sample, analyses showed that 77% of participants did not game in the past week (Basabas & Sibley, submitted). Of those who indicated at least some time spent gaming, the median time reported was 5 hours per week (see Figure 1). Given the heavily skewed distribution of count data for reported hours spent gaming, 5 hours seemed a reasonable split point for binning participants based on gaming behaviours. Gaming behaviour was thus modelled using two dummy coded variables: the first represented casual gaming (i.e. operationalised as gaming between 0.1–5.0 hours per week), where 0=no and 1=casual gaming. The second represented habitual gaming (i.e. operationalised as gaming ≥5.0 hours per week), where 0=no and 1=habitual gaming. These dummy coded variables tested whether casual or habitual gamers differed from non-gamers on each outcome. Thus, participants were modelled as non-gamers, casual gamers, and habitual gamers.

Big-Six personality was measured using the Mini-IPIP6, which provides four-item indices of the six major dimensions of personality: Extraversion (α=.754), Agreeableness (α=.711), Conscientiousness (α=.679), Emotional Stability (i.e. Neuroticism; α=.722), Openness to Experience (α=.706), and Honesty-Humility (α=.776; Sibley et al., 2011). Items were rated from 1 (very

inaccurate) to 7 (very accurate). The Mini-IPIP6 was adapted from Donnellan, Oswald, Baird, and Lucas' (2006) original Mini-IPIP to also include a four-item marker scale for honesty-humility (Sibley et al., 2011).

Psychological distress was measured using the Kessler-6 scale (Kessler et al., 2002; α=.85). Participants were asked to rate items including "During the last 30 days, how often did… you feel hopeless?", "… you feel so depressed that nothing could cheer you up?", "… you feel exhausted?". Each item was rated on a 5-point scale ranging from 0 = none of the time to 4 = all of the time.

Self-esteem was measured using three items from the Rosenberg (1965) Self-Esteem Inventory (α=.70): "I… On the whole am satisfied with myself", "… Take a positive attitude toward myself", "… Am inclined to feel that I am a failure". Each item was rated on a scale of 1 (very inaccurate) to 7 (very accurate).

Body satisfaction was measured with the item "I am satisfied with the appearance, size and shape of my body" devised for the NZAVS (Stronge, 2018), rated on a scale of 1 (very inaccurate) to 7 (very accurate).

RESULTS

The first set of analyses estimated linear regression models predicting psychological distress, self-esteem, and body satisfaction simultaneously, with casual and habitual gaming and the Big-Six personality dimensions as predictors. Missing data for exogenous variables were estimated using Rubin's (1987) procedure for multiple imputation procedure with parameter estimates averaged over 100 datasets (thinned using every 200th iteration). The model was estimated using Full Information Maximum Likelihood, which allowed for missing data in the outcome measures, and robust estimation of the standard errors to adjust for possibly non-normality in residuals.

Regression coefficients predicting psychological distress are presented in Table 2. Habitual gaming was significantly linked with higher psychological distress (β = .02, p = .001) while casual gaming was not (β = .004, p > .05). Extraversion (β = -.097, p < .001), Conscientiousness (β = -.107, p < .001), and Honesty-Humility (β = -.081, p < .001) were negatively linked with psychological distress, while Agreeableness (β = .021, p = .003) and Emotional Stability (β = .485, p < .001) were positively linked with psychological distress. The interaction between habitual gaming and Emotional Stability was significant (β = .022, p = .001).

Regression coefficients predicting self-esteem are presented in Table 3. Habitual gaming was significantly associated with lower self-esteem (β = -.018, p = .002) while casual gaming was not (β = .001, p > .05). Extraversion (β = .178, p < .001), Conscientiousness (β = .136, p < .001, Openness to Experience (β = .034, p < .001), and Honesty-Humility (β = .067, p < .001) were positively linked with self-esteem, while Emotional Stability (β = -.492, p < .001) was negatively linked with self-esteem. Casual gaming and Agreeableness were not significantly linked with self-esteem. Again, the interaction between habitual gaming and Emotional Stability was significant (β = -.023, p = .001).

Regression coefficients predicting body satisfaction are presented in Table 4. The main effects of casual (β = -.029, p < .001) and habitual gaming (β = -.035, p < .001) were significantly linked with lower body satisfaction. Conscientiousness (β = .064, p < .001), Openness to Experience (β = .019, p = .015), and Honesty-Humility (β = .092, p < .001) were positively linked with body

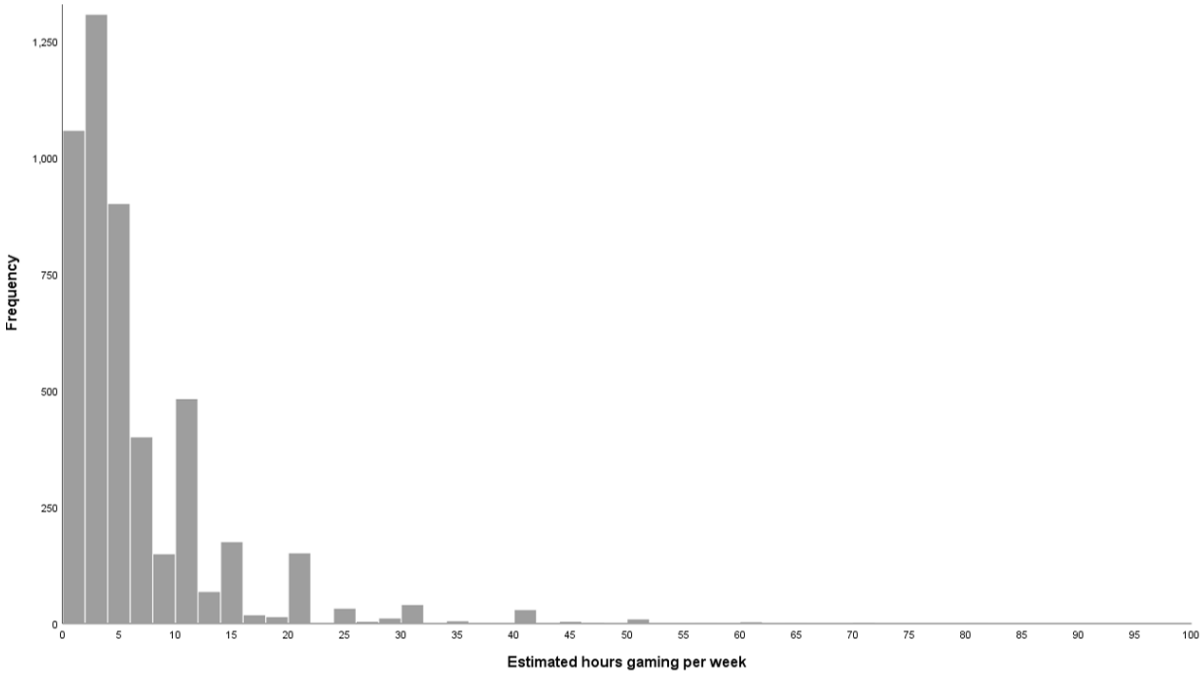

Figure 1. Frequency distribution of estimated hours gaming per week. Reprinted from "It's all just fun and games… right? Habitual gaming links with body dissatisfaction, psychological distress, and self-esteem", by M. C. Basabas and C. G. Sibley, 2020.

Table 1. Descriptive statistics for all independent, outcome, and covariate variables.

	M (*SD*)	*N* (%)	Item content
Body satisfaction (1 to 7)	4.25 (1.66)	21,120	I am satisfied with the appearance, size and shape of my body.
Psychological distress (0 to 4)	.88 (0.67)	21,120	e.g. During the last 30 days, how often did… you feel hopeless?
Self-esteem (1 to 7)	5.20 (1.23)	21,120	e.g. I… On the whole am satisfied with myself.
Age	49.50 (13.89)	21,120	What is your date of birth?
Regional deprivation (1 low, 10 high)	4.65 (2.74)	21,120	Deprivation of eighbourhood region (meshblock) based on 2013 census (Atkinson et al., 2014)
Qualification (1 low, 10 high)	5.32 (2.74)	21,120	What is your highest level of qualification?
BMI	27.49 (6.10)	21,120	What is your height? (metres)—What is your weight? (kgs)
Men		7,899 (37.4%)	What is your gender?
Women		13,221 (62.6%)	
Māori (0 no, 1 yes)		2,365 (11.2%)	Which ethnic groups do you belong to?
Pacific (0 no, 1 yes)		549 (2.6%)	
Asian (0 no, 1 yes)		9,293 (4.4%)	
Religious (0 no, 1 yes)		8026 (38.0%)	Do you identify with a religion and/or spiritual group?
Parent (0 no, 1 yes)		15,481 (73.3%)	How many children have you given birth to, fathered, or adopted?
Partner (0 no, 1 yes)		15,967 (75.6%)	What is your relationship status?
Employed (0 no, 1 yes)		16,579 (78.5%)	What is your current occupation?
Urban (0 no, 1 yes)		13,707 (64.9%)	Urban versus rural residential location coded from meshblock data (Statistics NZ, 2016)
Born in New Zealand (0 no, 1 yes)		16,769 (79.4%)	Where were you born? (please be specific, e.g., which town/city?)
Smoker (0 no, 1 yes)		1,753 (8.3%)	Do you currently smoke?
Disability (0 no, 1 yes)		4,794 (22.7%)	Do you have a health condition or disability that limits you, and has lasted 6+ months?
Heterosexual (0 no, 1 yes)		19,620 (92.9%)	What is your sexual orientation?
Gaming behaviour			Please estimate how many hours you spent… Playing computer games.
Casual Gamer (0 no, 1 yes)		3,252 (15.4%)	
Habitual gamer (0 no, 1 yes)		1,605 (7.6%)	
Personality			
Extraversion	3.91 (1.17)		e.g. I… am the life of the party.
Agreeableness	5.34 (.96)		e.g. I… sympathize with others' feelings.
Conscientiousness	5.08 (1.03)		e.g. I… get chores done right away.
Emotional Stability	3.47 (1.14)		e.g. I… have frequent mood swings.
Openness to Experience	4.93 (1.11)		e.g. I… have a vivid imagination.
Honesty-Humility	5.35 (1.19)		e.g. I… Deserve more things in life (reverse-coded)

Note. Percentages pertain to responses coded as 1, e.g. 79.4% of participants were born in New Zealand. Participants were able to identify with multiple ethnicities.

Table 2. Linear regression predicting psychological distress. (*N*=21,120)

	b	*SE*	*95% CI*	*β*	*t*
Age	-.008	.000	-.009, -.007	-.163	-25.090***
Regional deprivation	.006	.001	.004, .009	.026	4.571***
Qualification	-.002	.002	-.006, .001	-.009	-1.363
BMI	.001	.001	-.001, .002	.007	1.139
Gender	.030	.008	.015, .046	.022	3.821***
Māori	.004	.012	-.021, .028	.002	.306
Pacific	.054	.027	.001, .106	.013	2.013*
Asian	.048	.020	.008, .088	.015	2.367*
Religious	.002	.007	-.012, .017	.002	.285
Parent	-.028	.010	-.047, -.009	-.018	-2.871**
Partner	-.094	.009	-.112, -.075	-.060	-9.856***
Employed	-.079	.010	-.097, -.060	-.048	-8.219***
Urban	.017	.008	.003, .032	.012	2.294*
Born in New Zealand	-.020	.009	-.037, -.002	-.012	-2.162*
Sexual orientation	.038	.012	.015, .061	.019	3.272**
Smoker	.122	.015	.092, .151	.050	8.135***
Disability	.149	.009	.131, .167	.093	16.049***
Casual gamer	.008	.010	-.010, .027	.004	.873
Habitual gamer	.050	.015	.021, .080	.020	3.364**
Extraversion	-.056	.004	-.063, -.048	-.097	-14.947***
Agreeableness	.015	.005	.005, .025	.021	2.964**
Conscientiousness	-.070	.004	-.078, -.062	-.107	-16.437***
Emotional Stability	.288	.004	.280, .296	.485	70.928***
Openness to Experience	.007	.004	.000, .014	.012	1.871
Honesty-Humility	-.046	.004	-.053, -.038	-.081	-11.441***
Casual x Extraversion	-.013	.009	-.030, .004	-.009	-1.512
Casual x Agreeableness	-.011	.011	-.034, .011	-.006	-1.006
Casual x Conscientiousness	.012	.010	-.008, .032	.007	1.197
Casual x Emotional Stability	.005	.009	-.014, .024	.004	.582
Casual x Openness to Experience	.007	.010	-.011, .026	.005	.764
Casual x Honesty-Humility	.005	.009	-.013, .022	.003	.533
Habitual x Extraversion	-.020	.013	-.046, .006	-.010	-1.486
Habitual x Agreeableness	.005	.016	-.026, .037	.002	.330
Habitual x Conscientiousness	-.008	.014	-.036, .019	-.004	-.591
Habitual x Emotional Stability	**.044**	**.013**	**.019, .068**	**.022**	**3.463*** **
Habitual x Openness to Experience	.000	.014	-.027, .027	.000	-.023
Habitual x Honesty-Humility	.020	.013	-.005, .044	.010	1.562

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Significant interaction effect is bolded. Model fit: $R^2 = 44.2\%$, $p < .001$.

satisfaction, while Agreeableness (β = -.043, $p < .001$) and Emotional Stability (β = -.222, $p < .001$) were negatively linked with body satisfaction. No interaction effects were significant for this model.

The differences between habitual gamers with low (-1 *SD*) versus high (+1 *SD*) emotional stability, relative to non-gamers, were then estimated using standard simple slope equations (moderated regression). As predicted, regular/habitual gamers who were low in Emotional Stability reported significantly higher levels of psychological distress than non-gamers in general (b = .100, SE = .023, t = 4.28, $p < .001$). By contrast, habitual

Table 3. Linear regression predicting self-esteem. (*N*=21,120)

	b	*SE*	*95% CI*	*β*	*t*
Age	.004	.001	.003, .006	.049	7.591***
Regional deprivation	-.002	.003	-.007, .003	-.005	-.800
Qualification	.010	.003	.004, .016	.023	3.344**
BMI	-.016	.001	-.018, -.014	-.079	-13.297***
Gender	-.009	.014	-.037, .019	-.004	-.628
Māori	.059	.022	.015, .102	.015	2.655**
Pacific	.168	.044	.082, .253	.021	3.830***
Asian	.171	.034	.103, .238	.028	4.976***
Religious	.019	.014	-.007, .046	.008	1.432
Parent	.074	.018	.040, .109	.027	4.200***
Partner	.157	.017	.123, .190	.055	9.184***
Employed	.070	.017	.036, .103	.023	4.076***
Urban	-.056	.014	-.083, -.029	-.022	-4.080
Born in New Zealand	-.061	.017	-.094, -.028	-.020	-3.665***
Sexual orientation	.035	.020	-.004, .074	.010	1.743
Smoker	-.064	.026	-.114, -.014	-.014	-2.489*
Disability	-.121	.017	-.153, -.088	-.041	-7.292***
Casual gamer	.002	.018	-.033, .037	.001	.121
Habitual gamer	-.083	.026	-.135, -.032	-.018	-3.160**
Extraversion	.187	.007	.173, .201	.178	26.430***
Agreeableness	.007	.009	-.011, .026	.006	.803
Conscientiousness	.162	.008	.146, .177	.136	20.464***
Emotional Stability	-.535	.007	-.549, -.520	-.492	-72.173***
Openness to Experience	.038	.007	.024, .053	.034	5.133***
Honesty-Humility	.069	.007	.055, .083	.067	9.810***
Casual x Extraversion	.003	.017	-.030, .036	.001	.186
Casual x Agreeableness	.010	.021	-.031, .050	.003	.462
Casual x Conscientiousness	.018	.019	-.019, .055	.006	.938
Casual x Emotional Stability	-.012	.017	-.046, .022	-.004	-.705
Casual x Openness to Experience	-.007	.018	-.043, .028	-.003	-.410
Casual x Honesty-Humility	.017	.017	-.015, .050	.007	1.033
Habitual x Extraversion	.044	.024	-.004, .092	.012	1.816
Habitual x Agreeableness	.002	.030	-.058, .061	.000	.051
Habitual x Conscientiousness	.025	.026	-.026, .075	.006	.968
Habitual x Emotional Stability	**-.082**	**.024**	**-.129, -.035**	**-.023**	**-3.444****
Habitual x Openness to Experience	-.004	.025	-.053, .045	-.001	-.153
Habitual x Honesty-Humility	.001	.023	-.045, .046	.000	.024

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Significant interaction effect is bolded. Model fit: $R^2 = 44.4\%$, $p < .001$.

gamers with high levels of Emotional Stability did not differ from non-gamers in their level of psychological distress (*b* = .001, *SE* = .018, *t* = .047, *p* = .962). A similar pattern was observed for low self-esteem. Habitual gamers who were low in Emotional Stability reported significantly lower self-esteem than non-gamers (*b* = -.177, *SE* = .042, *t* = -4.26, *p* < .001). In contrast, habitual gamers with high levels of Emotional Stability did not differ from non-gamers in self-esteem (*b* = .010, *SE* = .034, *t* = .295, *p* = .768). Habitual gaming was linked with lower body satisfaction for individuals both high and low in Emotional Stability (i.e., Emotional Stability did not

Table 4. Linear regression predicting body satisfaction. (*N*=21,120)

	b	*SE*	*95% CI*	*β*	*t*
Age	.007	.001	.005, .009	.059	7.884***
Regional deprivation	.016	.004	.008, .024	.026	4.100***
Qualification	.005	.005	-.004. .014	.008	1.026
BMI	-.104	.002	-.108, -.100	-.382	-48.283***
Gender	.395	.022	.352, .439	.115	17.856***
Māori	.108	.035	.040, .176	.021	3.114**
Pacific	.452	.076	.303, .600	.043	3.114***
Asian	.117	.052	.014, .219	.014	2.222*
Religious	.066	.021	.024, .107	.019	3.119**
Parent	.036	.027	-.017, .088	.010	1.339
Partner	.042	.026	-.008, .092	.011	1.644
Employed	-.036	.026	-.088, .016	-.009	-1.352
Urban	-.032	.021	-.074, .009	-.009	-1.528
Born in New Zealand	-.085	.026	-136, -.035	-.021	-3.303**
Sexual orientation	.108	.031	.046, .169	.022	3.427**
Smoker	.051	.040	-.027, .129	.008	1.279
Disability	-.132	.025	-.181, -.082	-.033	-5.166***
Casual gamer	-.133	.028	-.187, -.079	-.029	-4.810***
Habitual gamer	-.218	.041	-.299, -.137	-.035	-5.261***
Extraversion	.098	.011	.077, .119	.069	9.123***
Agreeableness	-.075	.014	-.102, -.048	-.043	-5.445***
Conscientiousness	.103	.012	.080, .126	.064	8.611***
Emotional Stability	-.324	.011	-.346, -.302	-.222	-28.673***
Openness to Experience	.028	.011	.005, .050	.019	2.439*
Honesty-Humility	.128	.011	.107, .149	.092	11.881***
Casual x Extraversion	-.005	.026	-.055, .046	-.001	-.186
Casual x Agreeableness	.048	.031	-.013, .108	.011	1.549
Casual x Conscientiousness	.010	.028	-.046, .065	.002	.340
Casual x Emotional Stability	.017	.025	-.033, .066	.004	.658
Casual x Openness to Experience	-.002	.026	-.054, .050	-.001	-.076
Casual x Honesty-Humility	-.009	.025	-.059, .040	-.003	-.374
Habitual x Extraversion	.005	.035	-.064, .073	.001	.138
Habitual x Agreeableness	.013	.043	-.071, .097	.002	.299
Habitual x Conscientiousness	.032	.038	-.042, .105	.006	.847
Habitual x Emotional Stability	-.020	.034	-.085, .046	-.004	-.584
Habitual x Openness to Experience	-.052	.037	-.125, -.022	-.010	-1.384
Habitual x Honesty-Humility	-.038	.033	-.104, .027	-.008	-1.146

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Model fit: $R^2 = 27.4\%$, $p < .001$.

moderate this association). These results held when adjusting for a range of covariates (see Table 1).

DISCUSSION

Our analyses showed that generally, habitual gaming is adversely associated with all three outcomes, while casual gaming is associated with lower body satisfaction only. These findings indicate that casual gamers reported similar levels of psychological distress and self-esteem as non-gamers, whereas habitual gamers reported markedly lower measures than casual- and non-gamers.

Previously, research had yet to assess whether the links between gaming and psychological well-being varies depending on one's level of Emotional Stability.

We present novel findings by documenting a classic personality × situation interaction in terms of gaming, Emotional Stability, and psychological well-being. Critically, habitual gamers low in Emotional Stability experienced higher psychological distress and lower self-esteem relative to non-gamers in general, and these links were absent for habitual gamers high in Emotional Stability, supporting Hypotheses 1 and 2. Contrary to Hypothesis 3, ratings of body satisfaction among habitual gamers did not differ between those high versus low in Emotional Stability. In summary, Emotional Stability modulated the links between habitual gaming and psychological well-being: lower levels of Emotional Stability were linked with poorer psychological well-being for habitual gamers, while high levels of Emotional Stability buffered against this adverse association.

The interactions between habitual gaming and Emotional Stability have two possible interpretations: first, if habitual gaming leads to poorer psychological well-being, then individuals low in Emotional Stability were more susceptible to the negative outcomes of gaming. This may be due to the greater fluctuations in negative affectivity and sensitivity to stress associated with low Emotional Stability (Jacobs et al., 2011; McCrae, 1990). Alternatively, habitual gaming may be used as a coping strategy to alleviate negative feelings arising from poor psychological well-being (Granic, Lobel, & Engels, 2014; Kardefelt-Winther, 2014a, 2014b); perhaps the tendency towards negative affect drove those low in Emotional Stability to game habitually. We intend to conduct further longitudinal research examining which of these two possible causal effects explains the patterns observed in the current study. Regardless of which interpretation (or some combination of both) holds, for now, our results highlight a specific personality profile (low Emotional Stability) of those for whom habitual gaming is more strongly linked with poorer psychological well-being.

The effect sizes of the moderating effect of Emotional Stability are noteworthy. In predicting psychological distress, the interaction between habitual gaming and Emotional Stability produced a standardised beta of .022, and -.023 for predicting self-esteem. Compared to the individual effect of Emotional Stability on these outcomes (standardised betas of .485 and -.492 for psychological distress and self-esteem respectively), the interaction effects are fairly small. However, we emphasize the fact that we analysed a large national probability sample. We aimed to detect even subtle patterns that plausibly signal more specific processes underlying the relationship between gaming and psychological well-being. Previous work shows that in using broad measures among general population samples, the NZAVS can provide reliable population estimates for a range of outcomes. Examples include estimating political party vote intentions that closely track random-digit dial polls in the lead-up to a national election (Satherley et al., 2015); and tracking, estimating change over time, and correctly projecting the result of a referendum to change the New Zealand flag (Satherley, Yogeeswaran, Osborne, & Sibley, 2018). Thus, an important contribution of the present study is signalling a significant interaction between gaming and personality in the general adult population rather than a gaming community specifically. As personality factors had not previously been assessed in relation to the link between gaming and psychological well-being, our findings create new avenues for research to identify more specific processes regarding these factors.

