

**Stress and Mental Illness amongst Samoan adults (16+) living in New Zealand: Measuring levels of psychological distress and mental illnesses and exploring medical and non-medical treatment preferences.**

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## ABSTRACT

The current study looked at levels of stress, psychological distress and rates of mental health difficulties among Samoan adults aged 16+ living in New Zealand, and explored their preferences for medical and non-medical treatments. Stress measures used were based on notions of fa'aSamoa (Samoan worldviews) with four main themes: Relationship Stress (RS), Financial Stress (FS), Student's Academic Stress (SAS) and Parent's Stress for the Children's Education (PSCE). An online survey was completed by 438 participants. Findings indicated that 25.8% (N = 96) of participants experienced high-very high levels of psychological distress in the past four weeks, and 17.2% (N = 58) of participants reported experiencing mental health difficulties in the past 12 months. High levels of stress were significantly associated with high levels of psychological distress for all four measures: RS =  $F(2, 138.175) = 58.0, p < .001$ ; FS =  $F(2, 369) = 10.38, p < .001$ ; SAS =  $F(2, 42.39) = 20.36, p < .001$ ; PSCE =  $F(2, 112.68) = 8.25, p < .001$ . As expected high levels of psychological distress were related to reported experiences of a mental health difficulty  $F(2, 334) = 34.16, p < .001$ . Relationship Stress was also significantly related to reported experiences of a mental health difficulty  $t(334) = -6.03, p < .001$ . For participants who experienced a mental health difficulty in the past 12 months, a total of 74.1% (N = 45) accessed both medical (29.31%) and non-medical (25.86%) forms of treatment. Participants who did not experience a mental health difficulty (72.2%) (N = 200) showed a preference for a combination of both medical and non-medical treatments. Overall, almost all participants accepted the use of macronutrients as an alternative treatment for stress and mental health difficulties (98.3%) (N = 297).

## INTRODUCTION

### **Samoa in New Zealand**

Mental health disorders are the main cause of illness for adults aged 15 - 49 in New Zealand (Health, 2005), with significant disparities for Maori, Pacific, and Refugee groups (Health., 2012). Studies of Pacific groups in New Zealand have for the most part been conducted as a collective group of Samoan, Tongan, Niuean, Cook Island, Fijian and Tokelauan descent. Samoan make up the largest proportion of Pacific (48.7%), who make up approximately 3.6% of New Zealand's total population (Statistics New Zealand, 2014). A large percent of Samoan in New Zealand are New Zealand-born (62%) and under the age of 15 (36.5%) (New Zealand Statistics, 2014). Over half (55%) the New Zealand Samoan population speak Gagana Samoa (Samoan language), although Samoan are becoming increasingly multi-ethnic with 38% identifying with more than one ethnicity (Statistics New Zealand, Census 2013). Samoan have the highest proportion engaged in formal learning (21%), compared to the total NZ population (14.9%), and a large percentage are formally qualified (73%) (New Zealand Statistics, 2014). However, despite having a large percent of qualified full-time workers (63.8%) over the age of 15, Samoan have a poor socioeconomic status (New Zealand Statistics, 2014). Almost half of the working population (49%) have a lower median income (\$20,800) compared to the total population (\$28,500) (New Zealand Statistics, 2014), and worse health outcomes compared to other Pacific groups (Sundborn et al., 2006).

### **Mental Health Status of Samoan and Pacific in New Zealand.**

## *Pacific Overview*

The New Zealand Health Study - Te Rau Hinengaro (Browne, Wells, & McGee, 2006) provided the first quantitative insight into Pacific mental health. The study highlighted a higher state of severe mental illness and lifetime prevalence rates amongst Pacific adults, attributed to the younger age structure, and socioeconomic factors. Pacific adults were more likely to have experienced a diagnosable mental disorder at some stage of their lifetime compared to the total New Zealand population (46.5% vs 39.5%). A bigger proportion of Pacific also experienced a mental illness in the past 12 months (25.0%), and substance use disorders (5.3%) compared to the total New Zealand population (20.7% and 3.5% respectively). Pacific have also been found to suffer higher rates of antenatal depression compared to European (Waldie et al., 2015). Pacific born in New Zealand reported higher 12-month prevalence rates of mental illness (31.4%) compared to Pacific Island-born (15%) who immigrated to New Zealand after the age of 18.

The New Zealand Health Study - Te Rau Hinengaro (Oakley Browne, Wells, & Scott, 2006) also reported young Pacific (16 – 24) had higher prevalence (29.0%) and severity rates (7.5%) for mental illness compared to older age groups (25 – 44 = 27.1%, 6.1%) (45 – 64 = 17.3%, 4.2%) (65+ = 16.1%, 2.3%). Young Pacific (16 – 24) also had higher rates of suicide ideation compared to older Pacific age groups ( $p < 0.0004$ ), and also estimated to have three times the rate of the total New Zealand population for suicide attempts in the past 12 months (1.2%). Other studies have reported young Pacific people are twice as likely to suffer from depression or anxiety issues or to attempt suicide (Tiatia, Coggan, Taule'ale'ausumai, & Finau, 2003). Pacific adolescents have also been found to be more likely to be diagnosed with disorders of psychoses compared to European adolescents (Wheeler, Humberstone, & Robinson, 2006).

## *Samoan Overview*

There is little quantitative data on Samoan mental health in New Zealand. Prevalence rates from The New Zealand Mental Health Survey (Foliaki, Kokaua, Schaaf, & Tukuitonga, 2006) indicate that there is no significant difference between Pacific groups and prevalence rates for mental illness. For Samoan, a greater proportion of Samoan experience a mental illness in the previous 12 months compared to the total population (25.0% vs 20.7%). Anxiety (15.5%) and mood (8.3%) disorders were also more prevalent compared to the total New Zealand population (14.8% and 8.0% respectively) along with higher levels of alcohol (4.6%) and drug (1.3%) abuse (total New Zealand population = 2.6% and 1.3% respectively).

### **The relationship between culture and mental health.**

A comprehensive understanding of mental illness requires an understanding of the cultural context in which the person experiences their illness (Kleinman, 1977; Podsiadlowski & Fox, 2011). Culture is defined as the shared beliefs and values of a cultural group which influences their interpretation of life events and their norms for social interactions (Gaw, 1993; Yamada & Marsella, 2013). Culture plays a fundamental role in cross-cultural variations of expressions of mental illness (L. Clarke, 2013; Marsella, 1982; Weisman, 1997), conceptualization of psychopathology and causation theories (Bäärnhielm, Åberg Wistedt, & Rosso, 2015; Marsella, 1982; Weisman, 1997), and treatment access attitudes (Lewis-Fernández et al., 2014). Identifying cultural factors related to the onset, expression, course, and outcome of mental disorders (Marsella, 1982), cultural aspects of identity and mental illness is required (Yamada & Marsella, 2013), help-seeking behaviour, access to services, and treatment interventions (Kirmayer, 2012) is fundamental to understanding the function of mental illness in one's life. The application of Westernised definitions of mental illness to

non-Western groups fails to acknowledge the influence of culture on illness (Kleinman, 1977) and leads to misdiagnoses and ineffective models of care (Bäärnhielm et al., 2015; Kirmayer, 2012; Marsella, 1982; Yamada & Marsella, 2013).