Habitual gaming and Emotional Stability were both independently linked with lower body satisfaction. However, Emotional Stability did not moderate the link between habitual gaming and body satisfaction; individuals both low and high on Emotional Stability reported lower body satisfaction than non-gamers. With the inevitable benefit of hindsight, this is perhaps not a surprising finding as past studies show that other health-related (e.g. exercise) and sociocultural factors (e.g. sexism, visual media) are more relevant to body (dis)satisfaction (Forbes, Doroszewicz, Card, & Adams-Curtis, 2004; Fredrickson & Roberts, 1997; LePage & Crowther, 2010). It is also worth noting that our model predicting body satisfaction accounted for less variance (27.4%) relative to psychological distress (44.2%) and self-esteem (44.4%), and thus generally performed more poorly overall.

Using a national probability sample, the present study identified significant localised effects of Emotional Stability on the links between habitual gaming and psychological distress and self-esteem. This paper provides some major contributions to psychological research on gaming: first, we document a classic personality × situation interaction wherein the links between habitual gaming and psychological distress and self-esteem vary depending on individual differences in Emotional Stability. This extends from existing work documenting the role of Emotional Stability/Neuroticism in precipitating negative psychological and behavioural outcomes in various domains (e.g. Chow & Wan, 2017; Jeronimus et al., 2016). Second, this paper contributes to ongoing research regarding the relationship between gaming and psychological well-being and the antecedents of gaming addiction (e.g Billieux et al., 2019; Deleuze, Long, Liu, Maurage, & Billieux, 2018). By assessing the moderating role of Emotional Stability, we identified important personality differences that predict who may be at greater risk of negative psychological outcomes linked with habitual gaming. Lastly, this is the first study to utilise a nationally representative sample of adults to assess the links between gaming, personality, and psychological well-being concurrently.

Caveats and Future Directions

The broad, single-item measure of gaming limited our findings to an extent. Operationalising habitual gaming as simply 'playing at least five hours in the past week' ignores other aspects of gaming such as content (e.g. mature, general audience), genre (e.g. MMORPGs, puzzle), and motivations (e.g. escapism, achievement). Examining such factors could reveal whether certain aspects of computer/video games are more strongly linked with negative outcomes among regular/habitual gamers with low Emotional Stability. For example, future studies could examine whether people who play competitive online games, where cyberbullying and sexual harassment

can occur (Ballard & Welch, 2016; Choe, Doh, & Ha, 2019; Fox & Tang, 2014; Fryling, Cotler, Rivituso, Mathews, & Pratico, 2015), experience more adverse outcomes than those who play less competitive games, and if Emotional Stability moderates these effects as well. As fairly little is currently known about processes underlying the links between gaming and psychological well-being, future research would do well to hone in on specific aspects of video games and gaming habits to build a more comprehensive understanding of this relationship.

It is possible that people do not consider mobile games as 'computer games'. Mobile gaming has become extremely commonplace in recent years, with market researchers finding that 50% of smartphone app users played a mobile game in the past week (Activision Blizzard Media & Newzoo, 2019). As our single-item measure of gaming uses the term 'computer games', our data may have excluded people who spend a significant amount of time playing mobile games. Excluding this player base could therefore have skewed our results towards the 'casual' end. Our findings should be interpreted and generalised with some caution, such that they pertain to people who play on gaming consoles and computers.

Another potential limitation is that the measures used in this study were self-reported. In addition to the above limitation wherein habitual mobile game players may have self-excluded themselves, the reported number of hours gamed may not reflect actual weekly hours spent gaming. This is not a major caveat as the NZAVS has demonstrated good reliability in past studies in a range of domains including estimates of voter intentions that closely tracked random-digit dial political polls in the lead-up to a national election (Sibley et al., 2017); tracking, estimating change over time, and correctly projecting referendum results (Satherley, Yogeeswaran, Osborne, & Sibley, 2018); and population estimates for changes in laws, such as abortion and euthanasia, that closely match other polling data (see for example, Young, Egan, Walker, Graham-DeMello, & Jackson, 2019).

Due to the correlational nature of this study, causal inferences cannot reasonably be made from our findings. Our findings broadly indicate that individuals low in Emotional Stability were more likely to experience poorer psychological well-being in conjunction with habitual gaming than those high in Emotional Stability; whether poor psychological well-being is a cause or consequence of habitual gaming, and the specific ways in which Emotional Stability affects this relationship, are unknown. Indeed, considering the growing interest in the psychological ramifications of gaming (Pontes & Griffiths 2020), it is important for research to assess which of these causal processes holds. However, as no study had yet utilised a national probability sample in examining the links between gaming, personality, and psychological well-being, we thought it important to first assess whether these links persist within a general adult population. Our findings thus provide a reliable basis on which forthcoming studies using smaller samples can conduct more detailed analyses on the links between gaming and psychological well-being. Specifically, we expect to see more research identifying who, in terms of personality and gaming habits, may be at greater risk of experiencing adverse psychological and behavioural outcomes in conjunction with frequent gaming.

Conclusion

Despite the growing use and popularity of video games, there is little research regarding its links with personality and psychological well-being among adults. Informed by research across various domains (e.g. Reyes et al., 2019; Sibley et al., 2011), we assessed whether individual differences in personality, specifically Emotional Stability, modulated the links between habitual gaming and psychological well-being. We found that habitual gamers who were low in Emotional Stability reported increased psychological distress and lower self-esteem than non-gamers, while these adverse associations were absent for habitual gamers high in Emotional Stability. In contrast, Emotional Stability did not moderate the association between habitual gaming and body satisfaction. Emotional Stability thus exacerbated or buffered against the links between habitual gaming and poorer psychological well-being, depending on individual differences in personality.

Documenting a significant personality × situation interaction with a large-scale national probability adult sample makes an important contribution to identifying for whom, and under which conditions, gaming is linked with poorer psychological well-being. Primarily, our findings inform and offer avenues for additional research to better understand when, how, and for whom video games are linked with positive and negative outcomes. Educators and researchers who wish to intend to inform people about the potential impacts that underlying factors like personality have on the psychological outcomes of gaming.

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Pasifika Youth with Harmful Sexual Behaviour Differ from Other Young People and Need a Different Response

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Evidence-based treatment approaches for youth who engage in harmful sexual behaviour largely derive from western populations and worldviews, but there is increasing demand for diverse communities to be better served. This includes the Pasifika community in Aotearoa New Zealand, where Pasifika youth are at higher risk of dropping out of treatment than are New Zealand European (Pākehā) youth. This study explored coexisting emotional and behavioural problems (measured by the Child Behavior Checklist) and offending behaviour of an age-matched sample of Pasifika (n = 44) and Pākehā (n = 44) youth referred to a community treatment programme for harmful sexual behaviour. The Pasifika youth were more likely to display symptoms of anxiety and depression and had higher rates of internalising problems, compared to Pākehā youth. Pasifika youth were more likely to offend against peers/adults who were unknown to them (non-familial strangers/acquaintances), whereas Pākehā youth were more likely to target child victims known to them. More Pasifika youth had a history of non-sexual offending prior to the sexual offending that had them referred for treatment. These data point to the unique needs of Pasifika youth with harmful sexual behaviour. More family-based treatment, using culturally appropriate relationship frameworks such as the Va, are recommended.

Keywords: *Harmful Sexual Behaviour, Juvenile Sexual Offending, Sexual Offending, Youth Offending, Pacific Youth*

Introduction

The Pasifika[1] population in Aotearoa[2] New Zealand (NZ) includes migrants and descendants from the regions of Oceania - Polynesia, Melanesia and Micronesia. The Pasifika population in Aotearoa NZ is a vibrant and diverse group, with 60% born and raised in Aotearoa NZ, and increasingly with a mixed Pasifika and non-Pasifika heritage (Pasefika Proud, 2016). Pasifika comprise around 8% of the population, with the indigenous Māori at 17%, the Asian ethnic minority at around 16% and the NZ European/Pākehā majority at 70% (Statistics NZ, 2020[3]). Pasifika have the largest proportion of children (32.3%) under 14 years old compared to other ethnic groups (Pasifika Futures, 2017). By 2038, it is expected that one in five children will be Pasifika in Aotearoa NZ (Pasefika Proud, 2016). This suggests that the current and future health and wellbeing of Pasifika children and youth in Aotearoa NZ will have an impact on the overall wellbeing of society.

Offending by Pasifika in Aotearoa NZ

Young Pasifika people are overrepresented in offending that is of a violent nature, relative to other ethnic groups (Ioane & Lambie, 2016), but little is known about sexual offences committed. Ministry of Justice statistics show that the percentage of Pasifika children and young people[4] with a Youth Court-proved outcome, or who are convicted and sentenced in the District/High Court due to a sexual assault and related offence(s), increased slightly from 10% (2008) to 11% (2019) of the total number[5] of children and young people committing such offences (Statistics NZ, 2020). Research increasingly points to the need to understand differences between ethnically and culturally diverse youth so that appropriately targeted interventions are developed to

[1] "Pasifika" is a variant of the word "Pacific" and is commonly the way in which Pacific people, with diverse Pacific origins (such as the authors of this paper) refer to themselves, hence the use of the term throughout this work.
[2] Aotearoa is the indigenous name for New Zealand (NZ); the combination 'Aotearoa NZ' is used.
[3] Total is more than !00% as Stats NZ explains: People who identify with more than one ethnicity have been included in each ethnic population that they identify with. Pākehā is a Māori (indigenous) term for Europeans or New Zealanders of European descent.
[4] "Children" in the court system are aged 10- to 13-years-old and a "young person" is aged 14 to 16. From July 2019, the definition of young people was extended to include 17-year-olds, so they are primarily processed in the Youth Court rather than in the adult justice system.
[5] In 2008, Pasifika accounted for 6/60 sexual assaults; in 2019, Pasifika accounted for 6/54 sexual assaults.

mitigate risk and prevent an offending trajectory that may continue into adulthood (Rojas & Gretton, 2007). Given the over-representation of Pasifika in sexual offending, understanding differences and characteristics between ethnic groups is therefore crucial.

This study aimed to look at similarities and differences associated with emotional and behavioural problems and offending behaviour by Pasifika and Pākehā youth, in order to then advance and contextualise interventions to address unique factors amongst different ethnicities. We have chosen to compare Pasifika to Pākehā youth because current intervention programmes are Eurocentric and do not appear to be culturally responsive to Pasifika youth (Lambie et al., 2007). Further, most programmes are developed in the United States with a variation in the numbers of indigenous and/or ethnic minority groups (Borduin et al., 1990; Dixon et al., 2015).

It is important to note that exploring issues by ethnicity is not to suggest that one ethnicity may be more likely to offend than any other (Adams et al., 2019; Lim et al., 2012) - rather, it is to enable genuine and equitable opportunities for treatment by addressing specific needs in these high-risk population groups.

Pasifika communities in Aotearoa NZ

Pasifika communities are a heterogenous population with fundamental similarities and subtle yet important differences between them. A fundamental similarity is the large emphasis placed on relationships (Reynolds, 2016; Tamasese et al., 2005; Vaioleti, 2006). Pasifika communities hold a collective and community focused worldview identified by the relationships held with one another—family, village, community—that includes the spiritual world and cosmos (Mo'a, 2015). Their identity is relational, and their values are relational, including - but not limited to - respect, love, humility and reciprocity. Rather than a western definition of such relational values, however, these values create the foundation by which Pasifika communities interact, socialise and identify with one another. Within Pasifika cultures, what governs the relationships is a theoretical construct known as Va:

> "Va is the space between, the betweenness, not empty space, not space that separates but space that relates, that holds separate entities and things together in the Unity-that-is-All, the space that is context, giving meaning." (Wendt, 1999, p. 402)

The Va has spiritual underpinnings, given the sacred obligations between and within Pasifika communities towards their families (Tuagalu, 2008). The Va creates a theoretical space, which, whilst not seen, is felt between people so that relationships are nurtured within the Pasifika worldview and are therefore fundamental to engagement within Pasifika communities (Ministry of Pacific Peoples, 2018). There are certain elements of the Va that create the boundaries and protocols (verbal and behavioural) with which Pasifika people relate to one another, for example, towards elders, professionals and spiritual/faith-based leaders.

Pasifika offending as a breach of relationships

Within a Pasifika worldview, when an offence is committed, the responsibility is not only held by the individual, it is also collectively shared by the family. An offence towards another person(s) and/or property can be seen as a breach of the Va. A breach of the Va in its most serious form is in either the act of violence or unwanted sexual behaviour towards another individual. When the Va is breached, there are physical, emotional and psychological impacts on the victim. There is also shame that the offender can experience, initially due to the impact of their behaviour on their own family, because their shame is held collectively by their nuclear and extended families. In addition to the legal consequences faced in western world countries, Pasifika people who engage in offending behaviour and their families must also face the cultural consequences of their behaviour, despite it being committed by an individual person.

In the Samoan culture, the process of ifoga is an act undertaken by the individual and their family to publicly display self-humiliation, in order to seek forgiveness from the victim(s) and their family (MacPherson, 2005). The consequences of their actions can include banishment from family and/or village, a permanent loss of relationships (which is significant, given the relational identity of Pasifika communities), and a shunned and shameful reputation for the family that can potentially last across generations. Given the evolving culture of Pasifika communities in Aotearoa NZ, cultural consequences of such behaviours can include the parent of a young person apologising to the victim(s) and their family, hence highlighting the collective responsibility of the family, despite the offence having been committed by an individual.

Even though there are these dual processes of law and lore that occur when a Pasifika person commits a crime such as sexual offending, little has been done to explore unique factors among Pasifika youth with harmful sexual behaviour that may exist and therefore require a specifically targeted approach.

Pasifika youth in Aotearoa NZ

Research about Pasifika youth highlight progress and challenges amongst this group (Clark et al., 2015). Findings from the Youth 12 survey[6] found that 17.1% (n = 1445) of the students surveyed identified themselves as Pasifika. Of concern is that the Pasifika youth in the survey reported a greater exposure to violence than did NZ European students (Fa'alili-Fidow et al., 2016). In addition, 22% of Pasifika students reported being forced to do sexual things they did not want to do and 39% had not told anyone about the abuse (Clark et al., 2015). This national study found that prioritising the wellbeing of Pasifika youth in Aotearoa NZ required the implementation of culturally appropriate interventions, programmes and services for Pasifika youth that took into account their diverse environment including family, school, church and community. Another study looking at

[6] This is a nationwide study that began in 2000 looking at the health and wellbeing of youth throughout Aotearoa NZ.

Pasifika youth found that positive relationships with family and friends, and a spiritual connection to "God" (a Christian God), contributed to positive wellbeing (Marsters & Tiatia-Seath, 2019).

Harmful sexual behaviour

Harmful sexual behaviour continues to have a significant and adverse impact on all victims including Pasifika, their families and the wider community (Rojas & Gretton, 2007). The relationship between the young person and their victim has been researched and often categorised depending on the age of the victim, whether children, peers or adults (Keelan & Fremouw, 2013; Seto & Lalumière, 2010). The review by Keelan and Fremouw in 2013 found a lack of definitive or predictive characteristics or differences between who might offend against children and those who offended against peers and/or adults. However, other studies showed that those who offended against children were more likely to offend against family members, compared to those who offended against peers that included female acquaintances and strangers (Aebi et al., 2012; Hendriks & Bijleveld, 2004; Hsu & Starzynski, 1990). Furthermore, those who offended against peers were more likely than those who offended against children to come from families within which they had more exposure to violence within the home and criminal activity and less adult supervision (Gunby & Woodhams, 2010).

With regards to behavioural problems, an early study found no differences in rates of externalising behaviours (conduct disorder) between those who offended against children vs. against peers or adults (Hsu & Starzynsky, 1990), whereas a later study found more conduct-related problems for those who offended against children (van der Put & Asscher, 2015). Research has also found differences when exploring behavioural problems and socioeconomic status between those offending against children versus those offending against peers/adults (Aebi et al. 2012; Leroux et al., 2016). Overall, results are mixed, given that an earlier study found no differences in externalising behaviours (conduct disorder) between the two groups (Hsu & Starzynsky, 1990), whereas another study found more conduct-related problems for those who offended against children (van der Put & Asscher, 2015). This is in contrast to a more recent study of lower numbers for those diagnosed with conduct disorder who had offended against children compared to those who had offended against same aged peers or adults (Leroux et al., 2016). In terms of internalising problems (such as depression and anxiety), previous studies have shown that those who offended against children were more likely to suffer frequent symptoms of depression and anxiety than were those who offended against peers or adults (Aebi et al., 2012; Gunby & Woodhams, 2010; Hart-Kerkhoffes et al., 2009; Hendriks & Bijleveld, 2004; Hunter et al., 2003). A further review in 2017 by Ueda found similarly that those who offended against children were more likely to show internalising behaviour problems such as anxiety (Fanniff & Kolko, 2012; Glowacz & Born, 2013), while those who offended against peers or adults were more likely to show externalising behavioural problems, such as conduct disorder (Glowacz & Born, 2013; Joyal et al., 2016). Consistent with previous studies, some research has indicated that rates of internalising behaviour problems and harmful sexual beahviour were similar across ethnic groups (according to Aebi et al., 2012) in the US and a Europe-based study by Glowaboth ethnic groups were found to show high rates of internalising behaviour problems (Aebi et al., 2012; Glowacz & Born, 2013).

There is limited research exploring patterns of harmful sexual behaviour towards peers/adults or against children amongst young people of diverse cultural backgrounds. A recent study comparing indigenous and non-indigenous youth in Australia with harmful sexual behaviour found that indigenous youth were more likely to commit their first sexual offence against a peer or adult compared to non-indigenous youth who tended to offend against younger people (Adams et al., 2019). This is also consistent with an earlier study that included an over-representation of indigenous Australian youth and found a tendency to offend against peer and/or adult victims (Allan et al., 2002). However, in contrast, studies in Sweden (Langstrom & Lindblad, 2000) and Australia (Rojas & Gretton, 2007) have also shown indigenous youth who offended against those younger than themselves, where they were (on average) in their mid-teens, while their victims were (on average) under 12 years of age. Interestingly, this difference of age and offending was not evident when comparing indigenous Māori and non-indigenous Pākehā youth with harmful sexual behaviour in Aotearoa NZ, as both were more likely to target younger victims than peer/adult victims (Lim et al., 2012).

A response to harmful sexual behaviour in Aotearoa NZ

Community interventions for harmful sexual behaviour in Aotearoa NZ are generally delivered by specialist agencies such as SAFE Network Ltd, which is located in Auckland, a city with the highest Pasifika population in Aotearoa NZ. A report in 2007 evaluated community treatment programmes for adolescents including Pasifika (Lambie et al., 2007). At that time, it was acknowledged that programmes did not meet the cultural needs of Pasifika youth, and there was also a lack of Pasifika clinicians despite the number of Pasifika referrals to the agencies involved. The report found that Pasifika youth had a 41% chance of not receiving treatment and only a 21% chance of completing treatment. Pasifika youth were at high risk of dropping out of treatment prior to completion, due to the young person withdrawing and/or a lack of funding by a statutory agency. Drop-out rates were 38% Pasifika, compared to 24% Māori and 23% NZ European. This is a significant concern given that youth who drop out of treatment are more likely to have higher rates of sexual and non-sexual recidivism (Lambie et al., 2007). To date, there has been no further research to explore this issue.

Purpose

The aim of this study was to a) explore and investigate the coexisting emotional and behavioural problems, and offending behaviour, of Pasifika youth with harmful sexual behaviour in comparison to Pākehā youth; and b) determine whether such improved understanding of

Table 1. Characteristics of the sample.

Variable	Pākehā *N* (%)	Pasifika *N* (%)
Parental Status		
Living with two biological parents	11 (25)	10 (22.7)
Living with one biological parent	33 (75)	33 (75)
Total	44 (100)	43 (97.7)[1]
Offence Type		
Sexualised touch/oral[2]	26 (59.1)	29 (65.9)
Penetration offences	18 (40.9)	15 (34.1)
Total	44 (100)	44 (100)
*Victim Type**		
Child-aged[3]	37 (84.1)	21 (47.7)
Peer/adult[4]	7 (15.9)	23 (52.3)
Total	44 (100)	44 (100)
*Relationship to Victim**		
Familial	26 (59.1)	14 (31.8)
Non-familial	14 (31.8)	28 (63.6)
Both familial and non-familial	4 (9.1)	2 (4.5)
Total	44 (100)	44 (100)
Historical Sexually Harmful Behaviour		
Evidence	17 (38.6)	13 (29.5)
No evidence	27 (61.4)	31 (70.5)
Total	44 (100)	44 (100)
*Historical Non-sexual Offending**		
Evidence	17 (38.6)	29 (65.9)
No evidence	27 (61.4)	15 (34.1)
Total	44 (100)	44 (100)

* $p < .05$;
1 Information on parental status for one case was unavailable; 2 Sexualised touch including oral contact; 3 Four or more years younger than offending adolescent and less than 12 years of age; 4 Three or less years younger/older than offender and under 18 or four or more years older than offender and over 18.

cultural factors of Pasifika youth with harmful sexual behaviour need to be incorporated as part of their therapeutic programme. It is envisaged that this study will provide information and guidance for the development and enhancement of future treatment practice for Pasifika youth that may also have relevance to indigenous and other ethnic minority groups of similar worldviews.

METHODS

Participants

The inclusion criteria for this study were being male, identified in their file as Pākehā (NZ European) or Pasifika (at least one parent being Pasifika), engaged in a "hands-on" offence[7] of a sexual nature, and that a Child Behaviour Checklist (CBCL; Achenbach, 1991) had been completed. An age-matched sample of 88 files (44 Pasifika, 44 Pākehā) were selected to audit. The mean age of the sample was 14.23 years old (*SD* 1.4 years).

This sample was derived from the assessment dataset. Ethnicity data were self-reported and included some ethnic specificity (such as being from Tonga, Tokelau or Samoa). However, this was not consistently reported in the files and also, out of only 44 age-matched files, specific island identity would have comprised very small subgroups. Therefore, the category 'Pasifika' was used. This acknowledges there are fundamental similarities between the worldviews of those identifying with Pacific island ethnicities, in contrast to those identifying with Pākehā/European worldviews, while also not discounting the cultural differences within and between Pacific communities that a larger-scale sample might be able to provide. Also, in line with standard Stats NZ practice in dealing with small populations, clients who identified with multiple ethnic groups were allocated to one. If identified as Pākehā/Other, they were classified as Pākehā; if identified as Pasifika/Other they were identified as Pasifika; if identified as Pākehā/Pasifika, they were identified as Pasifika. This latter group was identified as Pasifika as this study prioritised the Pasifika population, where the effects of racism would operate as if Pasifika (and 'brown'), even if they could also claim to be part of the majority 'white' population (Ross, 2014)..

[7] A "hands-on" sexual offence is defined as involving a degree of force, aggression, or coercion.

A coding number was assigned to each young person's file to ensure anonymity.

Measures

The Child Behavior Checklist (CBCL) is a checklist that looks at a child's functioning from a parent/caregiver's perspective (Parallel forms of the CBCL include a Youth Self-Report and Teacher's Report Form). The CBCL was selected for this study as there is evidence to suggest that this instrument is applicable for ethnically diverse children (De Groot et al., 1994) and it was the form most consistently completed across the files at the time of assessment.

The CBCL consists of 113 items that assess the emotional and behavioural problems of children between the ages of 4 and 18 in a standard format, as reported by parents or primary caregivers. Parents/caregivers rate to what degree each item describes their child on a 3-point scale: 0 (*not true*), 1 (*somewhat true*), and 2 (*very true*). The CBCL is an established and widely used measure with demonstrated content, construct, and criterion validity, as well as good reliability (mean *r* from .65 to .75 on interrater agreement of problem scales, mean *r* =.71 for test-retest reliability of problem scales over 2 years; Achenbach, 1991). The CBCL yields scores on three broadband scales and eight syndrome scales. The syndrome scales include Anxious/Depressed, Withdrawn/Depressed and Somatic Complaints (which contribute to the Internalizing Problems broadband scale); Rule-Breaking Behavior and Aggressive Behavior (which contribute to the Externalizing Problems broadband scale); and Social Problems, Thought Problems and Attention Problems (which complete the Total Behavior Problems broadband scale, determined by adding all eight syndrome scale scores).

Clinician-based information: Data were collected from information obtained at the initial assessment by SAFE clinicians, including -

Parental status. This was recorded as 1 = married or 2 = divorced, separated, or one or both parents deceased.

Offence type: This was classified dichotomously as a) sexualised touch and oral (that included oral contact) and b) penetration (attempted or completed) that included anal or vaginal. If the young person had offended in a) and b), they were categorised as b).

Victim type: A child victim was classified as a child who was four or more years younger than the young person at the time of the event, and below the age of 12 years old. Peer/adult victims were aged from 13 years, a categorisation similar to previous indigenous studies in this area (Adams et al., 2019; Lim et al., 2012)

Relationship to victim: This was classified as familial (known and/or relatives), non-familial (stranger).

Historical sexually harmful behaviour: Evidence for a history of sexually harmful behaviour is *present* or *not present* at the time of the data was collected.

Historical non-sexual offending: Evidence for a history of non-sexual offending is *present* or *not present*.

Procedure

The study was a subset of a larger study that looked at 600 adolescent males aged 11 to 18, who were referred to SAFE Network Ltd. If a young person is accepted to SAFE, they undergo a comprehensive individual and family assessment carried out by SAFE clinicians. It is generally agreed that Pasifika referrals will be seen by Pasifika clinicians as a priority. Depending on the recommendations of the assessment, if they are accepted into the SAFE programme, they will participate in individual, family and group therapy for between 6 and 18 months. For the purposes of this study, file data obtained during the assessment period were the primary source of data.

Ethics approval was granted by the University of Auckland Ethics Committee. Data were collected at the office of SAFE Network by postgraduate students responsible for coding the offence characteristics and background of the young person from each relevant file. This was carried out under the supervision of a clinical psychologist with more than 30 years' research and clinical experience working among young people with harmful sexual behaviour and in consultation with a Pasifika clinical psychologist.

Analysis

Data were analysed using the Statistical Package for the Social Sciences, version 17 and the R software package (version 2.12.2). Due to the small sample size alongside an inability to confidently determine the distribution of data, non-parametric testing was used. The Mann Whitney U test was used to compare any differences in the emotional and behavioural responses of Pasifika and Pākehā youth. Chi square analyses were used to test whether there was a relationship between the scores of the CBCL and ethnicity.

RESULTS

The characteristics of the sample are presented in Table 1. Chi square testing revealed no significant differences between the groups in parental status, offence type, and evidence of historical sexually harmful behaviours. Pasifika youth targeted a higher proportion of peer/adult victims (52.3%) than did Pākehā youth (15.9%) and this was significant ($\chi^2(1) = 12.95$, $p < .001$). The relationship of the Pasifika youth to the victim was significantly ($\chi^2(1) = 8.93$, $p = .0028$) more likely to be non-familial (63.6%), compared to Pākehā youth (31.8%). Finally, significance was approached by Pasifika youth ($\chi^2(1) = 6.56$, $p = .01$) who had a higher proportion of historical non-sexual offending (69.2%) than Pākehā youth had (23.1%).

Table 2 reports the mean T-scores for both ethnic groups on the CBCL subscales. The cut-off to be in the Borderline range is between 60 and 64, and in the Clinical range is greater than 65. The mean T-score fell in the Borderline range for Pasifika youth for Anxious/Depressed, Withdrawn/Depressed, Social Problems, Attention Problems, Rule-Breaking Behavior, Internalising Behaviors Total scale, Externalising Behaviors Total scale and Total Behavior Problems scale. The mean T-score fell in the Borderline range for Pākehā youth for Social Problems, Attention Problems and Rule-Breaking Behavior. There were no mean T-scores that fell within the Clinical range for Pasifika and Pākehā youth.

Chi square analyses were used to determine if there was a significant difference between the proportion of

Table 2. Child Behaviour Checklist for Pākehā and Pasifika youth with sexually harmful behaviour.

CBCL Subscales	Ethnicity	Mean T	SD T score	% in Borderline or Clinical range
Anxious/Depressed	Pasifika	61.59*	9.99	36.4
	Pākehā	57.16	8.85	15.9
Social Withdrawal	Pasifika	60.70*	7.56	29.5
	Pākehā	58.77	8.98	20.5
Somatic complaints	Pasifika	59.05	9.30	22.7
	Pākehā	57.09	7.90	11.4
Social Problems	Pasifika	61.05*	8.69	25
	Pākehā	60.27*	10.37	22.7
Thought Problems	Pasifika	59.66	8.29	25
	Pākehā	58.36	9.55	22.7
Attention Problems	Pasifika	62.00*	9.40	22.7
	Pākehā	61.93*	11.66	25
Rule-Breaking Behavior	Pasifika	62.82*	10.04	38.6
	Pākehā	61.32*	7.98	31.8
Aggressive Behaviour	Pasifika	59.58	9.46	15.9
	Pākehā	58.34	7.98	13.6
Internalising Problems	Pasifika	61.09*	10.80	59.1
	Pākehā	56.07	11.4	40.9
Externalising Problems	Pasifika	60.16*	10.80	52.3
	Pākehā	57.77	11.02	56.8
Total Problems	Pasifika	61.82*	10.70	61.4
	Pākehā	59.02	11.29	54.5

Notes: The Child Behaviour Checklist (CBCL) is the version completed by a Parent/Caregiver.
*T score falls in the Borderline or Clinical range

Pasifika and Pākehā youth scoring in the borderline and clinical ranges (BCR) for the CBCL subscales. Significantly more Pasifika youth (36.4%) than Pākehā youth (15.9%) scored in the BCR for the Anxious/Depressed subscale ($\chi^2(1) = 4.77$, $p = .029$). Therefore, there was a significant difference in the Anxious/Depressed subscale reported for Pasifika youth when compared to Pākehā youth. There were no significant differences between the proportion of Pasifika and Pākehā youth scoring in the BCR for the remaining subscales.

Mann Whitney U tests were carried out to examine differences between Pākehā and Pasifika adolescents (Table 3). Pasifika youth had significantly higher scores on the Anxious/Depressed syndrome scale and Internalising subscale than did Pākehā youth. Scores for Pasifika youth and Pākehā youth did not differ significantly on the remaining subscales.

DISCUSSION

This study found that Pasifika youth who engage in harmful sexual behaviour were more likely to display symptoms of anxiety and depression and have higher rates of internalising problems compared to Pākehā youth. Secondly, Pasifika youth were more likely to offend against peer/adults who were more likely to be unknown to them, whereas Pākehā youth were more likely to target child victims that were known to them.

Overall, Pasifika youth showed significantly higher rates of Anxious/Depressed symptoms and internalising problems than did Pākehā youth. This is consistent with previous findings among youth with harmful sexual

Table 3. Mann Whitney U statistic, means and standard deviations comparing Pākehā and Pasifika *CBCL subscales*.

CBCL Subscales	Pākehā ($N = 44$)		Pasifika ($N = 44$)		U-Statistic
	Mean	SD	Mean	SD	
Anxious/Depressed	4.45	4.41	6.43	5.06	722.0*
Withdrawn/Depressed	3.50	3.34	4.30	2.84	782.5
Somatic complaints	2.05	2.73	2.82	3.14	846.0
Social Problems	4.09	3.88	4.43	3.31	878.5
Thought Problems	2.77	3.80	3.39	3.45	809.5
Attention Problems	7.52	5.07	8.23	4.18	841.5
Rule-Breaking Behaviour	5.91	3.80	7.55	6.30	875.5
Aggressive Behavior	8.66	6.70	9.51	6.95	881.0
Internalising Problems	9.86	8.98	13.07	8.64	708.0*
Externalising Problems	14.57	10.29	16.93	12.22	905.5
Total Problems	43.41	30.86	51.41	29.69	805.5

*Notes: * p <.05*

behaviour (Aebi et al., 2012; Glowacz & Born, 2013). Whilst both groups showed borderline levels of Social and Attention problems, and Rule-Breaking behaviour, Pasifika youth also showed borderline level scores on the Anxious/Depressed and Withdrawn/Depressed subscales. These findings, whilst not clinically significant, require further consideration, as scores in the borderline range are high enough to initiate concern, even while not defining clinical deviance (Achenbach & Rescorla, 2001).

In terms of offending, Pasifika youth were more likely to target a higher proportion of peer/adult aged victims than were Pākehā youth, and their relationship with them tended to be non-familial. Pasifika are not 'indigenous' in Aotearoa NZ, but share the racist positioning and negative portrayals by the dominant Pākehā majority that the indigenous Māori face as a "brown Other" (Matika et al., 2021; Ross, 2014), so patterns associated with colonised, ethnic minority status could be relevant. For example, studies comparing indigenous and non-indigenous youth found that indigenous youth were more likely to commit a sexual offence against a peer or older individual, compared to non-indigenous youth who tended to offend against younger victims (Allan et al., 2002; Adams et al., 2019). Yet, in contrast, other studies have found indigenous youth were more likely to sexually offend against those younger than themselves (Langstrom & Lindblad, 2000; Rojas & Gretton, 2007) or were more likely to target child victims than peer/adult victims (Lim et al., 2012[8]).

Alternatively, Ross (2014) and Wood et al. (2000) suggest, based on similar patterns with South African youth, that there may be different trajectories of offending, where youth who target known, younger victims may be indicating a developing pattern of sexual deviance, and youth who offend with unknown peer/adult victim(s) may be more indicative of sexual experimentation. In reference to our study findings, the harmful sexual behaviour of Pasifika youth towards peer/adult victim(s) may therefore be a reflection of sexual experimentation and immaturity.

Our findings, that these Pasifika youth have more internalising problems and more non-familial peer/adult victims than do Pākehā, are generally in contrast to previous research that has found higher rates of anxiety/depression among those who offend against children rather than peers/adults (Aebi et al., 2012; Fanniff & Kolko, 2012; Glowacz & Born, 2013; Hunter et al., 2003; Lim et al., 2012). In addition, those with higher rates of externalising behaviours tended to offend against peers/adults (Glowacz & Born, 2013; Joyal et al., 2016), which is also in contrast to our findings.

Based on wider Pasifika and youth research, and our clinical knowledge, there may be a number of factors contributing to these results that need to be considered, and that also point to different approaches to interventions that may be required. These are outlined briefly in turn below, including Pasifika parents' style of reporting on the CBCL; rates of family violence that Pasifika experience; different cultural responses to depression; how the Va may be (mis)understood; the taboo nature of conversations about sex in Pasifika families; social skills needed in developing sexual and age-appropriate relationships; and wider patterns of offending that may also affect harmful sexual behaviour.

Firstly, the CBCL is completed by parents/caregivers, who may underestimate a Pasifika young person's genuine emotional and behavioural response when in the presence of their parents or in the family home. The notion of the Va between Pasifika parents and children may lead to unintended masking of emotions by young people in the family home that may also impact on their genuine engagement in therapy, as it assumes appropriate and suitable behaviour between people (Refiti, 2002 as cited in Mila-Schaaf, 2006).

Secondly, whilst this study did not specifically explore exposure to or experience of family violence, Pasifika youth in Aotearoa NZ in general continue to be exposed to violence within their homes at relatively high levels (Fa'alili-Fidow et al., 2016), and this is particularly apparent in youth with violent offending behaviours (Ioane et al., 2016). Associations between youth offending towards others and exposure to family violence are consistently found (e.g., Gunby & Woodhams, 2010) and family violence exposure can contribute to a number of emotional and behavioural problems during child and adolescent development, which may be reflected in the different emotional/behavioural patterning of Pasifika youth with harmful sexual behaviours, compared to those from other communities.

Thirdly, responses to depression are culturally diverse. In Aotearoa NZ's extensive Youth '12 survey, similar proportions of Pasifika and Pākehā students reported significant depressive symptoms, but Pasifika students were more likely than Pākehā to report self-harm and three times more likely to have attempted suicide within the previous 12 months (Fa'alili-Fidow et al., 2016). Given the high risk of self-harm and suicidal behaviour among Pasifika youth in the community, and the higher number of emotional and behavioural problems found in this study compared to Pākehā, it is imperative that interventions include an exploration of emotions and behaviours within a cultural context. Cultural issues may also be seen in the fact that Pasifika young people are more likely to be diagnosed with a serious mental health disorder than were the older Pasifika generation (Foliaki et al., 2006); more likely to report an experience of ethnic discrimination by health professionals than are Pākehā youth (Crengle et al., 2012); and experience a range of differences in the way Pasifika communities understand health (and mental health) within a cultural context (Pulotu-Endemann & Tu'itahi., 2009). Therefore, it is imperative that professionals have a clear understanding of what Pasifika communities define as depression (and other mental health issues) prior to discussing treatment and care plans.

Fourth, there is the question of Va. The current finding that Pasifika youth are more likely to target peer/adult victims who are non-familial suggests (from a cultural

[8] Child victims are victims that were four or more years younger and under 12 years of age.

perspective) that further exploration regarding the role of Va and relationships amongst Pasifika youth with harmful sexual behaviour is needed. In our clinical experience, Pasifika youth appear to provide a rationale and minimisation of their behaviour by highlighting the non-relational aspect of their victim; indeed, for some, acknowledging that they did not offend against a family member or known person makes their behaviour less offensive from their perspective. The Va is what governs a relationship and is a fundamental component of being Pasifika. However, in this context, the Va appears to be misunderstood and/or incorrectly applied. From the perspective of the person who has offended, the Va occurs when you have a pre-existing relationship with a person(s) and/or property and does not necessarily apply when the offence is against someone who is unknown to you. Therefore, this cognitive distortion may justify the offence. As a result, this cultural misinterpretation of their behaviour may be crucial to informing their treatment plan. This suggests that the notion of the Va is an area for further analysis and context that may be a crucial component in therapy when working with Pasifika communities engaged in harmful sexual behaviour. It also highlights that a lack of deep cultural understanding (which is typically gained in safe, culturally robust families and communities) may be a risk factor for offending, where young people have grown up in disadvantaged communities that include unsafe, culturally disenfranchised environments. This finding is consistent with a recent review that highlights family history and dynamics should be included as part of treatment as well as the establishment of trusting therapeutic relationships (Lateef & Jenney, 2020).

Fifth, the targeting of peer/adult victims by Pasifika youth may also suggest an issue with a lack of sexual knowledge and maturity, where offending relates to sexual experimentation, as Wood et al. (2000) suggest, rather than the sexual deviance suggested by those who target younger, known victims. Sexual experimentation also makes sense culturally, although further research is needed. The Va between parents and young people within Pasifika may inadvertently inhibit conversations about taboo subjects such as sex, sexuality and drugs. This may put Pasifika young people at risk by avoiding subjects of sex with their parents/caregivers and reverting to information from peers and the internet that may be incorrect or based on sexually exploitative norms. A recent study looking at the influences on Pasifika youth regarding relationships showed that the most prominent source of learning came from family, with the influence of friends being a limited source of information (Savaii, 2017). This was a surprising result, given the global literature about the influence of friends in young people's relationships, but it highlights the risks of assuming that global literature regarding youth can – or should - be generalised to Pasifika, indigenous or other ethnic minority cultures. If Pasifika youth are more likely to look to their families for sexual information, and that subject is particularly taboo for those families, the risks of sexual ignorance and abusive experimentation may be heightened. Whilst schools, in general, provide sexual education, it is unclear how much of this has occurred among young people engaged in harmful sexual behaviour towards others. More research is needed.

Sixth, offending by adolescents with harmful sexual behaviour against peers or adults is aligned with an explanation that focuses on social incompetence; that the young people do not have the social skills to meet their sexual and emotional needs when attempting to engage in age-appropriate and consensual relationships (Ward & Siegert, 2002; van den Berg, 2017). This theory appears to be substantiated in a recent study of Pasifika youth (Savai'i, 2017), which showed participants did not know how to appropriately approach another individual nor be able to genuinely ascertain whether someone of the same age was interested in them, particularly if their primary source of understanding relationships came from within the family home. Also, given the greater exposure to violence reported by Pasifika young people in their homes (Clark et al., 2015), there are potentially further misreadings of social cues and consent that have been learned. This also highlights the importance of having family-based interventions alongside the inclusion of cultural norms and values that define Pasifika families in any treatment programme for Pasifika youth with harmful sexual behaviour.

Seventh, another unique characteristic of Pasifika youth with harmful sexual behaviour, compared to Pākehā youth, was having a history of offending behaviour that was non-sexual and approached statistical significance. In contrast, other studies involving ethnic minority vs dominant majority youth show the two groups have similar histories of antisocial attitudes and behaviours prior to the onset of a sexual offence (Adams et al., 2019; Cale et al., 2017), meaning that engagement in sexual violence may be a continuation of established antisocial behaviour (Lussier, 2017). The finding in this study of Pasifika youth having a history of offending behaviour that was non-sexual requires further exploration. Pasifika youth in Aotearoa NZ tend to have shorter offending histories compared to indigenous and Pākehā youth; yet the offending is more violent and severe (Ioane et al., 2016). This further adds to the discussion that if learning for Pasifika youth is influenced from within the family home where violence can exist (Fa'alili-Fidow et al., 2016), this reinforces the need to include family in any intervention targeting young people with harmful sexual behaviour. From a cultural perspective, this becomes even more important given the collective worldview of Pasifika communities and the importance of the Va in building and maintaining relationships as part of one's shared identity.

Finally, given that most of the authors have lived experiences as Pasifika *and* as clinicians, we acknowledge the ongoing social and economic pressures faced by Pasifika people in Aotearoa NZ and throughout the globe. Pasifika people in Aotearoa NZ continue to live in areas of high deprivation (Ministry of Health, 2019), low income (Pacific Perspectives, 2019) with major health inequities and poor health outcomes (Ministry of Health, 2020). Furthermore, racism and discrimination towards Pasifika people have been identified as barriers to accessibility and provision of appropriate services (HDSR, 2019). Therefore, any intervention with Pasifika

communities must be holistic in its approach in order to recognise the social and economic determinants that impact on wellbeing and prosocial life outcomes.

Limitations of the study

This study comes with a number of limitations. Firstly, the small sample size indicates that the findings must be taken as exploratory, but are valuable in providing new knowledge about this unique and vulnerable population in Aotearoa NZ that may be of relevance to other ethnic minority communities internationally. Also, given the differences in findings from research with dominant, mainstream youth with harmful sexual behaviour, further research is indeed warranted to determine how these unique features of Pasifika youth who engage in harmful sexual behaviour could benefit from a more targeted and cultural intervention.

Secondly, whilst the data collected and analysed are tightly focused, the significant differences found in this study between Pasifika and Pākehā youth appear to be consistent with the differences between the individual (e.g., Pākehā) and collective (e.g., Pasifika) worldviews. It further validates the need for interventions to be targeted to the culture and worldview of the client population and with cultural understanding by practitioners who work among those with harmful sexual behaviours. The classification of ethnicity in the study to two ethnic categories (Pasifika or Pākehā) was appropriate to the sample size and typical of research, but we would like to see more nuanced detail of ethnicity being explored, as the term "Pasifika" covers a diverse range of island cultures, and family members both born in or migrating to Aotearoa NZ, that cannot entirely capture the increasing diversity of Pasifika communities in Aotearoa NZ. Further consideration and discussion are needed to identify ways to more deeply reflect the diversity of Pasifika communities in data collection and research.

Thirdly, the data collected are from the responses of parents/caregivers and are likely to be an underestimation of how their child may respond given the cultural concept of the Va that can have an impact on the relationships between Pasifika parents and their children.

Finally, a key limitation may be the methodology using administrative client file data and psychometrics (the CBCL). The use of psychometrics that have been normed on another culture, and the appropriateness of drawing on offence data and demographics of Pasifika communities, can be problematic. Further studies to respond to these limitations would be through the development of other measures normed on Pasifika, and the inclusion of a qualitative Pasifika methodology such as Talanoa (Vaioletti, 2006) or the Kakala framework (Fua, 2014) as a means to gathering data in a culturally and respectful manner. This could include qualitative exploration to gain direct and authentic insights from the Pasifika community on understandings of harmful sexual behaviour.

Clinical implications and further research

This study has many clinical implications for those working in this field. Firstly, an understanding of Pasifika worldviews is crucial to working with these communities. This includes an understanding of Pasifika communities, the relevance of relationships and their common aspects of shared or collective identity; helping young Pasifika with harmful sexual behaviour develop a cultural understanding of the impact of their offending behaviour on their victim(s) and family; and working with the families of offenders and victims, rather than taking only an individualised treatment approach. This would involve incorporating the notion of the Va and how this may impact on therapy and engagement with Pasifika young people.