### **Understanding Fa'aSamoa - Samoan Values, Beliefs, and Practices.**

Samoa values, beliefs, customs, and traditions are known as the fa'aSamoa (Melani Anae, 1997; Ofahengaue Vakalahi & Godinet, 2008; Seiuli, 2015) or the Samoan worldview (Field, 1984). Understanding fa'aSamoa therefore provides a model of Samoan well-being and illness (Melanie Anae, Moewaka Barnes, McCreanor, & Watson, 2002; Meleisea, 2005; Tamasese, Peteru, Waldegrave, & Bush, 2005). Fa'aSamoa concepts of 'olaga fa'aleagaga' (spirituality), tu ma aganu'u (customs and traditions), aiga (kinship), and laufanua (the environment) (Mulitalo, 2000; Pulotu-Endemann, Annandale, & Instone, 2004; Seiuli, 2013) are the foundations of a Samoan's psychological and social needs (Seiuli, 2013). Identifying factors that impact fa'aSamoa is to understand the underlying mechanisms for stress and mental illness. The importance of relationships and spirituality, which are inextricably linked, and form the foundations for all familial, social, political, and economic organisation (Thornton, Kerslake, & Binns, 2010) are discussed in the following section and provide the cultural context to understanding fa'aSamoa.

### **Relationships and Identity in the context of Fa'aSamoa.**

#### *Relationships, Identity, and Wellbeing*

Samoa is a collectivist culture where the happiness and strength of the family are reflected in the harmony and social cohesion of the collective (Melani Anae, 1997). Relationships and kinship provide the foundation for connections and wellbeing and is considered an important

influence on one's identity and sense of self which is derived from belonging to the collective (Melani Anae, 1997; Fitzgerald & Howard, 1990; Seiuli, 2015; Tamasese et al., 2005). The interdependence of the Samoan 'aiga' is thought to be a protective factor for wellbeing (Held et al., 2010). Establishing a strong collective connection and sense of belonging and identity increases self-esteem (Turner, Rubie-Davies, & Webber, 2015). However, when these relationships and connections are disrupted, familial distress, relational breakdowns, and collective disharmony are thought to be key contributors to issues of self-worth and mental illness (Thoits, 2013).

The Samoan 'aiga' (family) includes extended family members (Gordon, Sauni, & Tuagalu, 2013) and each member and 'aiga potopoto' (collective of families) have shared roles and responsibilities to maintain familial and social cohesion (Seiuli, 2015). Relationships ('le va') between the self and others, the self and God, and the environment are considered sacred (Bethamsmsm, 2008; Masoe & Bush, 2009; Tamasese et al., 2005) and nurturing these relationships ('tausi le va') are guided by fundamental Christian principles of 'alofa' (love), fa'aaloalo (respect), and tautua (service) ,(Bethamsmsm, 2008; Esera, 2001; Tiatia et al., 2003; Yeh, Borrero, & Tito, 2013). These principles provide the moral compass for inter-relational exchanges and are encompassed and embodied through cultural protocols of 'fetausia'i' (reciprocity), 'fefa'asoa'i' (collaboration) (Bethamsmsm, 2008), and obligation (Podsiadlowski & Fox, 2011). One's love for their aiga is shown through their acts of giving, and hospitality (Schoeffel. 1995), their 'tautua' requires serving one's family (Tiatia et al., 2003), placing the needs of others first, and being responsive to expectations from others (Poasa, Mallinckrodt, & Suzuki, 2000).

*Psychological Distress and Mental Illness as a result of relationship issues.*



For young Samoan, their behaviour/conduct is considered a reflection of the 'matua' (parents) success or failures (Macpherson, 1990). From a young age, children are socialised to understand their identity as revolving around their social roles and responsibilities to their collective family and community, and self-interests are surrendered to the interests and wellbeing of the collective (Schoeffel et al., 1996). When one's behaviour reflects badly on the 'aiga', or social norms and relationship protocols are violated, shame, distress and mental illness can result and the family wellbeing is compromised (Bethamsmsm, 2008; Esera, 2001; Tamasese et al., 2005). Furthermore, not contributing to the family's needs or meeting network obligations brings feelings of shame failure for the individual or their families (Macpherson, 1990; Siauane, 2006).

Research indicates that the unrealistic familial and community obligations are tied to suicide amongst young NZ-born Samoan (Macpherson, 1990; Tiatia et al., 2003). Tiatia (2003) reported that partner and family conflict were common triggers for suicide attempts amongst Samoan youth aged 16 – 25. The role of collective wellbeing and identity in development of negative affect and mental illness has been highlighted in a recent study of young Pacific women in Auckland (Muaiava, 2015). Themes of ongoing family pressures to please and meet family expectations and the fear of failure were commonly reported precursors to the development of feelings of helplessness and failure which led to depression and anxiety. These cultural themes were also reflected in the women's conceptualisation of their mental illness as forms of punishment for offending against their 'aiga' (family), or consequences of being imprisoned and lack of freedom from family life (Muaiava, 2015). Family conflict and negative feelings of cultural worth have also been found to have a significant relationship with experiences of depression among Samoan school students (Yeh et al., 2013).

## **Fa'aSamoa and Spirituality**

### *Spirituality and Well-being*

Spiritual relationships between the self and the Creator are sacred (Bethamsmsm, 2008) and therefore an important aspect of Samoan wellbeing (Bethamsmsm, 2008; Esera, 2001). Spirituality is understood as the belief in a higher power (God) that incorporates a religious set of values that guide relationships and how the individual lives their life generally (Clark et al., 2006). Christianity was introduced to Samoa in the 1830s and has since been used to reinforce the psychological, philosophical, emotional, physical, and social needs related to fa'aSamoa (Melani Anae, 1997). Spiritual harmony between man and God is embodied in one's day to day practices (Bethamsmsm, 2008) of prayer, 'alofa' love, 'tautua' (service) and 'fa'aaloalo' (respect). The use of spiritual practices for coping with adversity have been shown to decrease impact of stressors and promotes positive coping behaviours (Kuo, Arnold, & Rodriguez-Rubio, 2014).

### *Spirituality and the church*

Due to the centrality of spiritual life, the church holds powerful authority in Samoan households and wider community (Clark et al., 2006). For Samoan in New Zealand, the church is a representation of the traditional village, and a safe environment for fa'aSamoa, traditions, practices, and protocols (Melani Anae, 1997; Ofahengaue Vakalahi & Godinet, 2008; Siauane, 2006). Church has become an act that symbolises one's Samoan identity and allegiance to the fa'aSamoa and enabled fa'aSamoa to be maintained for Samoan communities outside of Samoa (Melani Anae, 1997). Commitment to the church, through physical participation and financial service (tithing) are also believed to be acts that will reap spiritual rewards enrich one's life (Melani Anae, 1997; Thornton et al., 2010). However, contribution of time and finances to church obligations and commitments is a source of

conflict and stress for Samoan families (Muaiava, 2015; Schoeffel et al., 1996; Seiuli, 2015; Jemaima Tiatia, 2008) and has been known to cause families to reject attendance of Samoan church (Thornton et al., 2010; Jemaima Tiatia, 2008; Tunufa'i, 2005).