Secondly, the findings of this study show the unique features of Pasifika youth engaging in harmful sexual behaviour. They are more likely to offend against peers/adults and are more likely to display emotional and behavioural symptoms consistent with anxiety and depression. Therefore, in response to these findings, treatment plans should include psychoeducation on topics like understanding and managing emotions, sex and sexuality, that are often taboo; learning appropriate communication strategies with peers, parents and caregivers; and better identifying and managing emotions and behaviours before anxiety and depression spiral. Family-based interventions are likely to be more successful and should be further researched.

Thirdly, more clinical research is needed including further analyses of the background and offending characteristics of the diverse Pasifika population and comparative evaluations of the effectiveness of treatment-as-usual, mainstream programmes and more culturally nuanced programmes.

Conclusion

This study found that Pasifika youth targeted harmful sexual behaviour at same age or older victims who were not known to them, had a more extensive history of non-sexual offending behaviour prior to the sexual offending, and exhibited higher levels of emotional and behavioural problems, than did Pākehā youth. These findings suggest that the harmful sexual behaviour of Pasifika youth should be viewed within a relevant cultural and clinical context, including a broader understanding of the social and economic disparities that may contribute to family violence, cultural disenfranchisement and the emotional and behavioural difficulties that Pasifika young people experience. Cultural norms based on the Va that underpin family and clinical relationships and how to approach sexual relationships must be considered. As a result of the collective worldview present among Pasifika and other collectivist cultures throughout the world, the development of cultural and clinical treatment models within a collective, family-based foundation is crucial in our ongoing attempts as practitioners, policy makers and researchers to improve the current and future outcomes of Pasifika youth and their families.

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Story, Myth, and Pūrākau: An Exploration of the use of Narrative in the Therapeutic Setting in Aotearoa New Zealand

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The use of culturally appropriate approaches to therapy is in its infancy in Aotearoa New Zealand, with western psychological models dominating. This study explored how psychological health professionals in Aotearoa New Zealand use story, myth, and pūrākau[1] in their practice. Practitioners were asked about their rationale for choosing this approach, its advantages and challenges, and their beliefs regarding the fit of this modality within psychological practice. The findings reveal a collective appreciation of the value of story, myth, and pūrākau alongside other therapeutic modalities particularly, but not exclusively, for Māori. Story, myth, and pūrākau are valued for allowing clients to bring their own meaning and significance to the narrative, as well as the benefits of self-determination. The power of the archetype is explored, and the importance of connecting with unconscious and spiritual elements when working therapeutically with Māori.

Keywords: *Māori, Indigenous Psychology, Clinical Practice, Narrative, Pūrākau*

Introduction

The discipline of psychology is founded in logical positivism; historically, scientific knowledge was only defined as such if it met a logical positivist definition of well supported empirical evidence gathered via systematic scientific observation (Dienes, 2008). Ideas sitting outside this paradigm were considered pseudo-science (Dienes, 2008). Today, this logical positivist epistemology still underpins clinical practice in western countries, driven, in part, by a desire to verify and build on scientific knowledge with an absolute reliance on funding from specific instrumental and influential powers (Berry, 2015; Levy & Waitoki, 2015). The western institutions, systems, rules, and artefacts that constitute good clinical practice have been exported globally with limited consideration of whether the inherent values, beliefs, and practices embedded within this epistemology are psychologically helpful for peoples of diverse contextual and cultural backgrounds (Berry, Poortinga, Segall, & Dasen, 2002). Non-western cultures and Indigenous peoples have used culturally aligned approaches to health and wellbeing effectively for centuries (Berry, 2015). Despite this, these approaches have been disestablished and replaced with a western 'one size fits all' approach that is considered the empirically and scientifically valid way of assisting all peoples with their mental distress (Christopher, Wendt, Maraceck, & Goodman, 2014; Rohleder, 2012).

The validity of a western scientific approach to wellness is not in contention in this study as there is ample evidence of its merits for certain populations (Rohleder, 2012). Rather, the argument rests on the shortcomings of this approach in the face of a legitimised other (Tipene-Leach, Abel, Hiha, & Matthews, 2019). For Indigenous peoples globally, their traditional, culturally appropriate, and historically validated approaches to wellness have been consigned to a lower order, or silenced completely (Berry, 2015; Levy & Waitoki, 2015). A disastrous outcome of this is that communities of people from different cultural backgrounds have been relegated to the position of "consumer or subject" of western psychological practice (Berry, 2015, p. 343). That is, western psychological models have been 'tried out' on them, in the hope that it might make a difference.

At the same time, psychological practices that differ from the current western paradigm have long been espoused in the field of psychology (Lahad, 2017). Of particular significance to this research project is Jungian theory. Jung's (1961) theory was based on the premise that emotional distress or complexes of the psyche could in part be reconciled by exploring comparative mythological material as a means of constructing a new reality by way of moving from the unknown to the known. According to Jung (1961), mythological material offers a symbolic and psychological bridge, a pathway forward from discomfort and uncertainty by way of archetypal characters and storylines (Adams, 2001).

Joseph Campbell (1949), a scholar in mythology and world religions, also valued story, mythology, and legend for their therapeutic contribution and inclusivity of symbolic reference. He argued that, regardless of culture, society, or religion, a monomyth exists which represents a developmental model associated with change in conscious and unconscious life patterns. According to Campbell (1949), "It would not be too much to say that myth is the secret through which the inexhaustible energies of the cosmos pour into the human cultural manifestation" (p. 1). As such, storytelling was valued as

[1] Te reo Māori words are used without English translations in this article. A glossary of definitions is provided.

an opportunity for growth, conflict resolution, and transformation (Campbell, 1949; Kottler, 2015).

Universal Content and Themes

The idea of 'universality' has been rejected by some minority groups, Indigenous peoples, and critical theorists as being representative of a way of thinking that has silenced differing epistemological voices in science and psychology (Levy & Waitoki, 2015; Rohleder, 2012). Other researchers and theorists have employed the term 'universal' to explain the idea that regardless of geographical location or culture, there are 'universal' narratives, themes, and symbols captured by story, myth, and pūrākau (Campbell, 1949; Lahad, 2017). Māori define pūrākau as a narrative passed down over time to provide Māori with a road map or charter to live by and to assist and make sense of life and human existence (Levy & Waitoki, 2015).

This idea of there being 'universal' narratives, themes, and symbols in story, myth, and pūrākau, can be easily identified in the story of creation where multiple cultures and nations across the globe have captured and given voice to a similar narrative, each narrative in the story of creation describing a place of darkness, chaos, and gaping emptiness. For Māori, pūrākau uses the term te kore (the void) to define the time preceding the earth's beginning (Lahad, 2017). The resounding question is how this content, these symbols and metaphors, could be so similar given the magnitude of geographical distance and diversity (Lahad, 2017).

Jung's (1961) theory of archetype and the collective unconscious addresses this. He theorised that all people have a collective unconscious, a universal pattern of thought which has been replicated since the beginning of time. Within this, archetypes become a part of every individual's psyche with story deeply embedded in our collective unconscious, and as such, woven into the fabric of culture across the globe. These stories and their meaning serve as an antidote to the daily stresses encountered in a sometimes chaotic and unpredictable world (Campbell, 1949).

Theorists have identified different but related benefits of myths and stories. Lahad (2017) argues that mythology has been closely linked with survival. Etching stories into the walls of caves, or telling the tragic tale of Icarus' fall from the sky, was less about storytelling for enjoyment, and more about managing uncertainty and fear. People tell stories as a way of meaning-making in the face of difficult circumstances; for example, incorporating feelings associated with near death experiences into an understandable, palatable narrative (Lahad, 2017). In te ao Māori, pūrākau are seen as more than just stories – they are used to portray and share ancestral knowledge as a guide to how to be in the world.

Rollo May, whose work centred on the value of mythology in regard to psychological wellbeing, argued that human beings have an innate desire to believe in something greater than themselves to bring meaning and purpose to their lives (Rabinowitz, Good, & Cozad, 1989). May suggested that, prior to the twentieth century, myth provided moral standards and a vision of promise to enable people to connect life's complicated and diverse experiences. He suggested society's loss of interest in myth as a spiritual guide has resulted in a global, exponential upsurge in spiritual, social, and psychological discontent (Rabinowitz et al., 1989).

In a final example, Thakrar, Mukadam, Patel, Lakdawala, and Thakrar (2019) explored how western theory aligned with Indian mythological concepts, acknowledging the tension in Indian culture between science and spirituality in relation to wellness. According to Thakrar et al. (2019), the therapeutic value of mythological stories is that they provide simple, lucid, and palatable explanations for psychological distress. Thakrar et al. (2019) suggest that a balance between science and spirituality is important, highlighting that those who remain faithful to the spiritual and religious explanations afforded by mythological narrative profit from an alternative explanation; this explanation is beneficial in terms of a broader understanding of the genesis of the psychological disturbance and its possible trajectory.

Practices Across the Globe

Despite the dominance of western psychologies, there are examples of cultures and practitioners that have remained loyal to the therapeutic benefits of story and myth as primary psychological tools of practice. For example, Dwivedi (1997), a clinical teacher in the Faculty of Medicine at the University of Leicester, described a therapeutic setting whereby stories act as a template onto which clients project their own life events. Like Jung and Campbell, Dwivedi (1997) purports that the power of story and myth lies in the client putting themselves into the shoes of the characters, offering a bridge to understanding and a solution to reducing psychological distress.

Grounded in a similar theoretical framework, the Sesame Approach to Drama and Movement explores personal material in the therapeutic space (Porter, 2014). This goes beyond simply exploring the mythical storyline, valuing enactment and embodiment through drama and movement (Aguilera, Reed, & Goulding, 2020; Natan, 2011; Pearson, Panufnik, Smail, & Watts, 2013). Like Jung, proponents of the Sesame Approach believe that myths are ancient stories that contain images and symbols reflective of all human experience. This offers an opportunity to make meaning via the revelatory content in the myth, which the client may previously have been unaware was available to them (Pearson et al., 2013).

Another example is seen in play therapy. According to Rubin and Livesay (2006), story and mythology, specifically Joseph Campbell's Hero's Journey, are critical to the efficacy of play therapy. Rubin and Livesay (2006) suggest that the hero in mythological or fantasy story facilitates focus with regard to what is important to the individual child engaged in therapy. The character's journey offers hope for the future and new social insights via symbols and metaphors that are easily understood and integrated (Rubin & Livesay, 2006).

In a final example, Padulo and Rees (2006) have used storytelling with young women with eating disorders. As control issues related to denial and resistance to change are prominent features in these disorders, Padulo and Rees (2006) argue that a therapy which removes control from

the therapeutic space can be more effective. A narrative therapy approach externalises the eating disorder from clients, allowing attention to be given to the symbols and metaphors in story, and mediating the client's need for control in the therapeutic space.

Aotearoa New Zealand

Psychological practitioners and researchers in Aotearoa New Zealand are also looking to alternative practices to meet the psychological needs of its people. Māori are overrepresented in mental health statistics, including reporting significantly higher rates of disorders such as anxiety and depression (Kvalsvig, 2018), and the limitations of western scientific psychology are increasingly being recognised (New Zealand Psychological Society, 2002). Professionals and researchers are recognising that cultural heritage, te ao Māori, and mātauranga Māori require space in the field of psychology to heal those who are spiritually, mentally, and physically unwell.

Black and Huygens (2016) suggest that, alongside Indigenous psychology, a distinctly Pākehā psychology, which endorses and supports both western and te ao Māori health practices, needs to be developed. This psychology would not assume western academic values and principles as the foundational epistemological standpoint, but would promote epistemologies, processes, and practices familiar to Māori, negotiated and accounted for alongside tangata whenua (Black & Huygens, 2016). Incorporating the values, beliefs, and ways of knowing familiar to the worldview of those who are receiving the psychological assistance would be a step towards cultural social justice (Black & Huygens, 2016; Tipene-Leach et al., 2019).

Of particular relevance to the current research is discussion on how pūrākau might add value to the therapeutic setting when working alongside Māori (Levy & Waitoki, 2015). Māori do not use the term myth to describe the cultural stories of their tīpuna. These taonga are described as pūrākau. Pūrākau are considered a cultural narrative inspired from the natural, social, and spiritual worlds of Māori. Pūrākau are intricately crucial to Māori identity, and the sustainability and health of Māori people. They are shared to generate knowledge, and articulate expectations for whānau, iwi, and cultural practice. Pūrākau promote resiliency, offer hope, and inform collective responsibility for a Māori way of life. As such, pūrākau are considered sacred to Māori (Levy & Waitoki, 2015). For Māori, pūrākau are a validating and instructionally legitimate charter to live by, central to communication, building an understanding of life, and the human experience. According to Levy and Waitoki (2015), pūrākau can be drawn on as a template for therapeutic practice in current healthcare settings.

Many psychological health professionals in Aotearoa New Zealand including clinical psychologists, counsellors, and arts therapists, strongly espouse the virtues of using story, myth, and pūrākau in clinical practice. For instance, Auckland arts therapist Marion Gordon-Flower (2019) has developed an archetypal arts therapy approach, based on Jung's work, to assist people with physical disabilities. She uses art, dance, drama, and music to explore historically significant archetypal characters, mirroring the client's own therapeutic journey and challenges. Gordon-Flower (2019) suggests working this way is liberating and empowering, enhancing client self-esteem.

More specifically, clinical psychologist and kaupapa Māori teaching clinician, Lisa Cherrington (2003) argues strongly for the place of pūrākau in Māori psychology. Pūrākau such as the creation story transmit Māori historical knowledge, support social mores and conventions, and have benefits for Māori mental health and wellbeing. Cherrington (2003) suggests there is considerable therapeutic benefit in telling stories about atua to tangata whaiora and whānau to enable the exploration of personal experiences of those who have gone before, in relation to individual characteristics and traits. Alongside pūrākau, Cherrington (2003) espouses the value of including a broad range of creative Māori cultural practices to deepen the therapeutic process.

In 1996, while employed as a psychiatric nurse, Dr Diana Kopua developed Mahi a Atua, a Māori therapeutic intervention that involves the sharing of pūrākau with whānau members to provide support, and to help reconnect with Māoritanga and mātauranga Māori principles and practices (Kopua, 2020). Those who have engaged with Mahi a Atua as a practice have suggested that this taonga has helped shift perspective and has created movement and provided healing; the spiritual qualities embedded in this taonga are considered extremely valuable to the therapeutic process. The service Te Kūwatawata in Gisborne, Aotearoa New Zealand has been founded on Dr Diane Kopua's work, Mahi a Atua. This is a space which has been established alongside local mātauranga Māori wānanga to deploy a te ao Māori methodological approach to mental health and wellbeing within a mainstream mental health service (Rangihuna, Kopua, & Tipene-Leach, 2021; Tipene-Leach et al., 2019). Te Kūwatawata clinicians use pūrākau in a myriad of ways: as an engagement tool, as part of the assessment framework, and as an intervention process. Pūrākau and the associated archetypal characters provide an external focus for discussions of psychological distress and trauma. The service does not abandon western psychological approaches to wellness, but rather seeks to emphasise and promote Māori voices, cultural practices, and processes as beneficial to tangata whenua (Tipene-Leach et al., 2019). According to Kopua, Bracken, and Kopua (2020), the use of pūrākau in Aotearoa New Zealand as the primary psychological framework to treat mental health issues is promising, however research on its success is currently limited. They presented two case studies using Mahi a Atua and pūrākau in different mental health scenarios to help the families involved make meaning of the conflicts and difficult emotions they were experiencing. From that they identified factors that might facilitate or constrain the use of Māori interventions such as pūrākau including the identity of the clinician, their perceived knowledge, confidence and ability to integrate two world views, as well as wider systemic factors related to resourcing and the need for specialized Kaupapa Māori training and wānanga for staff.

Research Aims

Despite these examples of practice, little is known about the experiences of psychological health practitioners currently using story, myth, and pūrākau in their practice. This research addresses this gap, exploring how practitioners in Aotearoa New Zealand are challenging the status quo relative to what is considered good clinical practice according to western scientific psychology. Specific research questions include: how and why do practitioners use story, myth, and pūrākau in their practice; and what do they see as the benefits and challenges of this approach.

METHODS

Participants

Eight therapeutic practitioners (seven female, one male) with at least four years' experience in the field of psychological health and wellbeing were recruited through the first author's professional networks. Seven participants were trained in arts or narrative therapy and one in clinical psychology. Two participants identified as Māori, one as British, one as Hungarian, and four as Pākehā or New Zealand European. To ensure participants' anonymity, pseudonyms were chosen by the participants and any identifying details were removed during transcription.

Procedure and Analysis

Semi-structured, one-hour interviews were conducted online, recorded, and transcribed. The interviews explored participants' training backgrounds, experiences, and perspectives on the use of story, myth, and pūrākau in clinical practice. Specific questions included: how participants use pūrākau, story, and mythology as an intervention when practicing therapeutically with those in their care, their rationale for choosing this way of working, the strategies and techniques they tend to employ, the advantages and challenges of these approaches, and their thoughts on how practitioner training could facilitate the use of these approaches.

Interpretative Phenomenological Analysis (IPA) is a valuable method of qualitative analysis to explore sensitive or under-explored topics (Flowers, Davis, Larkin, Church, & Marriott, 2011) and therefore was appropriate for this project. The idiographic commitment of IPA lends itself to meaning making, which requires the explication of feelings, thoughts, and expressions regarding the phenomenon of interest (Smith, 2019); in this case, participants' lived experiences of using story, myth, and pūrākau in practice. Both the participants' experiences and the researcher's interpretation of those experiences are critical to the IPA process. IPA aims to uncover hidden themes by exploring clues to the lived experience of the phenomenon, which lie within the transcribed material (Martin & Sugarman, 2001). The primary analysis was conducted by the first author who, as is appropriate within IPA, immersed herself in the transcripts to identify initial themes which captured singular perspectives or shared understandings of the lived experience of the phenomena of interest. Following the establishment of initial themes, each theme was given a code as a way to easily identify and allocate portions of the text. From this point forward, the transcripts were each meticulously read and reread, with portions of the text highlighted and coded back to the initial themes. This process came to a close when each transcript had been coded completely, indicating all perspectives and shared meanings had been coded to a particular category.

RESULTS

Participants advocated for the use of story, myth, and pūrākau in the therapeutic setting within the Aotearoa New Zealand mental health space. They predominantly discussed the advantages of using this modality with both Māori and non-Māori clients, and considered the approach as a valuable adjunct to a range of other therapies.

Four themes structure the findings:

- Benefits of narrative: metaphor and identity
- Safety in distance
- Beyond just cognitive therapy
- Pūrākau: kia tūpato

Benefits of Narrative: Metaphor and Identity

Metaphor is a way of connecting not just words but conceptual frameworks; it is a transition of thinking from one constellation of concepts to another. The use of metaphor in narrative is part of the creative process and is not intended to simply convey facts but rather it enriches a storyline with imagery. A metaphor literally stimulates the mind to imagine (Maratos, 2006).

The participants discussed the value of metaphor in narratives in contrast to western approaches to diagnosis. They were somewhat critical of the direct and targeted approach of western psychological models when working with both Māori and non-Māori clients. Participants highlighted how western psychology relied on categorical diagnoses, along with complex language and jargon, indicating that this framework was unhelpful. They suggested the language embedded in these ways of working was often clinically orientated and therefore inaccessible to the clients' understanding of their psychological distress.

> "[Story, myth or pūrākau] moves away from that DSM-4 pathology… in terms of diagnosing me as, you know, I'm an addict, or I'm a 'this'… I'm stuffed, this is me, I'm broken'." – Selina

Selina emphasised the consequences of labelling for clients who have been diagnosed with a mental health disorder, indicating that the stigma attached to a diagnosis can invoke feelings of defeat and self-deprecation. Selina's perspective illuminated the potential negative effect of clinical analysis, noting that this was at times unfavourable when there was another legitimate and less intimidating pathway to explore issues of concern or psychological distress.

In terms of working specifically with Māori clients, Althea went further, explaining how western psychology, as well as psychotropic medication and the biomedical model, have narrowed how mental health professionals in Aotearoa New Zealand have typically viewed Māori in terms of identity and hauora.

> "Well, I think it, it [story, myth, and pūrākau] says, I see you as a Māori person, despite the fact that you

might not have felt seen as Māori by other clinicians, other services, and that because I see you as Māori, I see that there is more to hauora for you, than psychotropic medication and, you know, a biomedical model. And I think the use of story and referring back to tīpuna and whakapapa is inherently validating to that person as a Māori patient." – Althea

Althea's kōrero implies two positions. The first, if story and pūrākau are used as therapeutic tools with Māori clients, differences between Māori and non-Māori in terms of hauora and approach to treatment are legitimised by the clinician. Second, Māori need to be recognised by health professionals as having potentially differing realities to Pākehā: "I see you as a Māori person". Althea is illuminating the importance of Māori identity in the space of health and wellbeing in Aotearoa New Zealand, in terms of this being appreciated as 'other', while also acknowledging the critical need for a holistic approach to wellness, which includes something greater than a consideration of hinengaro and tinana. Althea's narrative suggests that if clinicians adopt a story-based approach, the message from clinician to client is, I celebrate you as a Māori person, and that this is inherently validating and healing in terms of Māori identity, particularly when contrasted with the invisibility Māori have experienced in the past when seeking services from mental health professionals.

Safety in Distance

Participants suggested that the characters or motifs in the narrative often held deep meaning for clients in relation to their connection with personal traits, their journey, trials, and tribulations. They discussed the benefits of suspending the client's story within the narrative until the client was ready to make that story their own.

"… And your client can stay safely in the realm of story until they're ready to go…there was one person I worked with that stuck strongly with story and the character for a very long time until they said, 'I'm that person, I need to make some changes'. And we could say, 'well, how might that look? What do you need to do? What does this character need? What can we create?'" – Kathryn

Kathryn described the narrative as a container or a place of suspension, a place where the client could situate their emotional distress until they felt secure and safe enough to accept the presenting issue as a reflection of themselves. She suggests this modality is protective, deferring the strength of emotional pain relevant to the presenting issue, and is a way to ease into what might otherwise be a difficult and/or vulnerable conversation. Then, once the client is ready to turn toward their psychological distress, they detach or uncouple themselves from the comfort and remoteness of the character or character's traits, and can attribute the significance of these elements to themselves.

[Talking to a young client]: "Is there anything in the story that reminds you of your story? And [the young client's response might be] 'yeah, I'm like the boy…I used to tell a lot of lies, so I suppose I was in the valley of lies". – Caitlyn

Here, Caitlyn described the role of the character in the narrative as a place for the client to project their own story or their own trauma, a place to temporarily affix their psychological distress. The success of this approach lies in the non-confrontational dynamic afforded by the use story, myth, and pūrākau made apparent within the therapeutic space.

Relatedly, participants explained that using story, myth, and pūrākau in the therapeutic setting for both Māori and non-Māori clients helped to create "distance" from the emotion surrounding an issue. Participants considered this an advantage and a way to offset the intensity that clients often experience in therapy when using western psychological models. Several participants referred to the value of an indirect therapeutic journey to discovery afforded by the use of narrative when clients are presenting with issues that may be difficult or painful to articulate.

"[Story, myth and pūrākau] gives that person the opportunity to explore themselves without threat, without stress, without harm...because it sits over here, and we can work with it and there's not so much kind of full spotlight…of having to share that immediate experience." – Huia

"[Story, myth and pūrākau] gives you some distance from your own direct process…then through that, you're a little bit removed from it, but at the same time the healing agents are still working." – Mariana

This idea of narrative allowing "distance" suggests that the participants saw real value in the less direct approach to therapeutic engagement offered through using story, myth and pūrākau. Anchoring the problem in the narrative, as mentioned by Huia, seems a safer encounter in therapy "without threat, without stress, without harm". The participants felt this distance offers the clients freedom and flexibility to be able to separate themselves from the intense thoughts, memories, and/or emotions which are often experienced in therapy when concentrating directly on the presenting problem.

Beyond Just Cognitive Therapy

The participants promoted the idea that using story, myth, and pūrākau in the therapeutic space goes beyond a cognitive process; that this approach can provide access to other parts of the self. Several of the participants, such as Huia, referred to the process of engaging with narrative as employing other "senses".

"So, you know, it is about using all of our five senses and I will use that kind of language with our clients and families, you know, we're a whole person, and we do have two parts of our brain…and we can get more out of ourselves if we use both sides of our brain. And this is how we can do it, through story and image and colour, dancing or singing." – Huia

In addition, and in line with the idea of narrative extending beyond a cognitive process, Mariana, Stephen, and Orla all suggested that this process transcends the physical world. As such, engagement with narrative

creates something "bigger" and in doing so fosters a connection with a spiritual realm. The participants' descriptions engender a notion of something otherworldly, which is not easily, or logically, rationalised or defined.

> "I have to say it, it's like a spiritual connection or it's a connection with um, the unconscious, it takes you into the unconscious realm ….I believe it is one where healing happens, and confidence can be built, because you kind of put yourself aside somehow to be in that space as well, and that's another thing that you kind of move into a role and you can be something bigger, someone bigger." – Mariana

> "[Story, myth and pūrākau] takes us beyond the everyday life… it takes us beyond our limitations as well… it captures things that connect us to the universe…[and]also positions our self in that sort of wonderful ground that you are really little, and things are much bigger than you…It's what takes [us] beyond language…..it's quite sort of magical, it's hard to rationalise in many ways." – Stephen

These accounts illustrate the idea that narrative unlocks an opportunity to access the whole self in a way that transcends western psychology approaches and may be more in line with a Māori perspective of hauora and wairua. Stephen and Mariana describe a practice at work that goes "beyond" the client's perceived limitations, where all five senses come to life and contribute to the therapeutic process.

Stephen's use of the term "magical" implies that an ethereal element greater than the therapeutic relationship is operational, an ingredient that goes beyond the delivery of a therapeutic technique or strategy, and an element that is in excess of the content of the session. The participants' messaging about the use of story, myth, and pūrākau implies a connection with something of "universal" significance, something "bigger" at work that is situated outside the rational mind, independent of logic and reason, a place of wonder, mysticism, and imagination, an element of therapeutic value.

Pūrākau: Kia Tūpato

As well as talking about the use of narrative and story more broadly, participants discussed the specific advantages of using pūrākau in therapeutic settings in Aotearoa New Zealand. Several felt pūrākau can be helpful for both Māori and non-Māori clients.

> "[Pūrākau can be used not only] for working with Māori, but for everybody. And I think sometimes our stories can get lost, so I think there's a huge, huge benefit to this. For using story, I think you'd have to be kind of aware of how it would be used, you know? And what the parameters would be." – Orla

Although the participants had varying degrees of knowledge of pūrākau, their accounts were similar in that they all believed that pūrākau should be used in therapy with caution and care. There were two sub themes in this: clear parameters in terms of cultural identity are necessary when practitioners use pūrākau as a therapeutic element in their practice; and pūrākau needs to be applied with sophistication and sensitivity. The participants cautioned against the indiscriminate use of these sacred treasures, the strongest reference being that when employed by non-Māori practitioners, or training institutions with a bias toward western psychological models and practice, there was a real risk of misappropriation.

> "I think it's like any tool. I think it depends on how you use it and your understanding of when you might use it, and when you might not, and how you might use it. Because any tool that's used bluntly, you know, it doesn't necessarily have the benefit that, well, than if it's used in a more sophisticated way. And I think I've been, I've been realizing that the clinical training programme, given that it's only three years long, is limited in the skills that it can impart and so, perhaps pūrākau, the use of pūrākau might be more appropriate as an advanced pathway." – Althea

The participants underscored the importance of "awareness" when using pūrākau, their sentiments highlighting the need for caution when using these taonga. Althea advocated for an advanced pathway of psychological teaching and training in the use of pūrākau. Her rationale implied that practitioners should be well versed in foundational training connected with their professional body before they use pūrākau in their practice, to ensure the application of this modality is done with sensitivity.

DISCUSSION

This research aimed to gain greater understanding of the use of story, myth, and pūrākau by psychological health professionals in Aotearoa New Zealand. The findings highlight that the participants supported the use of story, myth, and pūrākau in the therapeutic setting. In particular, there was an emphasis on using this modality as an alternative to western psychological models to avoid complex terminology and the negative impact of labelling implicit in diagnosis. The client's use of characters as a reflection of self is also revealed in the findings; this use of characterisation offering space for psychological issues to emerge at a pace and distance more comfortable for the client. In addition, story, myth, and pūrākau were described as a gateway to going beyond the cognitive realm, to places where other senses and/or spirituality could play a role in the therapeutic process. The findings also illuminate the importance of treating pūrākau differently than story and myth with a need to use care and sensitivity when using these taonga in practice. The implications of the findings are discussed further below.

Self-determination and Therapeutic Change

Well-constructed metaphoric stories are both interesting and enjoyable, they capture the listener's attention, inspire imagination, and propose new considerations of situations in unique ways (Moon, 2007). The indirect delivery of the message, disguised by imagery, offers the opportunity for a less threatening exchange between therapist and client. All that is expected if a story is implicit, is a simple response to the surface meaning of the narrative. This indirect approach fosters self-determination: The client assigns the meaning of the

metaphor and its application to their own circumstances as opposed to advice or assertions being imposed by the therapist. Self-determination promotes the client's responsibility for their journey of therapeutic change in terms of what they attend to, and the pace at which the therapy proceeds (Moon, 2007). Self-determination is critical to the therapeutic process and, according to Carl Rogers, the freedom to choose has value for clients working through their own process of change, in their own time (Prochaska & Norcross, 2018). The findings from the current research highlight the value of story, myth, and pūrākau as tools in that process.

The Power of Story

This project emphasises the power of story. The findings suggest that an approach that includes story, myth, and pūrākau as part of therapeutic practice, and which values and promotes engagement with unconscious and spiritual elements in the narrative, has value for both Māori and non-Māori clients. Both Carl Jung (1961) and Rollo May (1983) noted that a serious flaw in modern society is our estrangement from mythopoeic thought, a hypothetical way of thinking using myth to inform the meaning and significance of life. The continued emphasis on empiricism in psychology with its associated rules, systems, and ideologies has tended to overshadow the creative matrix afforded by story and this, according to Jung, is a travesty in that not only has myth made progress possible for humanity, myth also has irreducible value in terms of the enhancement of human 'being' as a whole (Adams, 2004). The luminescent power of archetype within story, myth, and pūrākau resonated throughout the participants' accounts. Whether it be the goddess, warrior, crone, trickster, or hero, the value in recognising a mirror image in the narrative and unpacking the salient details of the psychic world of these entities, in relation to the client's personal challenges, is noteworthy. Accounts suggest that, despite being in conscious control of emotions, thoughts and behaviours, people are piloted, far more than they realise, by the unconscious mind (Jung, 1961).

Jung's theory of archetype and the collective unconscious supports the findings in that when a story, myth, or pūrākau offers the reader a hero crossing a threshold, a wall of immense proportion that must be scaled, or an island of sizable proportion that is fished up, an archetypal figure and/or an archetypal situation is presented (Storr, 1991). The narrative and the characters within, like music, "can transmute the mud of the banal into the gold of the transcendent" (Storr, 1991, p. 36). According to Jung, when an archetypal situation is introduced, a connection is made available that may offer answers to life's bigger questions and in turn may promote freedom from angst and improved health and wellbeing.

You are Māori: Distinguished and Set Apart by your Culture, Whakapapa, and Tīpuna

The findings affirm an epistemological standpoint which does not assume western academic values and principles are the only pathway to psychological wellness (Waitoki & Levy, 2016). Critically then, this acknowledges the importance of having a range of therapeutic approaches in the kete when working with Māori in psychological practice. Tipene-Leach et al. (2019) advocate for a shift in thinking for mental health professionals (particularly Pākehā) in terms of adopting differing approaches to working with Māori. This viewpoint is supported by Macfarlane, Blampied, and Macfarlane (2011) in relation to current western approaches to clinical psychological assessment in Aotearoa New Zealand; their research suggests a different approach when working alongside tangata whenua is imperative. Black and Huygens (2016) also support this notion, espousing the value of an alternative Pākehā approach to psychological practice in Aotearoa New Zealand.

As well as the broader benefits of myth as discussed above, findings indicate that when a story-based approach is used with Māori within the therapeutic space, the psychological practitioner's inherent messaging in terms of Māori identity is validating. According to Durie (1999), identity is an essential prerequisite for Māori mental health and wellbeing, and real support for this notion requires more than a cursory understanding of iwi geographical location and whakapapa. Improving the quality of service for Māori is critical to Māori mental health outcomes and, for this reason, interventions should be geared toward familiar cultural experiences if they are to enhance cultural identity and wellness (Kopua, 2020). Māori experiences in the therapeutic space should not be at odds with te ao Māori worldview, instead experiences should be familiar, responsive, flexible, and accommodating, to enhance psychological health (Durie, 1999).

All helping professions, professional bodies, and mental health training institutions in Aotearoa New Zealand are aware of their obligations in terms of honouring Te Tiriti o Waitangi and delivering interventions and approaches that are culturally safe when working with Māori. However, according to Levy (2018, cited in New Zealand Media Council, n. d.), this constitutional obligation could be more vigorously applied in practice. In particular, Levy suggests training material for undergraduate and graduate programmes in psychology are largely insufficient in terms of Māori focused content. Cultural initiatives are central to building psychological competency in the workforce and the need for future programmes, professional bodies, and training providers to broaden the types of treatment approaches used to meet the needs of Māori, in line with the findings of this research, is paramount. The inclusion of a story-based approach as an adjunct to working with clients experiencing psychological distress is but one example of this. Such a shift in focus in the field of psychology may have an impact for Māori who seek mental health services, and in turn may go some way to improving the unacceptable and inequitable mental health outcomes for Māori (Kvalsvig, 2018).

Pūrākau and Protecting Rights and Interests of Māori

Participants saw value in using pūrākau with both Māori and non-Māori clients, however this was tempered with concerns around the protection of traditional Māori knowledge and culture. According to Ayoubi (2019),

Māori knowledge and customs such as pūrākau have historically been open to misappropriation by non-Māori, and oversight in terms of the rights and interests of Māori has been commonplace in Aotearoa New Zealand. However, innovation for Pākehā when working with Māori is less about commandeering proficiency in the use of taonga that are not theirs to claim, and more about finding approaches and practices that make sense to Māori who are engaging with Pākehā psychological professionals in therapy (Black & Huygens, 2016).

Developing platforms for dialogue with psychological practitioners, researchers, and tangata whenua to explore alternative approaches to current psychological practice in Aotearoa New Zealand is one of the broader aims of this study. Research exploring the application of alternative approaches to health and wellbeing in Aotearoa New Zealand is scarce, and therefore it is critical that, if we are to purposefully address the inequalities prevalent within our mental health system with regard to outcomes, we as practitioners must engage in targeted conversations, research practice alternatives, and adopt methods that work in the best interest of all peoples of Aotearoa New Zealand.

Further Research

The current study was limited to mental health professionals who were familiar and well-practiced in the delivery of creative therapies and their allegiance to this way of working was, for the most part, well established. While the use of story to facilitate therapeutic change is not completely new to the field of psychotherapy, it is not commonplace in Aotearoa New Zealand, particularly for those trained in western psychological models (Prochaska & Norcross, 2018). Future research could sample a more diverse range of practitioners including those using creative therapies and other psychotherapeutic approaches. Within this, it would be valuable to canvass the views and experiences of psychological practitioners who have been trained and who practice from an approach that has a significant bias toward traditional psychological models, to capture what benefits and challenges these mental health professionals might consider relevant to using story, myth, and pūrākau in psychological practice.

There is a need for further research on narrative alongside other psychological models employed in practice, as current literature for the inclusion of story, myth, and pūrākau in Aotearoa New Zealand is limited (Aguilera et al., 2020). Capturing the opinions of clients who have been in therapy where story, myth, and pūrākau have been employed as the primary modality, and/or have been employed as a tool among many others in the delivery of psychotherapy, is important for better understanding what works and what does not for clients in Aotearoa New Zealand. Research such as this may provide further evidence for the efficacy of this approach, and may offer a direction for story-based training programmes when working alongside both Māori and non-Māori clients in Aotearoa New Zealand.

Conclusion

This research captured the experiences of eight mental health professionals' use of story, myth, and pūrākau in the mental health setting when working with both Māori and non-Māori clients. The findings are of interest and benefit to both researchers and practitioners. By garnering the opinions of these practitioners, this research provides a detailed account of the benefits and challenges of using this modality, and opens consideration for an alternative epistemological approach to practicing that might be more fitting for both practitioners and clients alike in terms of cultural awareness, identity, and wellness. These findings suggest a means to bring us a little closer to working in psychology in a way that better meets the psychological needs of all people, but particularly tangata whenua, in Aotearoa New Zealand.

Glossary of Terms

These definitions are drawn from the https://maoridictionary.co.nz/ which is based on John C Moorfield's (2011) dictionary.

Atua – ancestor with continuing influence, god, demon, supernatural being, deity, ghost, object of superstitious regard.
Hinengaro – mind, thought, intellect, consciousness, awareness
Kete – basket, kit
Kōrero – to speak, read, talk,
Mātauranga Māori – the body of knowledge originating from Māori ancestors, including the Māori world view and perspectives, Māori creativity and cultural practices
Pūrākau – legendary, mythical
Tangata whaiora – client
Tangata whenua – local/indigenous people
Te ao Māori – the Māori worldview
Te Kore – realm of potential being, The Void
Tinana – body, physical self
Tīpuna – ancestors, grandparents
Wānanga – seminar, conference, forum, educational seminar

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Stress, Anxiety, and Psychological Wellbeing in First Year University Students: Changes Over Time

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High levels of stress in tertiary students are associated with ongoing mental health difficulties and impact on academic performance. The aim of this study was to assess the change in stress, anxiety, and psychological wellbeing of university students over a semester. Participants were 120 first year students who completed questionnaires at the beginning of the semester and again two days prior to their examination. Results showed that students had high levels of stress, anxiety, and poor psychological wellbeing at the beginning of the semester. Psychological wellbeing decreased significantly between the beginning and end of semester. Some students start the semester with poor mental health which does not improve, while others show a pattern of mental health that starts at healthy levels and declines over the semester. Different interventions may be required to meet the heterogenous mental health needs of university students.

Keywords: *Psychological Wellbeing; Stress; Anxiety; Tertiary Students*

Introduction

The transition from school to university education represents a major developmental milestone for many young people who undertake tertiary education. For most students this occurs at a time when they are furthering the significant developmental processes that begin in adolescence: developing independence, establishing meaningful relationships and working towards careers and employment. It also occurs at a time when young people are at risk of poor mental health. The majority of mental health problems begin in adolescents (Jones, 2013) and previous studies have shown that psychological wellbeing drops at times of transition (Cvetkovski, Jorm, & Mackinnon, 2019). Transition to tertiary education brings with it exposure to unfamiliar environments and social situations, a higher expectation of independence often in the absence of previously present family support as some young people move away from their family home. High levels of stress, anxiety and depression can negatively affect a young person's ongoing mental health, risk of psychological problems into the future as well as their current academic performance (Baker, 2003; Kötter et al., 2017; Sohail, 2013) and persistence with university studies (Rayle & Chung, 2007).

In their study of over 1,600 Turkish students Bayram & Bilgel (2008) found high prevalence rates of depression (27.1%), anxiety (47.1%) and stress (27%) using the Depression Anxiety and Stress Scale (DASS-42). First and second year students had the highest rates of these psychological difficulties relative to students who were post-second year university (Bayram & Bilgel, 2008).

Another study based at Cambridge University reported that student stress levels were elevated at the time of examinations (Surtees, Wainwright, & Pharoah, 2002). In first year undergraduate nutrition students in Australia stress rated weekly, was found to increase over the course of the 13 week semester with qualitative data from the same study indicating that assessment and examinations were a particular source of stress (Pitt et al., 2018). A study of Japanese medical students found that stress increased over the course of the university year, peaked before examinations and then declined over the following two weeks (Kato-Kataoka et al., 2016).

While an increase in reported stress levels prior to examinations may be expected in students, stress, including stress associated with examinations, is a significant health concern due to the comorbidity of stress with mental (i.e., depression and anxiety) and physical health problems in undergraduate students (Bayram & Bilgel, 2008). These psychological factors also impact student academic success and present a student retention issue for universities (Rayle & Chung, 2007).

Bronfenbrenner's ecological systems theory describes how children develop within a series of wider contexts including their family, local community and wider societal environment. More recently, the bio-ecological systems approach incorporates the individual biological traits of a young person into the developmental model (Patel, 2011). When considering university students transitioning into their first year of tertiary education, the bio-ecological model summarises the influences that potentially contribute to individual differences in responses to stress and patterns of psychological wellbeing. Research has demonstrated that personality factors such as extroversion and agreeableness interact with factors present in wider systems to influence how student's react to contextual factors such as examination stress (Temane & Wissing, 2008)

Previous studies have described higher rates of stress, anxiety, and depression in university students and the association of assessment and examinations with increased self-reported stress. Despite the high level of commonality of experienced stress in students, there is a need for quantitative examination of potentially differing patterns of psychological wellbeing. Understanding these patterns of psychological problems over time is necessary to assist in the effective design and implementation of interventions to address these problems.

Aims and Hypothesis

The aim of this study was to assess the change in stress, anxiety and psychological wellbeing in first year university students from the beginning of a semester to the end of semester prior to the final examinations. A further aim was to determine whether there was evidence of differing patterns of psychological wellbeing in students

We hypothesized that levels of poor psychological wellbeing (a marker for depression) and anxiety would also change over the course of a university semester in a similar way to previously reported changes in stress.

METHODS

Participants

Participants in this study were 120 first year students enrolled in a medical science course at the University of Auckland, New Zealand, representing approximately 10% of students enrolled in that course. The study was designed as a pilot study to test recruitment, retention and online data collection processes, to prepare for a future larger survey of stress and psychological health in university students.

Measures

Stress: The Perceived Stress Scale (PSS) is a 10 item questionnaire that asks about stress and coping in the previous month (Cohen, Kamarck, & Mermelstein, 1983). Scores range from 0 to 40 with higher scores being indicative of higher levels of stress. Scores from 0-13 are considered to be low stress, scores from 14-26 equate to moderate stress and scores from 27-40 equate to high stress.

Anxiety: The State Trait Anxiety Inventory 6 item version (STAI6) is a short 6 item scale validated as an anxiety screening questionnaire based on the longer State Trait Anxiety Inventory which is 20 items (Marteau & Bekker, 1992). A cut-off of score >50 was used as an indicator of clinically significant levels of anxiety.

Psychological Wellbeing: The World Health Organisation well-being index the WHO-5, is a five item, positively worded measure of psychological well-being which gives scores ranging from 0 to 25. Higher scores represent better well-being. Scores of 13 or lower indicate low levels of psychological well-being. A systematic review of the WHO-5 concluded that it was a widely used and sensitive measure of depression (Topp et al., 2015)

Procedure

The New Zealand university year begins in March and ends in November and is divided into two semesters with a total of 12 teaching weeks in each semester. A full-time course of study would typically involve taking four papers in each semester of a calendar year. Students were in the second semester of their first year at university in 2019. Information about the study was given to students in a lecture in the first week of the course and also via placement of the participant information sheet on the online resource page for the course. All consent and data collection were managed by a secure online database and students could give consent and answer questionnaires using their phone, tablet or computer. Participants provided baseline demographic information when enrolling in the study. Sex was reported as male, female or prefer not to say (unspecified). Ethnicity was recorded using New Zealand guidelines for prioritized ethnicity. It is common in New Zealand for individuals to identify with more than one ethnic group, in these cases ethnicity is determined in the following order of priority: Māori, Pacific Island, Asian, Other, New Zealand European. Students were asked if they were currently working (yes or no), currently living at home with family (yes or no), and whether they were intending to apply for a limited entry course of study at the end of the semester (yes or no). Students answered questions about stress, anxiety, and psychological wellbeing at enrollment and at the end of the semester two days prior to their final examination.

Ethical approval for the study was obtained from the University of Auckland Human Participants Ethics Committee (Reference ID 023233).

Statistical Analyses

Change in psychological measures: The change between scores at the beginning of the study and the end of the study was calculated for each of the three outcome measures by subtracting the score at the end of the study from the baseline score. All statistical analysis was conducted in SAS 9.4. Paired t-tests were used to

Table 1: Sample characteristics of participating students

	N	%
Ethnicity		
NZ Maori	13	10.8
Pacific Island	6	5.0
Asian	56	46.7
Other	11	9.2
NZ European	34	28.3
Sex		
Female	93	77.5
Male	25	20.8
Unspecified	2	1.7
Living at home		
No	50	41.7
Yes	70	58.3
Currently Working		
No	84	70.0
Yes	36	30.0
Applying for limited entry course		
No	41	34.2
Yes	79	65.8

examine the mean change in psychological outcomes. A Bland Altman plot was generated to examine whether psychological wellbeing scores changed in a similar way for all participants. Cross tabulated frequencies and percentages of students with categorized outcome scores at baseline and at the end of semester were produced to examine the number of students who changed from having low scores to high scores or moved in the opposite direction. Logistic regression models were used to analyse the association between categorical demographic factors and psychological health scores at baseline, tatistical significance was taken at the 5% level.