### *Spirituality and Mental Illness*

The main difference between Samoan and Western medical beliefs is that of the etiological factors for disease and mental illness (Cox, 1993). Before the growth of medical knowledge and interventions in Samoa today (Markoff & Bond, 1980; Mishra, Hess, & Luce, 2003), mental illness was conceptualised as a spiritual possession caused by supernatural forces or spirits (Clement, 1982; Esera, 2001; Harrington, 2001; Tamasese et al., 2005). These possessions were believed to be caused by a lack of family cohesiveness or dishonourable acts committed by a family member that abuses the sacred taboos of 'le va' (relationships) (Bethamsmsm, 2008; Esera, 2001). Possessions cause the individual to behave 'valea' (crazy) (Samu & Suaalii-Sauni, 2009) and develop Western symptoms of mental illness such as shouting, talking to oneself, and sleeplessness (Harrington, 2001).

### *Spirituality and Healing*

In Samoa, natural healers play a fundamental role in wellbeing (Mental Health Commission, 2011; Jemaima Tiatia, 2008). Before the medical practices developing in Samoa today the use of 'taulasea' (village healers), foma'i aitu (spiritual healers) or church pastors, was common practice for healing individuals from their mental disturbances (Markoff & Bond, 1980; Mishra et al., 2003) and general health needs. Given the diversity of Samoan populations today, determining the influence of spirituality and the role that the church plays in one's life is important to understand the Samoan patient's journey to wellbeing (Tamasese et al., 2005). For migrants, use of traditional practices may conflict with

Western practices (Krantzler, 1987). In the context of psychiatric services, a lack of consideration for Samoan spiritual beliefs and practices for coping with adversity and the Samoan conceptualisation of sources wellbeing through one's relationship with God, would fail to identify the important sources that support the individuals healing process (Tamasese et al., 2005). However, the concept of spirituality, although accepted as important, is not well understood or readily integrated into clinical practice" and is absent in the understanding of mental illness in a contemporary treatment setting in New Zealand (Durie, 2011).

*Summary of relationships and spirituality in fa'aSamoa and Samoan concept of wellbeing.*

If mental health outcomes are to improve for Samoan in New Zealand, understanding Samoan cultural concepts of mental illness is required. The important role that relationships, culture and spirituality play in a Samoan model of wellbeing provides foundations for which illness should be conceptualised and treated. The importance of relationships to cultural identity and wellbeing is a key factor for understanding the influence of relational stress on Samoan mental health and wellbeing. A person's self is seen as a total being comprising of spiritual, mental, and physical elements which cannot be separated (Bush, Collings, Tamasese, & Waldegrave, 2005). As Lui (2003) stated "health is the state in which a person's physical, mental and spiritual needs are in balance and the person is able to meet their obligations to themselves, their family, village and community". Tamasese (2005), states that the journey to wellbeing is more effectively addressed within the Samoan cultural protocols of fa'aSamoa. For Samoan, chronic stress as a result of family tensions (Tiatia et al., 2003) and cultural incongruence for Samoan adolescents (McDade, 2002) indicates a link between culture and psychosocial stress and mental illness for a vulnerable population.

**Sources of Stress for Samoan living in New Zealand.**

### *Biomedical Model of Stress*

Stress is the process of biochemical changes that occur when the body reacts to psychological, physiological, or environmental stimulus that are perceived to be stressors or threats to the body (Rahal et al., 2014). When exposure to stress cues are persistent and severe, the body becomes susceptible to infections and physiological changes (Rahal et al., 2014), and mental illness (Thoits, 2013). The relationship between stressful life events and emotional and behaviour problems is well supported throughout research literature (Baker, Hishinuma, Chang, & Nixon, 2010), and have negative effects on the individual's functioning, increases risk for substance use, and internalising symptoms (Baker et al., 2010). There are many different forms of stress such as trauma, family disruption (Baker et al., 2010), or identity crises (McDade, 2002). According to Thoits (2013), the individual's appraisal of the stressor depends on whether the stressor impacts on a highly valued self or identity domain. While stress buffers come in the form of social supports. The following sections discuss three variables for stress for Samoan living in New Zealand, based on research conducted in Samoa.

### *Financial Stress and Mental Illness*

Poverty is an important determinant of health and mental (Zealand, 2010a). The New Zealand Health Survey (2015/16) indicates that adults with psychological distress are three times more likely to live in deprived areas, and nine out of ten are Pacific families (Tukuitonga, 2013). There has been a growing trend of monetisation of fa'aSamoa (Levine, 2003), that is being attributed to the financial stress of families (McGarvey & Seiden, 2010; Seiuli, 2015; Thornton et al., 2010). The values, organisations, and beliefs of Samoan people are embodied in major events known as 'fa'alavelave' (Melani Anae, 1997). These events are

understood as disruptions or ceremonial events such as deaths, marriages, and significant church events (Melani Anae, 1997). Fa'alavelave are marked with elaborate exchanges of valuables and monetary gifts to host attendees and important and distinguished guests (Melani Anae, 1997). Network obligations are significant stressors for Samoan (Seiuli, 2015), where values of 'osi aiga' (the obligation to meet familial demands and support family projects) (Mulitalo, 2000), financial services to the church (Levine, 2003; McGarvey & Seiden, 2010), and remittances to the homelands (Thornton et al., 2010) have become significant financial challenges (Bathgate & Pulotu-Endemann, 2005), and sources of stress (Levine, 2003; Maiava, 2001) for families. Many Samoan families struggle to find the balance between providing necessities of life for their families and participation in fa'aSamoa and family affairs (Jane, 1990; MacGarvey & Seiden, 2010). For young Samoan, love and service to one's aiga is shown in the individual's submission of earnings to parents if working Maiava (2001). Failure to meet cultural responsibilities can trigger feelings of shame and inadequacy (Tamasese et al., 2005), and has been associated with suicidal behaviours and burnout (Tiatia, 2003).

### *Financial Stress and Cultural Incongruence*

Burdensome cultural and financial demands have created stress on the relationships between fa'aSamoa and members' prescribed commitment to the collective network (Seiuli, 2015). In Samoa, changes in migration and emigration patterns have also resulted in an increase in economic individuality and a moved focus to a nuclear system of family and the collective organisation of society weakened (Meleisea, 2005). Opting out of collective activities or limiting one's involvement have become common solutions (Levine, 2003), such as withdraw from church organisations (Levine, 2003; Anae, 1998; Tiatia, 2003). However, the pursuit of individual needs is looked at unfavourably (Cranfield, 2004), and the move

away from maintaining fa'aSamoa through church connections and family responsibilities can create a lack of social belonging, and support for families.

### **Academic Stress**

#### *Parent's stress for their children to achieve academically*

The migration of Samoan people to New Zealand (since World War II) was heavily motivated by the search for employment and economic gains (Pitt & Macpherson, 1977). Financial support for family in the homelands for those living abroad is also common (Seiuli, 2015) in the hope of improving the families quality of life (Macpherson, 2000). Economic gains and aspirations are also lived through the successes of one's children, making the child's education and employment an important contributor to the collective family's success long-term (Tanufa'i, 2005; Grahame et al., 2010; Schoeffel et al., 1996). Therefore, acceptance into university is viewed as a child's academic success (Benseman, Anae, Anderson, & Coxon, 2002) with visions of their children becoming successful ministers, doctors, or lawyers (Taule'ale'ausumai, 1997).