RESULTS

The characteristics of the study population are shown in Table 1. The majority of participants were female (77.5%), not currently working (70.0%), living at home with family (58.3%) and intending to apply for a limited entry course of study in the following year (65.8%). The largest ethnic group identified as Asian (46.7%) followed by New Zealand European (28.3%), Māori (10.8%), Other (9.2%) and Pacific Island (5.0%). Of the 120 students initially enrolled in the study 105 (87.5%) completed the end of study questions about stress, anxiety and psychological wellbeing. Those who completed the end of study questions did not differ significantly from those

Table 2: Mean change in psychological health outcomes

	N	Mean (*SD*) Baseline score	Mean (*SD*) End of study score	Change in score Mean (*SD*)	*p*-value
Stress	105	21.2 (6.4)	22.1 (6.3)	0.87 (5.2)	0.10
Anxiety	105	55.0 (12.3)	44.7 (13.6)	-10.4 (14.1)	<0.0001
Psychological Wellbeing*	105	13.1 (5.9)	10.4 (4.1)	-3.36 (5.0)	<0.0001

* Lower scores represent poor psychological wellbeing

Table 3: Change in categorized (perceived) stress scores over the semester

	End of Semester			
Start of Semester	**N(%) Low**	**N(%) Moderate**	**N(%) High**	**N(%) Row total**
Low	6 (35.3)	11 (64.7)	0 (0.0)	17 (16.2)
Moderate	4 (6.0)	45 (67.2)	18 (26.9)	67 (63.8)
High	0 (0.0)	10 (47.6)	11 (32.4)	21 (20.0)
Total	10 (9.5)	66 (62.9)	29 (27.6)	105 (100.0)

Table 4: Change in categorized anxiety and psychological wellbeing scores over the semester

Anxiety Scores			
Beginning semester	**End Semester**		
	Not anxious	**Anxious**	**Row total**
Not anxious	25 (69.4))	11 (30.6)	36 (34.3)
Anxious	42(60.9)	27 (39.1)	69 (65.7)
Total	67 (63.8)	38 (36.2)	105
Psychological Wellbeing			
Beginning semester	**End Semester**		
	Good	**Poor**	**Row total**
Good	19 (33.3)	38 (66.7)	57 (54.3)
Poor	6 (12.5)	42 (87.4)	48 (45.7)
Total	25 (23.8)	80 (67.2)	105 (100.0)

Table 5: Association between student factors and psychological health outcomes

	Stress			Anxiety			Psychological wellbeing		
	Estimate	***SE***	***p*-value**	**Estimate**	***SE***	***p*-value**	**Estimate**	***SE***	***p*-value**
Sex									
Female	4.91	1.34	0.0004	-7.41	2.68	0.01	-0.42	1.14	0.72
Male	Ref			Ref			Ref		
Ethnicity			0.08			0.49			0.61
NZ Maori	0.19	1.99	0.92	-3.58	-2.01	0.62	-1.03	1.65	0.53
Pacific Island	-0.22	2.71	0.94	3.05	5.29	0.33	-2.36	2.23	0.29
Asian	-0.08	1.33	0.95	-1.37	-2.03	0.45	-1.30	1.10	0.24
Other	5.66	2.12	0.01	3.79	4.27	0.23	-2.30	1.75	0.19
NZ European	Ref			Ref			Ref		
Living at home									
Yes	Ref			Ref			Ref		
No	-2.84	1.13	0.01	2.06	2.27	0.36	0.41	0.93	0.66
Working									
Yes	Ref			Ref			Ref		
No	-1.41	1.24	0.26	0.13	2.45	0.95	-0.10	1.00	0.92
Competitive course									
No	-0.53	1.20	0.66	5.25	2.32	0.03	1.06	0.96	0.27
Yes	Ref			Ref			Ref		

who did not in baseline stress scores (p=0.54), baseline anxiety scores (p=0.85), baseline psychological wellbeing (p=0.58) or sex (p=0.98).

Stress scores at baseline showed a modest correlation with psychological wellbeing scores (r= -0.40. p<0.0001) and anxiety scores (r -0.57, p<0.0001). Anxiety scores were modestly correlated with psychological wellbeing scores (r -0.41, P<0.0001).

The prevalence of high levels of stress, anxiety, and poor wellbeing above the established cut-offs at the beginning of the semester was high (20.0%, 66.7% and 44.2% respectively). Table 2 shows the mean stress, anxiety and psychological wellbeing scores at baseline and the end of the semester.

Although overall levels of stress for the group did not change significantly between the beginning and end of the semester (Table 2), psychological wellbeing decreased for students by an average of 3.36 points (p<0.0001) and anxiety decreased by an average of 10.4 points (p<0.0001). Some students show different patterns of psychological outcomes. Table 3 shows the number and percentage of students with low, moderate and high stress levels at the beginning and end of the semester. For those 67 students with moderate stress levels at baseline a small number reported an improvement in stress levels (6.0%) by the end of semester, most reported stress levels remaining in the moderate range (67.2%) and over a quarter reported stress levels that increased to high levels (26.9%). None of the students who reported low levels of stress at the beginning of the semester moved into the high stress group. Furthermore, all students who had high stress scores at the beginning of semester continued to have moderate or high levels of stress at the end of the semester.

Of the students who started the semester with low levels of anxiety 69.4% continued to report low levels of anxiety at the end of semester while 30.0% reported they had high levels of anxiety at the end of semester. For psychological wellbeing 33.3% continuing to report good wellbeing while 66.6% reported a worsening of psychological wellbeing (Table 4). Figure 1 shows the average psychological wellbeing score for each subject compared with the change in score from beginning to end of the semester. It shows, in general, subjects with high scores (better psychological wellbeing) had the greatest decrease in scores (p<0.001). In contrast those with low scores (poor psychological wellbeing) tended to stay the same. The figure also shows the mean decrease (i.e. deterioration) of 3.36 points across all subjects.

Table 5 shows the relationship between demographic and student factors and each of the mental health outcomes: stress, anxiety, and psychological wellbeing. Being female and living away from home were significantly associated with higher stress scores at the beginning of the university semester. Conversely, female students reported significantly lower anxiety scores than males at the beginning of the semester. Students who were intending to apply for a competitive entry course the following year had significantly lower anxiety scores as the semester began. None of the

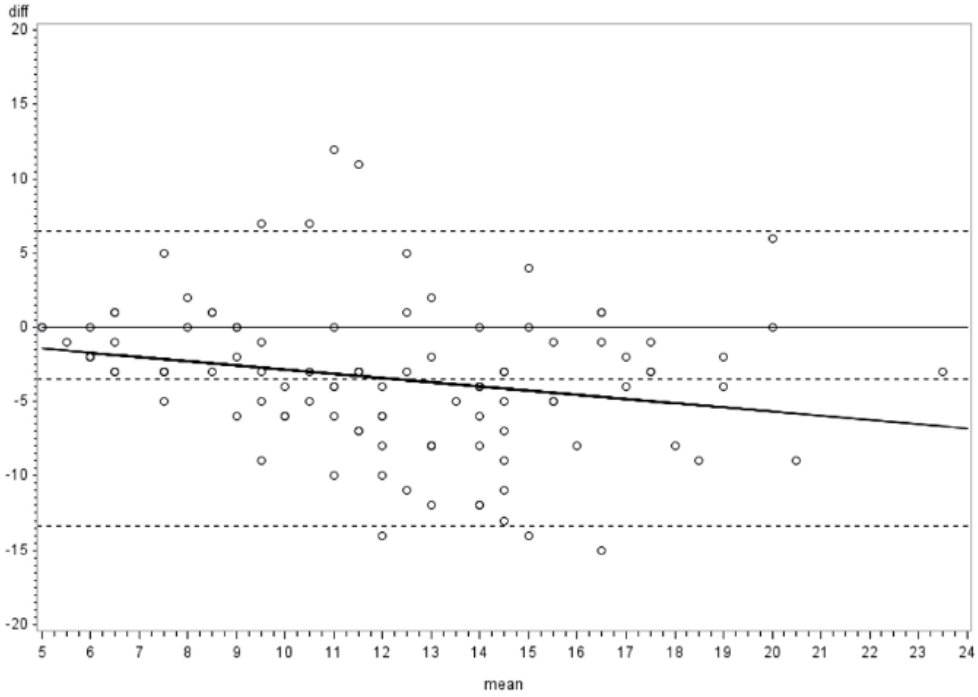

Figure 1: Average psychological wellbeing score for each student compared with the change in score from beginning to end of the semester

demographic or student factors were significantly associated with psychological wellbeing scores at the beginning of the semester.

DISCUSSION

We found high rates of stress, anxiety, and poor psychological wellbeing in this sample of first year university students. This is consistent with previous literature indicating high levels of stress in university students including stress associated with examinations (Gallagher et al., 2019; Kato-Kataoka et al., 2016; Pitt et al., 2018; Surtees et al., 2002). We measured stress, anxiety, and poor psychological wellbeing at two time points: the beginning of the semester and just prior to end of semester examinations. Mean stress scores did not significantly change over the course of the semester. While our results suggest that there is a decrease in psychological wellbeing over the semester, we did not measure psychological outcomes at multiple time points and levels of these psychological states may fluctuate during the semester. Pitt et al. (2018) measured stress weekly over the course of a university semester and found a trend for increasing stress over the semester. Our findings suggest that poor psychological wellbeing (a correlate of depressive symptoms) followed a similar pattern to stress scores and were worse at the end of semester prior to examinations than at baseline.

The finding that anxiety levels were lower at the end of the study just prior to examinations is interesting. This may reflect the different time scale used in reporting of anxiety on the STAI6. Students are asked to rate how they feel right now, in this moment when they answer the six anxiety questions. This is in contrast to the PSS which asks students to think about stress in the previous month, and the WHO5 that asks about the previous two weeks. It is possible that when students were reporting about their recent feelings over the previous weeks they had experienced a busy time with end of semester lectures, assignments, and exam preparation. When asked about how they were feeling in that moment their anxiety scores may have been lower because they were more prepared for their examinations. A second reason why anxiety scores may have improved at the end of the semester could be that physiological feelings of emotional arousal were more prominent at the beginning of the semester while at the end of semester students felt fewer of these physical symptoms of anticipation and emotional arousal.

A further important finding to emerge from this study is that not all students follow a pattern of decreasing psychological wellbeing and increasing levels of stress and anxiety over a semester and leading up to examinations. Students who start the semester with good psychological wellbeing show the greatest decrease in wellbeing while those who begin the semester with low wellbeing scores tend to continue to have poor psychological wellbeing. This finding, which is supported by the quantitative data analysis, extends our understanding of psychological health in university students by demonstrating evidence of differing patterns of wellbeing.

These results suggest that when planning interventions for mental health in tertiary students the group of students are not homogenous. Some will require treatment of current problems while others would benefit from prevention of a worsening of psychological health. Previous researchers have noted the importance of a suite of interventions to improve psychological health of university students (Gallagher et al., 2019; Moir et al., 2018; Turner & McCarthy, 2017). This forms the basis of a sensible approach given that not all interventions will

appeal to all students or target their specific needs. Similarly, adjustments to curricula aimed at improving psychological wellbeing of students need to reflect the diversity in courses of study and be tailored to suit the needs of students taking different courses.

In their study of Australian first year university students Pitt et al. (2018) used a mixed methods approach to examine the course and sources of stress for students. In addition to an overall trend for increasing stress over the semester the sources of stress for students differed at different time points during the semester for example financial strain and stress associated with assessments fluctuated (Pitt et al., 2018). This would further suggest that access to a range of interventions to assist with varying levels of stress with different etiologies is likely to capture more students. Turner et al (2017) found in their review that there was evidence of effectiveness for interventions addressing specific stressors including curriculum modifications and for those that aim to improve students' coping skills. They report little evidence supporting the effectiveness of interventions that target reappraisal of stress (Turner & McCarthy, 2017). In a high quality randomized controlled trial of a mindfulness based intervention for resilience to stress in UK university students Galante et al (2018) found the intervention significantly reduced self-reported stress before examinations with a moderate effect size compared to support as usual. Of those students assigned to the mindfulness intervention, 41% did not complete at least half of the intervention indicating that adherence is an issue for a reasonable proportion of students (Galante et al., 2018).

In our sample, students not living at home reported higher levels of perceived stress at baseline. There was no significant association between living at home and either anxiety or psychological wellbeing. In a study of Australian university students, those living away from home with perceived little parental financial support had the lowest self-rated psychological wellbeing. Students living at home had the highest level of psychological wellbeing, and perceived financial support from parents was not a significant factor influencing stress for those who lived at home (Stewart et al., 1999)

We found that female students reported higher levels of stress, but not anxiety or poor wellbeing than male students. It is possible that female students either experience more stress than male students or are more readily able to identify feelings of stress. Previous studies have reported mixed results for sex differences in anxiety and depression. Bayram and Bilgel (2008) reported that female students in their sample had higher stress and anxiety scores, but not depression scores, than males. By contrast, a later study reported higher depression scores in females but no difference in anxiety scores between males and females (Roy, 2015). It is possible that sex differences in these psychological measures are also influenced by multiple factors including year of study, course of study, ethnicity and age. The complex and nuanced nature of the etiology and measurement of stress and psychological wellbeing further supports the need for a multi-pronged approach to student support at university to increase the likelihood that interventions will support both male and female students.

The limitations of this study need to be acknowledged. We had a relatively small sample size and enrolled the first 120 students to consent to participation, this may have resulted in students who were feeling more stressed or who were focused on their mental health enrolling in the study. For this reason, they may not be an accurate representation of the wider group of first year university students. However, our results are consistent with previous studies that have reported high levels of stress and worry in university students (Bayram & Bilgel, 2008; Denovan et al., 2017).

Students for this study were recruited from a single medical science paper, their stress anxiety, and psychological wellbeing levels may not be representative of all university students and may reflect inflated scores on these measures. Previous studies have reported higher prevalence of depression among medical students (Rotenstein et al., 2016) and it may be that this cohort of students, many of them aiming to enter health professions, have higher rates of depression than the general population of university students.

Conclusion

This study suggests that psychological wellbeing decreases prior to university examinations. Our findings extend the current literature by suggesting that students are not homogenous in their patterns of psychological health, there are a group of students who begin the university semester with high levels of stress, anxiety and poor wellbeing these students may respond to different intervention strategies than those who follow a pattern of low or moderate stress, anxiety, and poor wellbeing that worsens as final exams approach. Future studies should examine variation in causal pathways for students with different trajectories of wellbeing. Interventions to target stress and poor psychological health in university students should be wide ranging to allow for the heterogenous needs of university students.

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Integrating ACT components in CBT training: Trainee appetite and supervisor preparedness

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This study examined interest and skills in Acceptance and Commitment Therapy in students undertaking a post- graduate cognitive behaviour therapy course and their supervisors, and considered whether it would be appropriate to include an ACT component to the training. Results from two Qualtrics surveys suggest that there is considerable interest in ACT amongst CBT students and their supervisors mostly consider themselves able to supervise if an ACT component is added to the training. We discuss how this could be done in a coherent way.

Keywords: *Psychotherapy Training; ACT; Cognitive Behavioural Therapy; Māori*

Introduction

Clinicians face an array of therapeutic modalities they can use to assist people. One approach is to choose a single empirically supported approach and practice it exclusively, but this could exclude useful techniques. Another approach is to be 'eclectic', choosing techniques from a range of (preferably empirically supported) therapies. However, this can be problematic as this can mean there is no coherent guiding theory and there is a risk of using techniques in a disorganised or incoherent fashion, with a loss of fidelity for a specific therapeutic model (Ciarrochi & Bailey, 2008). Therapeutic modalities are not just a set of techniques: the process of therapy and the use of the underlying model in shared formulations is all part of the therapeutic modality.

This raises important issues for psychotherapy training providers. While there are several evidence-based cognitive behavioural therapies available, the challenge for training courses is to teach these in a coherent way that is consistent with the research evidence, which makes sense to students and is likely to benefit clients. An eclectic approach may lack coherence and interfere with competence development.

Cognitive behaviour therapy (CBT) has its origins in Behaviour Therapy, which many consider the 'first wave' of scientifically based psychotherapy. Behaviour therapy was developed in the 1950's as an alternative therapy to psychoanalysis. The second wave was Cognitive Therapy developed in the 1970's by Aaron Beck with its first application to depression and later to anxiety and ultimately to a wide range of psychological disorders. In the late 1980's there was a merge between behaviour therapy and cognitive therapy into what is called CBT (Alford & Beck, 1997). Cognitive Behaviour Therapy is based on the idea that our cognitions about situations affect our emotions and behaviours. It uses a guided discovery process to help clients learn skills to notice their cognitions and consider alternative interpretations of situations and to experiment with changing behaviour as a way of testing the validity of their cognitions. This occurs in the context of a collaborative relationship with the therapist. Cognitive Behaviour Therapy has the largest evidence base of any form of psychotherapy (Roth & Fonagy, 2005) and is widely taught and practiced both internationally and in New Zealand (NZ) (Mathieson, Bennett, Cargo, & Froggatt, 2021).

More recently, the so-called 'third wave' of cognitive therapies have emerged. These include Acceptance and Commitment Therapy (ACT)(Hayes, Strosahl, & Wilson, 1999), Dialectical Behaviour Therapy (DBT) developed for the treatment of borderline personality disorder (Linehan, 1993), Mindfulness-Based Cognitive Therapy (Segal, Williams, & Teasdale, 2001), Compassion-Focussed Therapy (Gilbert, 2009), and meta-cognitive therapy (MCT) (A. Wells, 2000). More recently, 'process-based therapy' has been proposed as a way forward, i.e. an evidence-based search for powerful and coherent change processes that may occur across a range of therapies (Hayes & Hofmann, 2017).

Acceptance and Commitment Therapy is a 'third wave' therapy that is gaining momentum both in terms of its' evidence base and popularity. There is a growing body of research to support the use of ACT to treat a range of psychiatric and psychological problems and populations (Graham, Gouick, Krahe, & Gillanders, 2016; Hayes, 2020). There are similarities between ACT and CBT (Harley, 2015; Hofmann & Asmundson, 2017b). Both target changes in thinking and behaviour, albeit in different ways (Menin, Ellard, Fresco, & Gross, 2013) and both approaches can be placed in the larger context of the emotion regulation, encouraging adaptive regulation strategies (Hofmann & Asmundson, 2017a). There are, however, significant theoretical differences, with ACT proposing that suffering is driven by fusion with distressing thoughts and experiential avoidance, rather than accepting discomfort in the service of a rich and meaningful life in line with one's values (Hayes et al., 1999). Traditional CBT theory, on the other hand, posits that there are specific beliefs associated with different mental health problems (such as seeing oneself as helpless or vulnerable in anxiety disorders). Traditional CBT also takes the approach that rather than learning to defuse from

thoughts, the evidence for thoughts and beliefs can be usefully evaluated, including experiments with changing behavioural strategies, so as to reach more helpful perspectives and behaviours (Ciarrochi & Bailey, 2008).

Components of ACT have been introduced into traditional CBT. For example mindfulness (a key part of ACT), is encouraged in a well-known CBT self-help book (Greenberger & Padesky, 2015). Some authors regard it as possible to integrate CBT and ACT in a coherent and effective way, noting that there is nothing in ACT or its underlying model that suggests that cognition cannot change, nor that cognitive change cannot be helpful (Ciarrochi & Bailey, 2008; Harley, 2015). Experts in ACT also recognise the similarities (as well as the differences) between ACT and CBT (Hayes & Hofmann, 2017).

The term 'third wave' could be interpreted to imply that what came before has been superseded. Instead, CBT is evolving to include ACT approaches, while remaining unified by a core premise about the role of cognitions. Newer approaches can arguably be viewed as the next generation of CBT, which emphasise some new facets, rather than being part of a separate 3rd wave (Harley, 2015). More broadly, cognitive behavioural approaches, including ACT are being viewed under the umbrella of 'process-based' therapies, which is the idea of building on concepts of known clinical utility and organising them into coherent theoretical models and targeting core mediators and moderators in order to achieve change (Hayes & Hofmann, 2017; Hayes, Hofmann, & Ciarrochi, 2020; Hofmann & Hayes, 2019).

Can elements of the CBT and ACT be integrated? This is an important question for therapists with a background in standard CBT and an interest in ACT. While Hayes et al (2013) originally argued against adding 'a dash of mindfulness here and a dollop of values there' (p.915), recently Hayes and Hofmann (2017) have elaborated on the idea of both ACT and traditional CBT being process-based therapies. Russ Harris (ACT trainer) notes in his workshops that you can "dip your toe in the water" (integrate ACT into your existing therapy modality) or you can "jump right in" (full use of the ACT model) when starting out with ACT. Despite what could be seen as a tension between the agenda of change and the agenda of acceptance, there may be some contexts in which a hybrid approach may be helpful (Ciarrochi & Bailey, 2008; Harley, 2015). For example, mindfulness practices can assist people to engage with cognitive restructuring through fostering the ability to observe one's thinking and defusing from it. In the traditional CBT treatment of generalised anxiety disorder, once the client has learnt that worry is neither dangerous nor helpful, being able to defuse from worry and let it go mindfully, rather than engaging with it is desirable (Adrian Wells, 2013). Similarly, there is strong evidence supporting the addition of mindfulness skills to prevent relapse of depression, after traditional CBT for depression (Segal et al., 2001). Further, some individual clients may find a combination of cognitive defusion and cognitive restructuring skills is beneficial in a given situation depending on personal preference or thinking style. A recent meta-analysis on the effect of psychological intervention on the fear of cancer recurrence supports this approach. Traditional (Beckian) CBT (10 studies) was compared to contemporary CBT (including ACT, 9 studies). Post-treatment the effect size for contemporary CBT was significantly larger than for traditional CBT (Tauber et al., 2019).

In NZ, the efficacy and relatively brevity of CBT has meant that demand for CBT in clinical settings is high. Due to a scarcity of clinical psychologists, the past twenty years has seen the development of post- graduate CBT training courses for other mental health professionals (such as nurses, occupational therapists and social workers), as a way of increasing access to CBT. This is in line with international trends, such as the widespread CBT training provided as part of the 'Increasing Access to Psychological Therapies' programme in the United Kingdom (Liness et al., 2019).

Since the late 1990's, the University of Otago, Wellington has offered postgraduate certificate-level training in CBT. A post-graduate diploma level CBT course (advanced course) has been running since 2011. These academic-year-long courses are taught in line with best practice CBT training (Sudak et al., 2016). Each course has approximately 21 students who work at least 0.6 FTEs in a variety of public mental health settings. Students attend three, weeklong block courses (usually face to face, but delivered by Zoom during Covid lockdowns). They have on-site supervision in their workplaces, provided by clinical psychologists and their competence is assessed in multiple ways, including ratings of video-recorded CBT sessions with clients (Barnfield, Mathieson, & Beaumont, 2007).

While, in the past, traditional CBT has been the predominant model taught in the Otago CBT courses, the course has continued to develop since it commenced in 1999, to include evidence-based advances in CBT, such as mindfulness-based cognitive therapy for the prevention of relapse in depression (Segal et al., 2001). In recent years, the course lecturers observed that students on the courses were bringing up ACT-related concepts in class discussions, but tended to see ACT as completely unrelated to CBT. Anecdotally we had also noticed increasing enthusiasm expressed by clinical psychologist colleagues for ACT.

It was unclear to University of Otago CBT teaching staff what therapeutic modalities were used at the 'coal face' of mental health services in NZ and, to what extent ACT was being used. Perhaps, in line with 'third wave' process-based approaches, it would be beneficial to bring ACT components into advanced (diploma level) CBT training so that students become aware how it relates to and complements traditional CBT. This could assist students to use CBT and ACT concepts in a maximally coherent, integrated way with their clients. This would ensure that the courses would be current and relevant, and informed by the latest research. It would also ensure that the introduction of ACT components occur with due consideration given to how these are integrated with the core ingredients of CBT and with consideration of cognitive behavioural theory.

If introductory ACT concepts and techniques are introduced in the post- graduate CBT course, it will be essential that on-site clinical psychologist supervisors have adequate knowledge and experience of ACT to support the students' learning. It is unclear whether this is

the case. It is also unclear to what extent ACT components are culturally compatible in the NZ context, where the indigenous population are Māori and the Treaty of Waitangi enshrines the principle of equal access to resources.

Aims

The primary aim was to find out whether the CBT diploma course should and could include training in ACT by assessing the following:

1. The level of interest and expertise in the ACT model of therapy of previous and present students.
2. The level of skills, knowledge and practice of ACT among the clinical supervisors (all senior clinical psychologists), to determine whether they are adequately trained to provide include ACT as part of CBT supervision.
3. What therapy modalities are currently being used in NZ mental health services.
4. The opinions of trainees and supervisors regarding the cultural appropriateness of ACT with Māori (indigenous New Zealanders).
5. Discuss the training implications of the findings in relation to the theoretical similarities and differences between CBT and ACT.

The findings will guide the future content of our post-graduate CBT training, potentially leading to us introducing ACT at the postgraduate diploma level.

METHODS

Participants

Students: Participants for Survey 1 were past and present students of our post graduate certificate and post graduate diploma in CBT (dating back five years). The rationale for this was that as mental health professionals working in clinical settings across NZ, hence would have knowledge of what therapies were being used. Participants were recruited by identifying them in our database and 87 students were emailed an invitation to take part in a Qualtrics e-survey (September 2019 Version of Qualtrics)

Supervisors: Eighty-one past and present supervisors from the last 5 years were emailed invitations to take part in Survey 2 also via Qualtrics.

The majority of participants, both student and supervisor were of NZ European ethnicity, with a small number of Māori, Pasifika, Indian and 'other', which is roughly in proportion to the overall ethnic mix of students attending the course. Of the student sample the most common profession was psychiatric nurse (43%), with the next largest groups being occupational therapists (19%) and social workers (18%). Seventy-six percent of students and 86% of supervisors had been working for six or more years in their occupation. Adult community mental health was the most common workplace for both students (28%) and supervisors (47%). In the student sample, there was also a large "other group" (24%) for workplace and these were students working as counsellors at Primary Health Organisations. Details are shown in Table 1.

Survey

Surveys 1 and 2 were bespoke surveys developed for this study. Survey 1 had 19 questions including demographics; Survey 2 had 18 questions including demographic questions. These may be found in the Appendices.

Procedure

Surveys were emailed to potential participants. Both surveys took about five minutes to compete. The information sheet and participant consent were embedded into the survey itself. Qualtrics software was used to analyse the data. Descriptive statistics are used to describe the results.

RESULTS

82% of students responded to survey 1 and 48% of supervisors responded to survey 2.

Knowledge, Training and Experience in ACT

Forty three percent of students who responded reported some prior training in ACT. Fifty percent reported they had no training in ACT but were considering it. Of the students who had no ACT training, 25% reported this was due to not knowing where to get training from, 25% reported they did not have the funding for training in ACT and 16% reported that time was the reason for not having training. Forty-nine percent of students described their knowledge of ACT as fair/good and 51% rated it as very poor/poor. None rated their knowledge as excellent (Table 2).

Table 1. Characteristics of Students and Supervisors.

	Students (%)	Supervisors (%)
Participants	**N = 72**	**N = 39**
Gender		
Male	24	21
Female	76	79
Ethnicity		
NZ European	71	73
Māori	5	5
Pasifika	4	0
Indian	3	3
Chinese	0	3
Other	17	16
Occupation		
Psychologist	6	100
Nurse	43	0
Occupational therapist	19	0
Social worker	18	0
Psychiatric registrar	0	0
A& D counsellor	6	0
Other	8	0
Years working in Occupation		
6 or more years	76	85
Work Setting		
DHB inpatient	3	6
DHB Community Adult	28	47
DHB Community Child	13	9
A and D	10	6
DHB specialist service	21	6
Other	24	27
CBT Training Status		
Completed Certificate in CBT	96	0
Completed Diploma in CBT	37	0

Table 2. Students and Supervisor ACT Knowledge, Training and Experience.

	Student %	Supervisors %
Previous Training in ACT		
Yes	43	89
No, but considering it	50	3
No, and no interest	7	8
Knowledge of ACT		
Very poor/poor	51	6
Fair/good	49	92
Excellent	0	3
Expertise in ACT		
Very poor/poor	75	5
Fair/good	25	73
Excellent	0	3
Use of ACT		
Never	32	11
Rarely/sometimes	56	54
Often/always	12	34
Estimate of my colleagues' interest in ACT		
None at all	0	
A moderate amount/a little	62	
A lot/ A great deal	38	
Percentage of colleagues in my workplace that use ACT to at least some degree	Mean = 40% (*SD* = 27.31)	Mean = 36%

Table 3. Clinical Psychology Supervisors' Confidence and Use of Models

Question	%
I feel confident to supervise ACT:	
Yes	31
No, but possibly in a year or two	40
No	29
CBT is the predominant model currently used	67
Second most predominant model used	
ACT	19
DBT	28
EMDR	24
Family therapy	10
Other (compassion focussed, interpersonal therapy, schema therapy)	20

Seventy three percent of supervisors rated their expertise in ACT therapy as "fair"/"good". Thirty-four percent reported using ACT often or always when doing therapy, and 54% percent reported rarely or sometimes using ACT. Ninety-two percent reported they had a fair/good knowledge of the ACT model, with 89% of supervisors reporting some (formal or self-directed) training in ACT. Eight percent said they had no training in ACT and were not considering any training (see Table 2).

Perceptions of colleague's interest in ACT

Results suggest that both students and supervisors report that ACT is being talked about and used in the workplace, with perceptions that 36% (according to supervisors) or 40% (according to students) of colleagues using it (Detail in Table 2).

Supervisor Experience and Ability to Support ACT Training.

Thirty one percent of supervisors reported they would feel confident to supervise students in ACT currently and an additional, 40% reported they would possibly feel confident to supervise ACT within a year or two. The supervisor survey was completed in 2018 and over 70% of the supervisors responses suggested that they would possibly be confident to supervise ACT by 2021, while 30% indicated that they do not feel confident to supervise ACT. Nineteen percent of supervisors reported that ACT is the predominant model they use in their practice (Table 3).

Training in ACT

The largest group of supervisors had taught themselves ACT through independent reading and learning (16%). Sixteen percent had attended Russ Harris workshops (which could be in NZ, Australia or online) and 17% had attended other NZ workshops. Twenty-seven percent of students reported they had taught themselves ACT through independent reading and learning, Twelve percent had attended a Russ Harris workshop and nine percent had attended other NZ workshops (Table 4).

Cultural Appropriateness of ACT

Seventy-six percent of students considered ACT to be appropriate to use with Māori clients, 22% reported they did not know if it was appropriate or not, one student thought it likely would be and three students reported they did not think ACT was appropriate with Māori clients. Fourteen students (20%) elaborated on their views. Student elaborations regarding appropriateness with Māori are in Table 5.

Table 4. Training in ACT

Type of training in ACT	Student %	Supervisor %
Independent learning through books with no workshops attended.	27	16
Russ Harris Workshop (Part 1)	12	16
1-2-day workshops run by NZ presenter	9	17
Reasons for not training in ACT		
Other things more of a priority	32	-
I don't know where to get training in ACT	25	-
Lack of time for training	16	-
Lack of money for training.	25	-

Table 5. Students views on appropriateness of ACT for Māori

Question	Ethnicity
Māori have hauora/mauri ora and values based models available. Example: Powhiri Poutama 7 key features that help ground and centre whanau	M
ACT could work within any culture, one just needs to be respectful of beliefs, etc.	NM
I think with understanding of Māori cultural aspects it can be applied	NM
I think values work is appropriate with any culture I work in a Māori organisation and I believe there is a place for ACT.	NM M
Very useful especially explaining meaning by use of metaphors	NM
As always, provide clear rationale and psychoeducation, ask the client if they are willing to try it. Be careful to be holistic in approach, for example include spirituality. Understand basic concepts of culture and how not to be offensive	NM
Absolutely appropriate as a values based modality with strong emphasis on action	NM
The values and compassion component are very appropriate for cultural input. Also using the choice point eliminates pass or fail. ACT works with the language of the person using kindness and acceptance. Focusing on self-context can help with including culture.	NM
Needs more research but likely can be helpful.	NM

Note: Māori/ part- Māori (M); Non- Māori (NM)

Supervisors

Seventy-nine percent of supervisors (n=39) considered ACT to be suitable to use with Māori clients. None of the supervisors thought ACT was inappropriate for Māori and 21% said they did not know. Ten supervisors elaborated on their views of using ACT with Māori clients. Of the nine positive comments, four supervisors said they had used ACT with Māori clients. The elaborations made by supervisors are in Table 6.

DISCUSSION

While CBT and ACT can be viewed as two different therapies, many ACT concepts have been incorporated into traditional CBT in the last 10 years. It is useful for student therapists to understand the theoretical background of ACT, and the differences and similarities to CBT, which need to be reconciled by a primarily CBT therapist. The results of this study support anecdotal observations that there is an appetite for ACT components within the CBT training courses offered by the University of Otago. Most of the post-graduate CBT students and supervisors were interested in ACT as a therapy modality. However, while the students were interested in the ACT model, the majority (75%) of them rated their expertise as very poor/poor, with none of the students rating their expertise as excellent. The results also show that the majority of the clinical supervisors (all senior clinical psychologists) have (or are developing) ACT knowledge and skills to feel confident to supervise students in relation to ACT as a component of a CBT course.

The majority of participants (both students and supervisors) who expressed a view on cultural appropriateness were of the view that it would be appropriate to use ACT when working with Māori clients.

Limitations of this study were that it was based on self-report and only 48% of supervisors responded, meaning this may not accurately reflect the knowledge and skills of the supervisors. Perceptions by students and supervisors that ACT is used by around 40% of workplace colleagues may be over- or under-estimations. Very few participants in this study were Maori (or Pasifika), so it is not possible to draw conclusions in relation to their responses.

It is worth noting that ACT workshops typically do not assess competence development or require supervised practice. They tend to rely on participants having solid pre-existing therapy skills. By comparison, the current CBT course is a comprehensive full academic-year course and includes supervised CBT practice and assessment of competence prior to achieving the post-graduate qualification. The CBT course is funded by the NZ Ministry of Health and students are given time off work to complete the block courses and the examination, thus removing cost and accessibility barriers.

Based on these results, we will cautiously incorporate introductory ACT concepts into our current CBT diploma course, using a five-hour workshop by an ACT trainer who is part of the CBT course teaching staff. This will be taught at the diploma level, so that students will already have a solid grasp of the traditional CBT approach taught

Table 6. Supervisors views on appropriateness of ACT for Māori

Question	Ethnicity
As with any individualised therapy needs, if the approach taken is culturally sensitive and matched to the client's needs (and not in conflict with cultural beliefs and values), Act has the potential to be beneficial with Māori clients it would be important to have a clear assessment with the individual first and then determine the appropriateness	NM
I don't know. There should be a consultation process and then an evaluation before use. I imagine it could be adapted to be culturally appropriate but it should be assumed that it is	NM
Very Appropriate	NM
Unsure about the effectiveness of ACT with Māori clients, may be potentially useful	NM
I think ACT can be applied within a Tikanga Māori context, in the same way that other behavioural therapies can be	NM
Individual variation , creative collaborative adjustments	NM
I've used ACT with Māori clients. It seems to fit well given the focus on values and flexibility inherent in the implementation of the theory	NM
I think the values based living activities would be very suitable for Māori clients; there are interventions developed for exactly this and they seem very appropriate	NM
I think the values based living activities would be very suitable for Māori clients; there are interventions developed for exactly this and they seem very appropriate.	M
Much of ACT is about acceptance of who you are currently and what life values you have. This would fit with a Māori world view	NM
Use frequently, easily integrated with Māori concepts	M
My Māori clients have responded particularly well to this approach	M
I've used it effectively with Māori who have found it really helpful	NM

Note: Māori/ part- Māori (M); Non- Māori (NM)

at certificate level (the certificate course is a prerequisite for the diploma course). It will focus on how ACT and CBT fit together, demystify ACT, and cover some basic act techniques. Learning about ACT in a way that makes sense to students will involve ensuring that the students understand that both ACT and CBT sit under the umbrella of cognitive behavioural therapies, and that both CBT and ACT are process-based therapies with similarities and differences, particularly the significant differences between ACT's 'relational frame theory' and CBT 'cognitive specificity' theory. Students will be encouraged to consider in what ways ACT can complement traditional CBT. As with CBT, we do not want ACT to be viewed as just a bunch of "techniques", but to have at least a basic understanding of what theoretical processes these techniques are targeting when including ACT concepts and techniques in formulations and treatment plans. Acceptance and Commitment Therapy concepts, such as values (which is one of the six main principles) fit well theoretically with CBT and can strengthen commitment to behavioural change (which is both an ACT and a CBT goal). Within a CBT formulation, students who do further ACT training can learn to draw on ACT techniques as appropriate. For example, within a CBT vicious flower formulation (Moorey, 2010), where rumination is identified as a maintaining factor in depression, students can teach mindfulness and defusion techniques to clients.

Third wave CBT therapies are the next generation of cognitive-behavioural therapies. Like a good CBT formulation that evolves with new information, they build on the solid empirical foundation that traditional CBT provides. This study suggests that (in NZ at least) there is a desire to include ACT within CBT training and that the majority of clinical supervisors report they are largely in a position to support this learning. What seems critical is that therapists maintain fidelity to an evidence-based intervention, and have flexibility to meet the needs of the individual client. Supervisors will have an essential role in ensuring that ACT components are only brought in where it fits with the CBT formulation and that they are integrated in a coherent way. As this survey was conducted in 2018 and there were a number of supervisors with no/minimal formal ACT training we will run the supervisor survey again before the next diploma level course, to check whether sufficient numbers of supervisors are adequately position to supervise the ACT components of the course. We will also support supervisors by providing the training materials and discussing them at regular supervisor audio-conferences.

Adding an introductory ACT component to the course will enable students to cater to a broader spectrum of presentations and personalities using a process-based approach while remaining faithful to the theory of the evidence based therapies. Thus, in addition to broadening the range of clinicians who are competent to deliver evidence-based therapy in NZ, the course will broaden their skill set beyond traditional CBT.

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NOTICE OF CORRECTION:

This is a corrected version of the article published in December, 2021. The author order in the original version was incorrect, and missed during the proofing process. This version (published May 3rd, 2022) presents the correct author information.

APPENDIX 1

Student Survey

1. Have you done any training or learning in Acceptance and Commitment Therapy (ACT)? (Yes/No but considering it/ No and have no plans to do so)
2. Which of the following have you done? (Reading books- independent learning/ Russ Harris 2 day workshop-beginners/ Russ Harris 2 day workshop- advanced/ Russ Harris Boot Camp/ 1-2 day workshop-NZ presenter/ 1-2 Day workshop-International presenter/ International ACT conference
3. If you have not done any formal training in ACT, what is the reason for this? Choose as many as relate to you (Not Interested in ACT training/ There are other things that are a higher priority for me/ I don't know where to get training in ACT/ Lack of time
4. How would you rate your knowledge in ACT (Very Poor/ Poor/ Fair/ Good/ Excellent)
5. How would you rate your expertise in ACT? (Very Poor/ Poor/ Fair/ Good/ Excellent)
6. To what extent do you use ACT in your clinical work currently? (Never/ Rarely/ Sometimes/ Often/ Always)
7. Do you see ACT as suitable with clients from a range of different cultures? (Yes/ No/ Don't Know)
8. We are interested in your thoughts about the use of ACT with Māori clients. Please elaborate if you have any views about the appropriateness or not of ACT with Māori (or you can leave this blank)
9. When thinking about your colleagues (of any discipline) who do therapy, how much interest would you estimate they have in ACT? (None at all/ A Little/ A Moderate Amount/ A Lot/ A great Deal)
10. When thinking about your workplace what percentage of your colleagues do you think use ACT at least to some degree in their clinical work (0-100 Slider)
11. Gender (Male/ Female/ Other)
12. What ethnic group(s) do you belong to? Mark the space or spaces that belong to you (NZ European/ Māori / Pasifika/ Chinese/ Indian/ Other (please specify))
13. My professional occupation is (Nurse/ Occupational Therapist/ Social Worker/ Psychiatrist or Psychiatric Registrar/ Clinical Psychologist/ Counselling Psychologist/ AOD Counsellor/ Other (please specify)
14. How long have you been working in this occupation? (less than 3 years/ 3-6 years/ 6-10 years/ 10+ years)
15. My work setting is (DHB General Hospital/ DHB Inpatient/ DHB Adult Community Mental Health Service/ DHB Community Based Child and Adolescent Service/ Alcohol and Drug Service/ DHB Specialist Service (please specify)/ Private Practice/ Other (please specify)
16. I have completed the certificate in CBT (COBE401) through Otago University (Yes/ No)
17. I completed the certificate in CBT in: (year) (2013/ 2014/ 2016/ 2017)
18. I have completed or am enrolled in the diploma in CBT (COBE404) through Otago University (Yes/ No)
19. I completed or am enrolled in the Diploma in CBT in: (year) (2011/ 2015/ 2018)

Supervisor Questionnaire

1. Have you done any training or learning in Acceptance and Commitment Therapy (ACT)? (Yes/ No but considering it/No and have plans to do so)
2. Which of the following have you done? (Independent learning (please specify)/ Russ Harris two day workshop beginners/ Russ Harris 2 day workshop advanced/ Russ Harris Boot camp/ 1-2 day workshop by NZ presenter/ 1-2 day workshop or conference outside NZ/ Member of ACT interest group/ Attended ACBS conference/ other (please comment).
3. If you have not done any formal training in ACT, what is the reason for this? Choose as many as relate to you (Not interested in learning ACT/There are other things that have a higher priority for me/ I do not know where to get training in ACT/ Lack of time for training/ Lack of money for training).
4. How would you rate your knowledge in ACT? (Very Poor/ Poor/Fair/ Good/ Excellent)
5. How would you rate your expertise in ACT? (Very Poor/ Poor/ Fair/ Good/ Excellent)
6. To what extent do you use ACT in your clinical work currently? (Never/ Rarely/ Sometimes/ Often/ Always)
7. Would you currently feel confident to supervise a student who was in the beginning stages of training in ACT? (Yes/ Not currently, but I could potentially see myself doing this in a year or two)/ No)
8. Do you see ACT as suitable with clients from a range of different cultures? (Yes/ No/ Don't Know)
9. We are interested in your thoughts about the use of ACT with Māori clients. Please elaborate if you have any views about the appropriateness or not of ACT with Māori (or you can leave this blank)
10. When thinking about your colleagues (of any discipline) who do therapy, how much interest would you estimate they have in ACT? (None at all/ A little/ A moderate amount/ A lot/ A great deal)
11. When thinking about your workplace what percentage of your colleagues do you think use ACT at least to some degree in their clinical work? (Response on 0-100 Sliding scale)
12. Gender (Male/ Female/ Other)

13. What ethnic group(s) do you belong to? Mark the space or spaces that belong to you (NZ European/ Māori / Pasifika/ Chinese/ Indian/ Other (please specify)
14. I am a clinical psychologist (Y/N)
15. How long have you been working in this occupation? (Less than 3 years/ 3-6 years/ 6-10 years/ 10+ years)
16. The setting I do most of my clinical work is: (DHB general hospital/ DHB inpatient/ DHB community-Adult/ DHB community- Child & Adolescent/ AOD service/ DHB specialist service (please specify)/ Private Practice/ Other (please specify)
17. Is CBT the predominant model that you use in your clinical work currently? (Yes/ No)
18. What is the second most frequent model you use in your clinical work? ACT/ Family Therapy/ EMDR/ DBT/ Compassion-Focused Therapy/ Interpersonal Therapy/ Schema Therapy/ Solution-Focused Therapy/ Other (please specify).

RBANS form equivalence in specific English language regions

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The Repeatable Battery for the Assessment of Neuropsychological Status (RBANS) is a quick assessment of cognitive function with four equivalent forms, validated in the United States. This permits assessment of cognitive decline or improvement. Equivalent forms reduce some repeat testing effects in longitudinal assessments. An important incidental finding in a New Zealand controlled trial utilising the RBANS as a primary outcome measure, was that form A and form B were different in immediate memory scores. The controlled trial was negative for changes in all RBANS items. Although validating the RBANS in our cohort was not the purpose of this study, the difference found between form A and B was significant. The RBANS form A 'story memory' item contains a phrase that is unusual in New Zealand speech, and could explain the observed discrepancy between the forms. Although the forms have been validated previously, different English language regions should check for any phrasing that is unusual if not previously validated in the local population.

Keywords: *Repeatable Battery for the Assessment of Neuropsychological Status; RBANS; Memory; Repeated Testing; Longitudinal Assessment*

Introduction

The Repeatable Battery for the Assessment of Neuropsychological Status (RBANS) (Randolph, 1998) is a brief test designed to measure attention, language, visuospatial ability, and immediate and delayed memory. It takes less than 30 minutes to administer, and is sensitive to mild impairments in these domains. There are 12 subtests, which map onto five neuropsychological domains.

A key advantage of the RBANS is that it has four equivalent forms (Randolph, 1998), which are designed to make it easier when administering repeated assessments. The multiple forms use the same testing structure but change the content of the trials, e.g. the subject is asked to memorise a different list of words in form A and form B.