#### *Student's academic success and cultural obligations*

The pressure to succeed and maintain cultural obligations are significant stressors for Samoan in New Zealand (Jemaima Tiatia, 2008). Fa'aSamoa values of honouring parents (Tiatia, 2003) will see some youth try their best to achieve academic expectations, and results in high levels of stress (Tiatia, 2003), feelings of powerlessness (Taule'ale'ausumai, 1997) and cultural incongruence along the way (Borrero, Yeh, Tito, & Luavasa, 2009). The balance between ethnic and academic identities for Samoan youth is a source of conflict (Borrero et al., 2010), and the importance parents place on university education places immense pressure on the child to achieve (Graham et al., 2010; Tiatia et al., 2003; Anae, 1998; Anae, 2001).

Research indicates for some families, although parents value education (Graham et al., 2010) and are generally supportive of their children's education (Benseman et al., 2002), educational discipline and devotion of time and space for school work, are often subordinate to participation in aiga and/or church fa'alavelave (usually a ceremonial occasion requiring the exchange of gifts; day-to-day practice and ritual occasions of fa'asamoa) (Bensemann et. al., 2002). Bensemann et. al., (2002) also shows that Pacific students leaving tertiary without qualifications were due to the inability to balance academic success and family obligations, such as caring for elderly, church commitments or taking up employment to contribute to family affairs. The challenging balance of cultural identity and academia can elicit negative feelings of alienation, discrimination, and worthlessness for Samoan youth (Borrero et al., 2013) which can lead to mental illness. The strong desire from parents place pressured expectations for children to succeed as well as pressure to provide financial support to the family and church activities (Tamasese et al., 1997; Tiatia, 2003). In Samoa, their high international suicide rates have been attributed to unrealistic familial expectations on young Samoan to be 'successful' (Taule'ale'ausumai, 1997).

### **Acculturation and fa'aSamoa**

*The effects of acculturation & cultural incongruence on 'le va'.*

When two or more cultures interact (Berry, 2005) the process of acculturation normally takes place. Acculturation is the process of adopting another cultures beliefs and behaviours (Berry, 2005; Fox, Thayer, & Wadhwa, 2017; Perez-Brena, Updegraff, & Umaña-Taylor, 2014) and see's the more "marginalized" members of a society adopt views of the dominant culture (Paterson, Tautolo, Iusitini, & Taylor, 2015; Reid, 1990). Two types of conflict that can result as migrant groups attempt to adapt to their bi-cultural environments that is relative to this research are: family tension (Paterson et al., 2015) and cultural



incongruence or depreciation due to one's desire to fit in (Goldring, 2006) that can change one's view of their own ethnicity (Perez-Brena, et. al., 2014). An important developmental task of living in a bi-cultural environment is therefore the successful integration of cultures and learning to negotiate one's relationships (Smokowski, Bacallao, & Evans, 2017) and navigate their cultural identity (Phinney, 1990) that maintains collective self-esteem and positive feelings about membership to one's cultural group (Luhtanen & Crocker, 1992). For Pacific, living in contemporary settings is complex as their cultural knowledge and values are at times in conflict with their environments (Mila-Schaaf & Hudson, 2009) Nowadays the fa'aSamoa or Samoan culture exists in various forms (Crichton-Hill, 2010) along a continuum of traditional and contemporary fa'aSamoa as individuals modify their cultural practices to the environment one is living in (Siauane, 2004).

Stress and familial conflict related to ongoing attempts to integrate one's Pacific culture with the New Zealand culture is a common experience for Pacific families (Robinson et al., 2006; Ofahengaue Vakalahi, 2008). Modernisation, employment, increasing sizes of family networks have all been indicated as environmental changes challenging the maintenance and social cohesion of fa'aSamoa and resulting in psychosocial stress (Hanna, Fitzgerald, Pearson, Howard, & Hanna, 1990; McDade, 2002). For Samoan, network obligations and meeting family obligations are identified stressors (Held et al., 2010; Janes, 1986). Fa'aSamoa values of love, service, and obligations conflict with Western social norms of individualism and self-reliance which presents issues to family identity, family structure (Borrero et al., 2009; Janes, 1986; McDade, 2002) generational differences and family tension (Held et al., 2010). Acculturation to the dominant culture has played an important part in the increasing number of Pacific people disconnected from extended families (Tukuitonga, 2013). Recent research in Samoa indicates a growing decline in wellbeing and increase in psychological distress attributed to the "fragmentation of kinship" (Thornton et

al., 2010) and the breakdown of Samoa's collective systems (Tamasese et. al., 2005). Research of Pacific women in New Zealand found mixed outcomes for psychological distress related to assimilation. Paterson (2015), found that women who were assimilated to Western culture reported higher levels of distress. However, women who were also strongly linked to their homelands also experienced high levels of psychological distress. Pacific women with maternal acculturation are also at higher risk factor outcomes compared to mothers who had a strong alliance with their Pacific culture (Borrows et al., 2007). Social changes in Samoa show a growing number of individuals and families relocating to urban areas and away from the villages in pursuit of independence both financially and religiously (Clark et al., 2006).

Cultural incongruence has been associated with negative mental health and stress outcomes. The social and cultural changes undergoing Samoan in New Zealand challenges the traditional characterisation of Samoan identity (Levin, 2003). Younger generations are understood to become resentful of familial obligations and expectations (Maddock & Smith; J. Tiatia, 2008) but torn given their strong identification with connection and cultural concepts of respect and obligation (Tiatia, 2003). Muaiava (2015) found that young Pacific women with familial conflict indicated the negative effects that balancing Western social needs and Samoan familial expectations and norms created feelings of isolation leading to depression. Furthermore, forming a sense of one's identity in a bi-cultural environment is further complicated by school and community immersed with modernisation (Bush et. al., 2009). Literature indicates there is a changing attitude amongst New Zealand born Samoan youth to the interdependence and reciprocal nature of fa'aSamoa (Robinson et al., 2006) as youth attempt to adapt to the mainstream environment which is important for academic success and improving social mobility (Telzer, 2010). Findings indicate that traditional worldviews are no longer universally held among Samoan (Seiuli, 2015) where attitudes

regarding cultural practices and protocols have been challenged by Western lifestyles (Melanie Anae et al., 2002; Tamasese et al., 2005; Thornton et al., 2010; Tiatia et al., 2003).

### **Other variables impacting on wellbeing for Samoan in New Zealand**

Lifestyle factors such as family violence, smoking, harmful alcohol use and gambling contribute substantially to loss of health (Ministry of Health, 2015). The following sections describe health risk behaviours identified as high risk for Samoan living in New Zealand. The prevalence rates of health risk behaviours associated with mental illness are thought to be under-reported for Samoan living in New Zealand (Ministry of Health, 2015). There is also a dearth of information regarding ethnic-specific rates and therefore Pacific rates are cited in places.