Repeated testing in psychometrics can result in inflated scores through a number of mechanisms. Subjects may remember elements of the test from previous sessions, and so be able to focus more attention on items they haven't remembered, which are referred to as content-based practice effects (Miller et al., 2009). Also, subjects can develop more efficient cognitive strategies to complete some tests (Rozencwajg & Corroyer, 2001), which are called process-based practice effects. The use of multiple equivalent forms can reduce content-based practice effects by presenting different stimuli that test the same construct. Doing this can mostly eliminate an increase in scores from practice effects (Calamia, Markon, & Tranel, 2012). However, process-based practice effects cannot be controlled for by using multiple equivalent forms.

The RBANS A and B forms have been tested in an equivalency study in the United States (Randolph, 1998). The study was performed in 100 individuals with a counterbalanced design so that the same numbers of participants started on both forms. The maximum mean difference in the indices between form A and form B was 4.5 points in the delayed memory index (correlation coefficient 0.64). The mean difference in the immediate memory index was smaller than this (correlation coefficient 0.68 corrected). No additional studies investigating the equivalence of forms A and B (English version) were found in the literature.

We used the RBANS as a primary outcome measure to investigate change in memory in a randomised placebo-controlled trial of EEG biofeedback source-localised to the Posterior Cingulate Cortex (PCC). EEG biofeedback is a training technique where participants take voluntary control of aspects of the EEG rhythm (Masterpasqua & Healy, 2003). The study was carried out in adults with memory symptoms and a RBANS immediate memory score of less than 90 (Galt, 2019).

METHODS

Participants

Participants were recruited from the general population in Dunedin, New Zealand, through public noticeboard advertisements, direct approach to community groups of older adults, and sign-up sheets at community events run by the Brain Health Research Centre, University of Otago. Participants were required to be aged over 40 years with no history of dementia or other neurological disease. Those meeting these criteria were

Table 1. Average demographic characteristics of study participants

Category	Total Sample	Group A	Skewness, Kurtosis	Group B	Skewness, Kurtosis	*p*-value (A vs B)
N of volunteers	223	112		111		
Age (range)	*M*=65.2 (40-92)	*M*=64.9 (44-89)	-.1, -.4	*M*=65.5 (40-92)	-.2, -.2	*p*=.598
N of women (%)	142 (63%)	77 (68.8%)		65 (58.6%)		
Years of education	*M*=15.3 (*SD*=2.58)	*M*=15.3 (*SD*=2.70)	-.2, -.7	*M*=15.2 (*SD*=2.47)	.3, -.1	*p*=.562

asked to take the RBANS to be assessed for inclusion in the biofeedback trial. Recruitment was not specifically targeted at people concerned about their memory. Participants with mild anxiety and depression were included, but were excluded if they were currently taking anti-depressant or anxiolytic medications. Those who scored 90 or below on the immediate memory index of the RBANS were included, those who scored above 90 were excluded from the EEG biofeedback trial, but their RBANS score and an initial EEG were retained.

Table 1 describes the basic characteristics of participants in the initial screen using the RBANS. Participant characteristics were compared using t-tests.

Survey

The RBANS (Randolph, 1998) was used as the primary measure. The test was administered in its entirety, however, this analysis mainly pertains to the immediate and delayed memory components of the test, described below.

The subtests for the immediate and delayed memory indices comprise: (i) Word List Immediate Recall. The test administrator reads out the list of ten words at a rate of one word per second. The participant then repeats as many of the words as he/she can remember. This is repeated over four trials with the words in the same order each time. The score for this section is the total number of words remembered across all four trials. (ii) Story Memory Immediate Recall. The participant listens to a story comprising of two sentences over approximately 20 seconds. The participant subsequently recites the story as exactly as possible. The score is based on the recall of 12 details of the story. (iii) Figure Copy. the participant is asked to copy a figure. Ten points are scored for the accuracy of the features, and ten points are scored for the accuracy of the spatial relationships between the features. (iv) Word List Delayed Recall. The participant is asked to recall (without prompting) the same list as in the immediate recall and is scored on the number recalled. (v) List Recognition. A list of 20 words is read out, ten of which are contained in the word list recall task. The subject is asked to identify which words were also on the immediate recall list. Participants are scored for correctly stating that a word is on the list, and correctly stating that a word is not on the list. (vi) Story Memory Delayed Recall. The participant is asked to recall, with a single prompt, the story from the immediate story recall task. Participants are scored on each of the 12 details. (vii) Figure Recall. The participant is asked to re-draw from memory the figure from the figure copy. Ten points are scored on the accuracy of the features of the figure, and ten points are scored for the spatial relationships between the features. The Immediate Memory Index score is generated from a table based on the participant's age, word recall score, and story recall score. The Delayed Memory Index is generated from a table based on the participant's age, the list delayed recall, story delayed recall, and figure delayed recall scores, and the list recognition score.

The subtests for the Language Index comprise: (i) Picture naming. Ten pictures are shown, and the participant is required to name each of them (for example, yacht, camel, lion). (ii) Semantic fluency. The participant is required to name as many members of a category as they can in one minute, for example, name as many animals as they can. The Language Index is generated from a table based on the participant's age and the two Language Index sub-scores.

Procedure

Participants were screened with RBANS form A or form B, using blocked (balanced) randomisation. Participant groups are referred to by the letter of the form they started on, i.e. 'group A' and 'group B'. Participants who were included in the biofeedback trial (those who initially scored below 90 in the Immediate Memory Index) had three RBANS assessments: A-B-A or B-A-B. The first was at study entry, the second after the biofeedback training at five weeks, and the third a further six weeks following the end of the training.

Groups A and B were further blocked randomised independently into the trial arms of the EEG biofeedback study: a broadband feedback group (training EEG theta and alpha up, beta and gamma down), narrowband feedback group (training alpha up and beta and gamma down), and placebo feedback group (visual stimulus randomly generated). Each participant underwent 15 sessions of EEG biofeedback training over four weeks. During the training, EEG was analysed in real time to derive a source localised signal from the PCC, specifically the relative EEG frequency power ratios, which were displayed visually as the height of a bar on a laptop, and participants were asked to keep the bar in the top half of

the laptop screen. The results of this trial showed that biofeedback did not alter the memory scores of the participants, which meant that performance of the RBANS could be carried out at all three time points. Further details of this study are available (Galt, 2019).

The study was approved by the University of Otago Human Ethics Committee. Approval to conduct the study in the Southern District Health Board locality was obtained through Health Research South. The trial was registered with the Australian and New Zealand Clinical Trials Register, registration number ACTRN12616001731482.

Statistical Analysis

Skewness and kurtosis were calculated to assess the normality of the underlying data. The difference between the groups at baseline was assessed using independent sample t-tests, using a Bonferroni adjusted significance level of 0.003, to correct for multiple comparisons. The difference between the initial score and the score at the initial follow up were compared using independent sample t-tests, as was the comparison between the initial score and the score at the delayed follow up. A Bonferroni adjusted significance level of 0.003 was used for these comparisons as well. Where assumptions of normality were not met, a Wilcoxon sign rank test was performed, with p = 0.003 as the level of significance adjusted for multiple comparisons.

RESULTS

A total of 223 volunteers took part in an initial screening session, 142 women and 81 men. Of these, 68 (31 women and 37 men, mean age 67.6) scored below 90 on the RBANS in the immediate memory index score and were selected. Of these 68, 53 (22 women and 31 men, mean age 67.8) completed the randomised EEG biofeedback trial and three RBANS assessments.

Table 2. Average baseline RBANS scores of all participants

Category	Total Sample Mean (*SD*)	Skewness, kurtosis	Group A Mean (*SD*)	Skewness, kurtosis	Group B Mean (*SD*)	*p*-value (A vs B)
List Learning	27.2 (4.91)	-.8, .8	26.7 (5.13)	-.6, 1.0	27.7 (4.63)	*p*=.189
Story Learning	16.2 (3.75)	.0, -.6	15.0 (3.83)	-.8, .6	17.4 (3.25)	*p*<.001*
Figure Copy	18.7 (1.56)	-1.9, 4.6	18.9(1.45)	-1.2, 1.6	18.5 (1.64)	*p*=.75
Line Orientation	17.4 (2.74)	-.9, .3	17.4 (3.25)	-2.4, 9.2	17.4 (3.01)	*p*=.744[a]
Picture Naming	9.6 (0.86)	-2.0, 5.7	9.5 (0.73)	-7.2, 64.5	9.7 (0.95)	*p*=.006[a]
Semantic Fluency	21.2 (5.02)	-.0, -.2	22.8 (4.95)	.9, 1.1	19.7 (4.60)	*p*<.001*
Digit span	10.7 (2.39)	.5, .9	10.6 (2.2)	.3, -1.0	10.6 (2.57)	*p*=.643
Coding	45.4 (9.93)	.1, .1	45.9 (10.1)	-.4, .4	44.8 (9.73)	*p*=.388
List Recall	5.8 (2.28)	-.6, .3	5.5 (2.28)	-.6, -.4	6.1 (2.25)	*p*=.051
List Recognition	19.1 (1.36)	-2.1, 5.8	19.1 (1.41)	-2.7, 13.0	19.2 (1.30)	*p*=.990[a]
Story Recall	8.6 (2.63)	-.7, .0	7.8 (2.65)	-1.3, 2.3	9.5 (2.35)	*p*<.001*
Figure Recall	14.4 (93.81)	-1.0, .9	14.4 (4.14)	-1.3, 2.9	14.4 (3.42)	*p*=.670
Index						
Immediate Memory	98.4 (14.69)	-.4, .3	94.4 (14.67)	-.6, .4	102.2 (13.57)	*p*<.001*
Language	101.6 (11.39)	-.4, 1.3	104.1 (11.81)	.6, 1.7	99.0 (10.36)	*p*=.001*
Delayed Memory	101.4 (14.43)	-1.3, 3.0	99.6 (14.68)	-1.1, 2.7	103.3 (13.92)	*p*=.041
Total Scale Index	103.5 (13.48)	-.3, .2	103.2 (14.08)	.0, .9	104.0 (13.92)	*p*=.748

Notes: **p*<0.003 by independent samples t-test, [a] *p*-value calculated by Mann-Whitney U test

Table 3. Average baseline scores of participants who scored 90 or below on the Immediate Memory Index of the RBANS.

Category	Qualifying participants Mean (*SD*)	Group A Mean (*SD*)	Skewness, Kurtosis	Group B Mean(*SD*)	Skewness, Kurtosis	*p*-value (A vs B)
Age	67.8 (10.18)	67.9 (9.99)	-.1, .0	67.8 (10.50)	.1, .4	*p*= .97
N of Women (%)	22 (41.5%)	13 (39.4%)		9 (45.0%)		*p*= .69
Years Education	14.1 (2.43)	14.3 (2.33)	-.3, -.7	13.7 (2.55)	.9, .6	*p*=.39
List Learning	22.5 (4.82)	22.7 (4.94)	-.5, -.4	22.1 (4.58)	-.5, -.74	*p*=.65
Story Learning	12.5 (2.90)	12.0 (2.84)	.2, .6	13.4 (2.78)	-.0, -.1	*p*=.09
List Recall	4.0 (2.20)	4.2 (2.22)	-.5, -.6	3.7 (2.17)	.6, .1	*p*=.35
List Recognition	18.3 (1.85)	18.5 (1.69)	-1.9, 5.2	18.1 (2.07)	-2.0, 5.8	*p*=.43
Story Recall	6.2 (2.64)	5.9 (2.51)	-.0, .0	6.7 (2.78)	-.7, .1	*p*=.31
Figure Recall	12.0 (4.50)	12.7 (4.44)	-.9, .9	11.0 (4.40)	-1.0, .6	*p*=.18
Index						
Immediate Memory	80.9 (9.37)	80.2 (9.70)	-1.8, 2.7	82.0 (8.70)	-.9, -.2	*p*=.50
Delayed Memory	88.7 (14.39)	90.1 (13.99)	-1.7, 3.7	86.5 (14.77)	-1.4, 3.4	*p*=.38
Total Scale Index	90.2 (9.98)	90.9 (9.94)	-1.5, 3.5	89.0 (9.92)	-0.3, 0.3	*p*=.50

Table 4. Differences in average RBANS score at first follow up between Groups A and B

RBANS Subtest or Index	Group A assessment two score Mean (*SD*)	Gp A change vs baseline Mean (*SD*)	Skewness, Kurtosis	Group B assessment two score Mean (*SD*)	Gp B change vs baseline Mean (*SD*)	Skewness, Kurtosis	*p*-value of change vs baseline (A vs B)
List Learning	25.2 (4.52)	2.5 (3.93)	.5, -.0	22.6 (5.08)	0.5 (3.79)	.4, -.5	*p*=.091
Story Learning	16.0 (3.79)	4 (3.88)	-.3, .8	12.3 (3.95)	-1.1 (4.41)	.4, -.4	*p*<.001*
Picture Naming	9.8 (0.52)	0.6 (0.89)	1.1, 1.4	9.7 (0.46)	0.1 (0.70)	-.1,-.9	*p*=.067
Semantic Fluency	18.7 (4.44)	-1 (4.26)	-.9, 1.0	20.6 (4.57)	3.7 (5.18)	-.7, 1.3	*p*<.001*
List Recall	5.4 (2.40)	1.2 (2.08)	.0, 2.9	3.2 (1.66)	-0.5 (2.20)	-.7, -.4	*p*=.023
List Recognition	18.2 (2.26)	-0.3 (2.46)	.5, 2.8	18.3 (2.10)	0.2 (1.25)	.5, -.1	*p*=.561
Story Recall	8.7 (2.48)	2.8 (2.39)	-2.6, 12.0	6.1 (3.13)	-0.6 (2.82)	.3, -.7	*p*<.001*[a]
Figure Recall	12.7 (4.09)	0.1 (3.15)	-.0, .3	11.0 (4.25)	0.1 (3.28)	.2, -.8	*p*=.952
Index							
Immediate Memory	95.8 (13.07)	15.5 (10.58)	-.34, .48	82.3 (12.32)	0.2 (12.56)	.1, .7	*p*<.001*
Language	96.9 (10.76)	0.2 (12.05)	.6, 2.3	101.2 (7.44)	7.8 (10.53)	-.9, 1.0	*p*=.005
Delayed Memory	96.2 (15.36)	6.2 (9.04)	-.0, .7	87.3 (16.04)	0.8 (10.33)	.5, -.1	*p*=.056
Total Scale Index	95.4 (10.26)	4.5 (7.00)	.0, .7	90.3 (12.43)	1.3 (9.63)	-.0, -1.1	*p*=.244

** p=<0.003 by independent sample t-test, [a] p-value calculated by Mann-Whitney U*

Table 2 gives the average RBANS index scores for the initial testing of all 223 participants who underwent screening and for participants who were initially tested with form A (group A) or form B (group B). Statistically significant differences were detected between groups A and B in three out of twelve subtests in initial testing: 'Story Learning', 'Semantic fluency', and 'Story recall'. These map onto a significant point difference in both the Immediate Memory Index and Language Index, with subjects tested on form B scoring 8.8 points higher than subjects on form A ($t(222)=1.902$, $p<.001$), and subjects on form A scoring 5.1 points higher than form B ($t(222)=3.313$, $p<.001$), respectively.

Table 5. Difference in second follow up score between form A and form B

RBANS Subtest or Index	Form A Gp Delayed follow up score Mean (SD)	Change vs baseline Mean (SD)	Skewness, Kurtosis	Form B Gp Delayed follow up score Mean (SD)	Change vs baseline Mean (SD)	Skewness, Kurtosis	*p*-value of change vs baseline difference
List Learning	25.0 (5.39)	2.2 (4.31)	.2, -.2	24.2 (3.92)	2.1 (3.09)	.0, -.5	*p*=.952
Story Learning	15.2 (3.52)	3.2 (2.72)	-.2, -.2	16.0 (4.14)	2.6 (3.39)	-1.0, 1.3	*p*= .501
Picture Naming	9.6 (0.49)	0.4 (0.70)	1.4, 2.7	9.8 (0.40)	0.2 (0.51)	.4, .2	*p*=.523
Semantic Fluency	20.7 (4.46)	1.2 (3.24)	-.3, .7	17.9 (3.90)	1.0 (3.07)	-.2, -.7	*p*=.937
List Recall	4.8 (2.57)	0.5 (1.44)	.4, 1.0	4.3 (2.49)	0.6 (1.66)	-.8, 1.1	*p*=.399
List Recognition	18.6 (1.85)	0.1 (1.63)	.3, .9	18.8 (1.72)	0.7 (1.31)	1.0, 4.3	*p*=.174
Story Recall	7.8 (2.71)	2.0 (2.19)	-.2, .5	8.3 (2.95)	1.7 (2.37)	-1.3, 3.4	*p*=.876
Figure Recall	13.2 (4.35)	0.6 (2.96)	-.2, .5	12.6 (4.62)	1.7 (2.65)	-1.3, 3.5	*p*=.311
Index							
Immediate Memory	93.1 (12.64)	12.8 (10.79)	.4, .5	93.2 (10.89)	11.2 (9.65)	-.1, -.3	*p*=.805
Language	101.8 (8.67)	5.1 (10.69)	.5, 1.4	96.5 (6.22)	3.1 (6.45)	-.1, -.9	*p*=.480
Delayed Memory	96.4 (17.20)	6.3 (11.11)	.4, .8	95.6 (16.51)	9.1 (11.47)	-.0 , 1.0	*p*=.408
Total Scale Index	97.9 (11.40)	7 (8.50)	.6, 1.8	95.3 (10.10)	6.3 (6.59)	-.5, -.9	*p*=.885

Table 3 shows the average baseline RBANS scores for the 53 subjects who completed all 15 sessions of the biofeedback training. In this group who went on to do the biofeedback trial, 33 were screened using form A, and 20 using form B, with no significant differences at baseline. Given the selection criteria for entering this group included a score of less than 90 on the immediate memory index, these two groups were expected to have equivalent scores at baseline. As such, no significant difference between the two groups was found with the average baseline Immediate Memory Index, nor either of the two related subtests.

Table 4 shows assessment 2 RBANS scores, and change from assessment 1, separated by groups A and B. There is a difference from assessment 1 to assessment 2 in the immediate memory index. Group A (assessed on form B at assessment 2) improved 15.5 points at assessment 2 on immediate memory. In contrast, group B (form A at assessment 2) scored 0.2 points higher at follow up (between Groups $t(52)=4.673$, $p<.001$). This is not influenced significantly by the negative trial interventions (Galt 2016). The biggest difference in assessment 1 and 2 between the groups in Immediate Memory subscores was in the 'story learning' component, 5.1 points, ($t(52)= 4.314$, $p<.001$).

Table 5 shows the RBANS groups A and B mean score at delayed follow up, assessment 3, and there were no significant between group differences. Group A had increased 12.8 points in the immediate memory index. Group B increased 11.2 points from baseline. Again, there was no significant influence from the interventions (data not shown, see Galt 2019). The difference between the two groups has disappeared at this time point

DISCUSSION

Overall, in our New Zealand cohort, the immediate memory index RBANS items are more difficult in form A compared to form B. This effect was seen for all who were screened initially.. Because the participants in the biofeedback trial were selected on the basis of their Immediate Memory Score, this meant that the groups were artificially made the same at this time point. Participants who then switch from form A to form B has a big increase in their immediate memory score, specifically on the Story Memory task. Participants who switched from form B to form A had almost no increase at all in their assessment 2 score. These same participants had a large increase in memory score on switching back to form B for assessment 3, in contrast to the participants switching back to form A who did not increase their scores between assessment 2 and 3 as much. Thus, we find a significant difference between the groups at assessment 2, where the participants were assessed on the opposite form they started on, and not at assessment 1 and 3 This suggests that the task in form A may be more difficult for New Zealand participants than the task in form B.

Because the RBANS immediate memory was used as both a screening and outcome measure, this can complicate repeated measures analyses. A 'silver lining', for the purposes of this report, was that our trial interventions were all negative. This allowed data from the 3 arms to be effectively combined and more easily reveals between form differences in immediate memory.

Given that the intervention trial had no effect on the participant's ability measured by the RBANS, changes in score should only reflect practice effects. We would expect therefore that there would be an increase in the Immediate Memory score at each of assessments 2 and 3, but no difference between those who were being assessed on form A and form B. Subjects with assessment 1 with form A had a significantly greater (14 point) increase in immediate memory score at assessment 2, in comparison to participants who started on form B, in contrast to what we would expect. The difference between the form A and B immediate memory reduced at assessment 3, which reflects the participants switching back to the form they were originally tested on. This finding indicates that switching between the forms is what is causing the unexpected finding at assessment 2. An explanation for this is that form A more difficult, and switching between the forms highlights that difference, instead of the scores increasing in parallel as we might expect.

As the form A immediate memory index was 'more difficult', those who were enrolled with form A may have had greater relative ability in the immediate memory task than those screened with form B. This may be an explanation for the size of the difference between form A and form Bat assessment 2.This is because the practice effects were compounding with the fact that the task in form B was easier.

Differences were found in Language Index for participants screened for the trial. However, no differences were found that had reached significance in the group that went on the complete the biofeedback trial. It is unclear from our study what the implication of this result is for repeated testing using the different RBANS forms. A larger study of repeated assessments might find a more subtle difference in the way the Language Index performs between the forms when performing serial tests.

The subjects in our study had a significant 7.8 point difference in the RBANS immediate memory index score between forms A and B for the people who presented for screening into the biofeedback trial. In contrast, the form equivalency study presented by the test designers found only a 0.2 point difference (Randolph, 1998). This equivalency study was performed in the United States, and there are several reasons why a form effect could exist our cohort and not in the United States cohort. Word frequency and phrasing varies between regions. Memory tests, such as the list memory task in the RBANS, are impacted by the frequency of words in the background population (Hulme et al., 1997).

Perhaps crucially, the story memory item in form A had a phrase referring to a '3 alarm fire'. Describing the intensity and containability of a fire in a multiple-alarm categories is commonly used in the USA and Canada, but is not a common idiom in New Zealand. It was observed by the tester that participants had a lot more difficulty remembering this phrase and the content after it, compared to the phrase in the corresponding story in form B. We hypothesize this phrase could have interrupted memory encoding for the rest of the story as subjects struggled to interpret this. Future studies in this area may be an item-by-item analysis to confirm this hypothesis.

A limitation of this study is that all participants were adults over the age of 40, and all were drawn from one population centre withing New Zealand. Therefore, this finding may not be applicable in younger adults, or those drawn from other population centres.

Linguistic features of the tasks may mean that there is not complete equivalence of form A and form B in the Immediate Memory index in the New Zealand population. Our population was drawn from one geographic location and participants were all over the age of 40, meaning the results may not be generalisable more broadly in New Zealand or overseas.

Conclusion

In a New Zealand cohort, we found a differences in the RBANS immediate memory index between forms A and B. This may be due to one or more phrases that are uncommon in a New Zealand context. We suggests that when using these forms in different English language regions, it is prudent to check for any phrasing that is geographically different , and be prepared to account for this.

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