#### *Intimate Partner Violence & Family Violence*

Intimate partner violence (IPV) is “a pattern of violent and coercive behaviors whereby one person seeks to control the thoughts, beliefs or conduct of an intimate partner or to punish the intimate for resisting their control” (Tift & Markam, 1991). Research has shown that Pacific women experience higher levels of IPV compared to New Zealand European women (Paterson, Feehan, Butler, Williams, & Cowley-Malcolm, 2007). The relationship between ethnicity and IPV has been explained as the weakened ties with one’s culture and the migrated culture, which leads to stress and conflict (Caetano, Schafer, Clark, Cunradi, & Raspberry, 2000). Risk factors have included social inequality and low income (Paterson et. al., 2007), acculturation (Caetano et al., 2000; Paterson, Tautolo, Iusitini, Taylor, & Farvid, 2016), stress (Crichton-Hill, 2010), alcohol use (Paterson et. al., 2007), and change in gender roles (Gao et. al., 2007). Magnussen (2008) found that increased opportunities for education and occupation for women, the absence of extended family buffering and social support, and

intensification of the male dominant role with immersion in Western culture, and alcohol use were key determinants of Samoan women who have experienced IPV. An exploration of Samoan women's attitudes towards IPV indicated that victims with more traditional heritage may "accept" the experience of severe physical violence (Paterson, et. al., 2007), while younger females (<40), born in New Zealand and assimilated to Western culture were less tolerant (Cribb, 1997). For Samoan adolescent males, high levels of exposure to stressful life events, is significantly related to higher rates of violence perpetration (Baker et al., 2010).

### *Physical punishment*

There is a view that physical punishment (often to extreme levels) is the norm for Pacific peoples; a view shared by non-Pacific and Pacific people alike. It has been argued that the literal interpretation and acceptance of Christianity and the Bible since the arrival of missionaries in the late 18th Century and early 19th Century was instrumental in creating this child discipline culture. Others challenge this perception, and there is no empirical evidence that supports the view that Pacific people resident in New Zealand are more accepting of physical punishment (P. J. Schluter, Sundborn, Abbott, & Paterson, 2007). Pacific children are more likely to be punished compared to non-Pacific children (Ministry of Health, 2015). Pacific (and Maori) children are also more likely to die from child abuse and neglect compared to other ethnicities (Health Quality & Safety Commission New Zealand, 2014).

### *Nicotine*

It is approximated that 33% of smokers sufferer from a mental health disorder (Health, 2015). Smoking is reported as therapeutic to alleviate emotional difficulties, depression and anxiety and stress (Taylor et al., 2014). Smoking amongst mental health service users poses threats to recovery (Taylor et al., 2014), and smoking cessation has been

found to provide positive changes in affect and symptoms of illness for mental health sufferers (Taylor et. al., (2014). For Pacific men in New Zealand, smoking is significantly associated with employment and marital status being at risk for developing symptomatic mental health disorder (Tautolo, Schluter, & Paterson, 2015). Pacific women who smoke are more likely to identify as assimilationists (aligned to New Zealand culture), and that smoking was significantly associated with stresses of raising children as solo parents (Erick-Peleti, Paterson, & Williams, 2007). Research shows that Pacific who smoke were less likely to purchase prescribed medications (Jatrana, Crampton, & Norris, 2010). Smoking also increases risks of comorbid health issues such as cardiovascular disease and cancer (Cunningham, Sarfati, Peterson, Stanley, & Collings, 2014).

### *Alcohol*

Alcohol related health issues are an increasingly significant problem for New Zealand (P. Schluter, Bellringer, & Abbott, 2007). Causes for problem drinking behaviours can include social, psychological, and hereditary factors (The American Psychological Association: [www.apa.org](http://www.apa.org)). There is a high comorbidity rate for individuals with alcohol dependence to also suffer from mental illness (Adamson, Todd, Douglas Sellman, Huriwai, & Porter, 2006; Schroder, Sellman, Frampton, & Deering, 2008), and therefore have a higher level of disability (Adamson et. al., 2006). Alcohol is the principal cause of addiction issues for Pacific (Newcombe, Tanielu-Stowers, McDermott, Stephen, & Nosa, 2016) Pacific men are also twice as likely (24.4%) as Pacific women (11.6%) to have a substance abuse disorder (Paterson et al., 2007). For Samoan living in modernised environments, an adverse relationship has been found between alcohol, anger, and violence (Hanna et al., 1990; Lima, 2004; Paterson et al., 2007). A study by Esera (2001) concluded that for young Samoan,

alcohol and drug use were a means to deal with stress, and mask negative feelings of worthlessness.

### *Cannabis*

Cannabis/Marijuana is the most commonly used illegal drug (MOH, 2015b), for pleasure or therapeutic purposes (Health, 2015; Todd, McLean, Krum, Martin, & Copeland, 2009). Research indicates long-term marijuana use can lead to addiction (Volkow, Baler, Compton, & Weiss, 2014), and is significantly associated with mental illness (Patton et al., 2002). Cannabis has also been linked to increased risks of anxiety and depression, and is a significant risk factor for the development of psychosis (Moore et al., 2007). Data regarding cannabis use by Samoan adults is limited. The most recent Ministry of Health Survey for cannabis use (2013/2014) indicates a total of 9% of the Pacific population reported use in the past 12 months, compared to Maori (25%) and European (11%). A further 8% of Pacific users reported mental health harms as a result of use (MOH, 2015).

### *Other Drug Use*

The use of psychoactive (illicit) drugs are associated with a range of diseases, injury, and suicide (Jané-Llopis & Matytsina, 2006). Those dependant on drugs are often wary of service use and stigma which can be barriers to accessing treatment (Health, 2017), thus making it likely that reported numbers are underestimated (Heslop, Ross, Berkin, & Wynaden, 2015). Pacific and Asian communities in New Zealand are the least likely to have used other drugs in the past year (Health, 2017). Pacific men were six times more likely to report use of Kava in the past year (Health, 2017). Kava is a plant medicine with psychotropic properties found in Polynesia, which is widely used for ceremonial purposes (Ministry of Health, 2010).

## *Gambling*

Pathological gambling is classified as a non-substance related disorder in the DSM-5 and is understood as the persistent and recurrent problematic gambling behaviour that leads to distress and impairment (in a 12 month period) (Association, 2013). Pathological gamblers have been found to be socially and economically disadvantaged and at high risk for comorbid health and social problems such as substance abuse (Clarke et al., 2006b). Studies in New Zealand have found a connection between culture and gambling (D. Clarke et al., 2006; Perese, 2009). Exploration of gambling amongst Pacific suggests that engagement in gambling is prominently related to social factors. Most commonly for Samoan, gambling provides a sense of hope, and is considered a viable approach for escaping poverty and improving one's financial status (D. Clarke et al., 2006; Urale, Bellringer, Landon, & Abbott, 2015). Maintaining factors for Samoan communities have been the normality of gambling activities for church socialising and fundraising purposes. These cultural factors are considered cultural contributors to the development and maintenance of gambling among Samoan mothers (Bellringer, Perese, Abbott, & Williams, 2006; Perese, 2009).

## **Responsiveness of Mental Health Services to Pacific needs**

### *Mental Health Services and Cultural Competency*

Culturally responsive treatments are fundamental to improving the disparities in mental health outcomes. Cultural models should include cultural interpretations of depression and distress, and descriptions culture-bound disorders (Draguns & Tanaka-Matsumi, 2003; Kirmayer, 2012). Incompetence and incompatibility between services and the cultural and social context of communities they are intended for is a lead cause for disparity in mental health services (Hernandez, 2015). There is a treatment gap (Kohn, Saxena, Levav, &

Saraceno, 2004) in mental health care in which populations suffering from higher levels of mental illness have lower levels of access rates (Health, 2014). The 2006 NZ Mental Health Survey (Oakley Browne et al., 2006) reported only one-quarter of Pacific (25.4%) experiencing mental illness were accessing recommended care, compared to Maori (32.5%) and New Zealand European (41.1%). Prescription access for Pacific is also comparatively lower compared to New Zealand European (Horsburgh & Norris, 2013) even when socio-demographic variables are accounted for (Baxter et. al., 2006b). More recent data show that Pacific have lower diagnoses for depression and anxiety disorders despite being 1.6 times more likely to report higher levels of psychological distress compared to non-Pacific adults (Health, 2015)

Addressing cultural complexities in the workplace through cultural competency has become an important component of delivering quality services to culturally diverse groups (Campinha-Bacote, 2002; Health, 2015). Cultural competency is defined as the ability of providers to deliver services of care that meet the social, cultural, and linguistic needs of patients with diverse values, beliefs, and behaviours (Betancourt, Green, & Carrillo, 2002). It is believed that Pacific communities have been signaling for mainstream services to provide meaningful options for treatment (Mental Health Commission, 2011), and culturally based mental health services that focus on key cultural factors for illness (for Samoan) (Tamasese, 2005). Two key government approaches to increase the cultural responsiveness of New Zealand's mental health workforce are 1) to increase the cultural responsiveness of non-Pacific workforce (Ministry of Health, 2014), and the development of Pacifica services and ethnically diverse workforce (Ministry of Health, 2015). Cultural competency is being delivered through national coordination services such as "Le Va" ([www.leva.co.nz](http://www.leva.co.nz)). Pacific mental health research has also contributed to well established Pacific models of well-being (Pulotu-Endermann, 1995; Helu-Thaman, K., 1998; Nelisi, L., 2004), psychometric tools for



measuring Pacific well-being and identity (Manuela, (2013), validation of non-Pacific screening tools for Pacific groups (Ekeroma et. al., 2012; Newcombe et. al., 2016), and Pacific models of counselling and therapies (Seiuli, 2012; Mila-Schaaf & Hudson (2009); SPARX). The Pacific Islands Families Study is a longitudinal study that looks to provide a comprehensive understanding of the factors related to success and hardship for Pacific families in New Zealand (Sundborn et. al., 2008).

### *The application of a Biomedical Model of Treatment to Pacific*

The biomedical model hypothesizes that abnormalities in the brain are the cause of mental illnesses and as a consequence, pharmacological treatments such as antipsychotics, mood stabilizers, and selective serotonin reuptake inhibitors (SSRIs), have become first-line treatment recommendations (Deacon, 2013). Based on this model of care, achieving well-being is dependent on medication compliance (Shinfuku, 1993) and non-adherence is associated with poorer functioning (Ascher-Svanum et al., 2006). Research in New Zealand found that ethnicity was a significant moderator for medication compliance (Jatrana, 2011) and that Pacific with higher levels of psychological distress or comorbid diagnoses were two times more likely to defer prescription purchases (Jatrana, 2011). Exeter (2004-2007) (Exeter, Robinson, & Wheeler, 2009) reported that the increase in antidepressant prescriptions in New Zealand was considered to be a reflection of decreasing suicide rates. However, the benefits of this treatment were limited to European as Pacific had significantly lower rates of antidepressant prescriptions. A study by Humberstone (2004) (Humberstone, Wheeler, & Lambert, 2004) found that antipsychotics were prescribed at a higher rate in South Auckland compared to other areas, however the continuing lag in equitable health outcomes is yet to be seen (Ioasa-Martin & Moore, 2012).

It is these Westernised models of care that need to be explored for effectiveness with Pacific populations. Jatrana (2011) highlighted the need for Pacific beliefs on the efficacy of prescription medications to be explored in order to determine preferences for treatment (Jatrana, 2011). Tamasese's (2005) qualitative exploration of Samoan adult's preferences for treatment indicated a dichotomy of perspectives that influenced the type of treatment accessed and has been supported by other literature. These perspectives included that culturally bound illnesses are best treated through traditional healers (Tamasese et. al., 2005; Harrington, 2001; Ioasa-Martin & Moore, 2012), and Western bound diseases are best treated by modern medication (Ioasa-Martin & Moore, 2012; Harrington 2001; Tamasese et. al., 2005). Pacific are also more likely to report higher levels of concern about prescribed medication, compared to non-Pacific in New Zealand (Ioasa-Martin & Moore, 2012). Samoan are also more likely to report low satisfaction with mainstream medical outcomes, and low expectations for cures, but high fears for medication side-effects (Ioasa-Martin & Moore, 2012; Paddison, 2010; Samu & Suaalii-Sauni, 2009). These are motivating factors for Samoan to turn to traditional healers and alternative forms of treatment (Harrington, 2001). These concerns are reflective of the ongoing debate amongst pharmacological researchers regarding the definitive conclusions drawn about the efficacy of drugs on mental illness outcomes, given that trends of mental health disabilities have increased over time despite the increasing use of pharmacological medications (Deacon, 2013).

### *Non-medical Treatment of Mental Illness*

The use of Complementary Alternative Medicine (CAM) to improve health is a growing field of interest. "Herbs, plants and natural remedies have been used for health care throughout human history (Pan & Gao, 2012), and are one of many treatments referred to as Conventional and alternative medicine (CAM) (Pan & Gao, 2012). In the efforts to provide

responsive care to Samoan populations in New Zealand, calls for integration of Samoan and Western approaches for treatment (Mental Health Commission, 2001; Tiatia, 2008). Two main themes are the inclusion of Samoan 'fofo' (massage healers) and faith based practices. For Samoan, natural products, flora and plants, are considered a medicine used by Samoan fofo (healers) (Harrington, 2001) for treatment of illnesses (Harrington, 2001; Ioasa-Martin & Moore, 2012; Macpherson, 1990). The Mental Health Commission (2001) has noted that it is unknown how many Pacific people choose to access traditional healers or alternative forms of treatment for their mental health needs, although anecdotally the percentage is large. A study of medication compliance in American Samoa indicated older age, less years of education, and lower family income, are predictors of traditional healer use (Mishra, 2003). A study of American Samoan adults suffering from depressive symptoms (as a result of diabetes) found that adults were less likely to take medication, therefore professionals talk to the family to find methods of relaxation as key interventions (Held et al., 2010). Similar patterns of treatment seeking have been found in general populations across developing countries (Bodeker & Kronenberg, 2002; Harrington, 2001).

One type of CAM that has been increasingly studied in New Zealand is nutritional interventions. Exploring the attitudes of Pacific towards micronutrients is important, as ethnic groups may be more likely to use complementary alternative medicine compatible with their cultural practices and beliefs (Hsiao et al., 2006). Micronutrients are the combination of a broad selection of nutrients including vitamins, minerals, and amino acids. The effectiveness of micronutrient treatment on mental illness has been shown in elderly groups experiencing mood difficulties (Gosney, Hammond, Shenkin, & Allsup, 2008), improvement in bipolar symptoms (Gately & Kaplan, 2009), stress (Schlebusch et al. 2000), and anxiety in children (Sole, Rucklidge, & Blampied, 2017). Nutritional treatments are a new cutting-edge area of psychology (Kazdin, 2016), and promises new knowledge of the relationships between the

brain and nutrition and hope for alternative avenues of treatment for mental illness. To date there is little known about the acceptability of such alternative treatments for Pacific; however, given the challenges associated with acceptance of conventional methods, it is important to investigate attitudes towards nutritional interventions, alongside alternative methods of healing. As such, this current study aims to investigate current attitudes towards the use of CAM and micronutrients to treat mental illness, to inform research into areas of acceptability and possibility of treatment approaches in the future.

*Spirituality as a CAM treatment for recovery from stress and mental illness.*

For many Samoan, God has ruled every aspect of life so that every problem can be spiritually explained and solved (Esera, 2001). Samoan believe that spiritual healing is only effective when there is an interdependent relationship with God, and that healing can occur despite the persistence of disease (Hardin, 2015). Spirituality is also a fundamental mechanism for coping with things beyond one's control (Plante & Boccaccini, 1997), such as chronic illness in which spirituality provides long term healing despite ongoing sickness (Hardin, 2015). This belief is based on God's provision of salvation, as opposed to physical measures of recovery from illness (Hardin, 2015). Research among non-Samoan groups also supports the role of spirituality in providing resilience and coping with stress (Tiatia, 2003), in which prayer provides a sense of relief from daily stressors (Taufua, 2003) and a state of peace when faced with adversity (Toso, 2011). For Samoan, strengthening spirituality is an important aspect of the Samoan patient's healing journey to wellbeing (Anae, 2002; Hardin, 2015) and lack of consideration of spirituality in the context of psychiatric services is a failure to address important sources of support for the individual's healing process (Tamasese et. al., 2005).

### *Summary of the Responsiveness of Mental Health Services to Pacific Needs*

Despite an increase in cultural services, and the progress for Pacific cultural competencies (Ministry of Health, 2015), there remains a gap between improved cultural sensitivity and improved patient outcomes (Ioasa-Martin & Moore, 2012; Paddison, 2010; Renzaho, Romios, Crock, & Sønderslund, 2013). Medication compliance and health-seeking behaviours are influenced by one's cultural beliefs about health (Hsiao et al., 2006). Successful treatment of cultural groups requires the dominant culture's willingness to have an understanding of cultural variations in experiences of mental illnesses, and to engage in culturally appropriate and responsive needs of the client (Kirmayer, 2012). Understanding the attitudes that influence treatment preferences will facilitate effective care planning and delivery (Schraufnagel, Wagner, Miranda, & Roy-Byrne, 2008). In the Western world, evidence-based treatment leaves traditional practices to be seen as "medical neglect" and "non-adherence" (Krantzler, 1987). However, evidence-based practices should include the client's experiences and preferences for modes of care (Aisenberg, 2008), and should represent the diversity of the populations experiencing ill health outcomes (Kirmayer, 2011). Most importantly evidence-based practices should be valued by the consumers and families for which the interventions are used for (Drake et al., 2001). Until these beliefs and preferences are well understood and applied, populations with the highest needs will continue to be underserved by conventional practitioners (Sheridan, Bullis, Adcock, Berlin, & Miller, 1992).

### RESEARCH OBJECTIVES

There remains a dearth in research regarding acceptable mental health treatment modalities and understanding of preferences for treatment. The aims of this research are

threefold. Firstly, the research is intended to provide some insight into existing levels of stress and amongst the study population using culturally relative measures and concepts. It was hypothesised that culturally relative concepts of relationships, finances and acculturation are important factors of stress in the context of fa'a Samoa. The second aim was to explore participant's beliefs about the causes of mental illness to understand the role of culture in beliefs and whether traditional practices and causes were prevalent. To understand these beliefs is to understand the thought processes that influence treatment choices. The third aim of the research was to understand what types of medical and non-medical treatment modalities participants were inclined to access or have accessed in relation to mental illness. The study incorporates exploration of attitudes towards the use of micronutrients and other Conventional Alternative Medicines for the treatment of mental illness. The information derived about micronutrient acceptability may inform further research into the use of micronutrients to treat mentally ill Samoan adults.

## METHOD

Data for research was gathered using a quantitative internet survey. The internet is a medium largely used by Pacific in New Zealand (Census, 2006), and has been utilised by other Pacific researchers in New Zealand (Manuela, 2013; Teevale et. al., 2016). The survey process did not include 'talanoa' (conversation/talk), or "sacred conversations" (Te Pou, 2010), although talanoa is considered fundamental to Pacific research (Seiuli, 2016; Vaioleti, 2016).

As a Samoan researcher, conducting research on Samoan people, the quantitative survey method was chosen for four main reasons: 1) my limited knowledge of appropriate protocols and formal language required to engage with community elders or leaders (Seiuli,

2015); 2) my lack of status in the Pacific community could make maintenance of research relationships and recruitment difficult, possibly hindering results (Vaiotei, 20016); 3) Privacy and confidentiality concerns could also be barriers to participation, or increase the likelihood of participants feeling obligated to provide more favourable answers (Robinson et al., 2006); and 4) Engaging in a talanoa process requires the offering of therapeutic support in the interest and care of the participants (Seiuli, 2016). However, funding for research was limited, making the availability of therapeutic support, at no cost for participants, unachievable.

To accommodate for the above-named limitations, the following aspects were included in the research process: 1) participants were given opportunities throughout the survey to elaborate on their responses to facilitate sharing of experiences or contexts. For example, participants were asked for their views on causes of mental illness, that were not already included in the survey, or why they preferred certain treatment methods to others; 2) An online survey allowed for the sharing of sensitive information, such as abuse and addiction, anonymously; and 3) A research information sheet was provided at the start of the survey which listed a number of mental health and social support agencies across New Zealand (see Appendix A).

### *Participants and entry criteria*

A total of 683 responses were recorded on Qualtrics with 65.6% (n = 448) participants giving consent to participate and .3% (n = 2) choosing not to participate. The remaining 34.1% did not enter a response (yes or no) for consent and therefore could not continue to the survey questions. Data were excluded for a total of 10 participants; five participants did not go on to enter any data after giving consent, one reported having no Samoan genealogy, one for being under the age of 16, one participant entered twice, and two

consenting participants were not current residents of New Zealand. The final sample was a total of 438 participants with a 68.5% (N=300) completion rate (80% or more of the survey completed).

### *Procedures*

The survey was developed online using Qualtrics software ([www.qualtrics.com](http://www.qualtrics.com)), and the internet link created through the Bitly link and management site ([www.bitly.com](http://www.bitly.com)). The survey was available in both Samoan and English languages (see Appendix A), and recruitment was carried out from June 2016 to March 2017. Advertisements were placed on Facebook ([www.facebook.com](http://www.facebook.com)), and the Le Va website ([www.leva.co.nz](http://www.leva.co.nz)). Email invitations were distributed to Pacific students enrolled at the University of Canterbury. Contact with Pacific staff at Otago University and Auckland University was also made via email, to which the link was then shared to Facebook pages such as Pacific Scholars, Pacific Identity and Wellbeing in New Zealand, and Pasifikology. Completion time for the survey was approximately 20 - 30 minutes, and the information sheet informed participants of their right to withdraw from participation at any time, without penalty, by exiting the survey. Consent was given electronically (by ticking the consent box) before survey questions could be displayed. Participants who completed the survey were invited to enter the draw to win one of two iPad Mini prizes. The research was approved by the University of Canterbury Human Ethics Committee (UCHEC), and the full survey, information sheet, and ethics approval can be found in Appendix A. A funding proposal was also approved by the University of Canterbury - Psychology Department, to fund a cultural supervisor for the research. A local Samoan counsellor provided advice during the planning phase of the research and survey, and the full translation of the questionnaire.



## Measures

Standardised measurement tools for Pacific populations are limited (Robinson et. al., 2006; Manuela, 2013), therefore a combination of validated and new measures were utilised for this research. Validated tools for Pacific include The Kessler Psychological Distress Scale (Browne et. al., 20?), and components of the Pacific Identity and Wellbeing Scale (Manuela, 2013). Other tools have been adjusted for the purpose of this research, for example, The Medical Outcomes Community Health Survey (SF-36), and treatment preference questions based on research by McNatty (2012). Scales such as the AUDIT and CUDIT-R have been used for national surveys in New Zealand involving Pacific, and provide useful data to compare results.

### *Sociodemographic correlates*

The 2006 New Zealand Census of Population and Dwellings survey was adapted for measuring sociodemographic correlates for this survey. Information regarding age, gender, ethnicities, highest qualification achieved, employment, and marital status, were collected. Remaining questions were designed by the researcher for the purpose of this survey, to measure participants self-identification as a Samoan (“yes” or “no”), and whether they have Samoan genealogy - “do you have Samoan parents/grandparents/or ancestors” (“yes” or “no”). Participants responding “no” to having Samoan genealogy were thanked for their time and the survey ended. Information about participant’s annual income and number of dependants, were also collected. Table 1 provides a summary of participant’s sociodemographic data.

## **Cultural Identity Measures**

### *Incongruence*

The Group Membership Evaluation Scale is a five-item scale measuring participants' strength of Pacific ethnic identity, and level of incongruence (Manuela & Sibley, 2013). Responses are rated on a five-point Likert scale: (1) strongly disagree; (2) disagree; (3) neither agree nor disagree; (4) agree; (5) strongly agree, and scores range from 5 - 25. High scores (26 - 35) indicate Pacific identity as a desirable aspect for the participant, and value their membership within their Pacific community. Furthermore, a higher score indicates perceived membership within one's Pacific group influences one's positive self-concept (Manuela & Sibley, 2015). The scale is a validated component of the Pacific Identity and Wellbeing Scale (Manuela & Sibley, 2013), and is valid for specific Pacific ethnic use (Manuela & Sibley, 2015) Cronbach's alpha for this study was 0.88.

### *Acculturation*

The Perceived Societal Wellbeing Scale (PSW) measures participants' perceived satisfaction with support received from New Zealand society, and perception of their integration as a Pacific person in New Zealand (Manuela & Sibley, 2013). The seven-item scale scores on a five-point Likert scale: (1) completely dissatisfied; (2) dissatisfied; (3) neither satisfied nor dissatisfied; (4) satisfied; (5) completely satisfied. Scores range from 5 - 35, with high scores (26 - 35) indicating the individual feels supported in both their NZ and Pacific communities (Manuela & Sibley, 2013). Internal validity and reliability have been established, and the scale is also a component of the Pacific Identity and Wellbeing Scale (Manuela & Sibley, 2013), and valid for specific Pacific ethnic use (Manuela & Sibley, 2015). A Cronbach's alpha score of 0.92 was calculated for the current study.

### *Religious Faith*

The Santa Clara Strength of Religious Faith Questionnaire (SCSORF) is a 10-item questionnaire measuring the strength of religious faith (Plante & Boccaccini, 1997). Responses are given on a five-point Likert scale (1= strongly disagree - 5 = strongly agree), and scores range from 10 - 50. Higher scores indicate stronger levels of religious faith. High internal reliability (.95), and split-half reliability (r.92), have been established for the SCSORF, regardless of religious denomination or affiliation (Lewis et. al; 2001). Cronbach alpha for the current study was 0.95.

### *Samoan Language Proficiency*

Participants' competency with the Samoan language was measured using a New Zealand Census (2006) question. The item scores range from 0 = "none at all" to 3 = "Advanced", with higher scores indicating advanced fluency in Gagana Samoa.

### **Stress Measures**

The following stress measures were developed by Dr. Petaia and trialled on small focus groups in both Samoa and New Zealand. The measures identify four factors hypothesised to be contributing to stress: Financial, Relationship, Parent's Stress for their Children's Education and Student's Academic Stress. All four factors have been identified as stressors for Samoan populations by various qualitative researchers: Finances (Seiuli, 2012; Hardin, 2015); Relationships, which includes family obligations (Hanna, 1998; Graves & Graves, 1985; McDade, 2002) and educational stress which has two categories: 1 = Parent's

Stress for their Children's Education (Graham et. al., 2010); 2 = Students Academic Stress (Tiatia, 2003). The academic stress measure was developed with a focus on Samoan parent's stress for their children's education. Questions were added for the current research to measure student's stress for their own education, such as stress due to not prioritising one's own education, or not achieving academically. Translation of the measures into Gagana Samoa were produced by Dr Petaia and verified by family and friends who were fluent in the language.

### *Financial Stress*

The measure for participant's annual income was adopted from the New Zealand Health Survey (2011/2012). Participants were provided the "individual", or "combined", income question depending on their reported marital status.

The Financial Stress scale measures levels of financial stress based on fa'alavelave (family obligations), remittances, budgeting, and other financial obligations. The 11-item scale is scored on a six-point scale: (1) strongly disagree; (2) disagree; (3) neither agree or disagree; (4) agree; (5) strongly disagree; (6) not applicable. Possible scores range from 5 - 55 with higher scores (34 - 55) indicating higher levels of financial stress and obligations. The financial stress scale shows acceptable internal consistency with a Cronbach's alpha of 0.79 for this study.

### *Relationship Stress*

The Relationship Stress scale is a 16-item questionnaire measuring degrees of relationship difficulties or stress. Items for this scale are based on the cohesiveness of the participant's relationships with family, friends, and wider community. Questions were added,

for the purpose of this survey, to include participants' stress for the wellbeing of their families. Responses are made on a five-point scale (1= "strongly disagree" - 5 = "strongly agree"), and scores can range from 16 - 80. Higher scores (49 - 80) indicate higher levels of stress due to relationship difficulties or relationship stress. A Cronbach's alpha score of 0.84 was obtained for the current study indicating good internal consistency of the scale.

### *Educational Stress*

The Educational Stress scale measures parent's stress about their child's education. Item factors are based on their child's attitude towards learning, attending school, academic progress, and finances for schooling. The scale consists of five items with a five-point scale for responses (1 = "strongly disagree" - 5 = "strongly agree"). Scores can range from 5 - 25 with higher scores (20 - 25) indicating higher levels of stress in relation to their dependant's education. Cronbach's alpha of .89 for this study indicates the educational stress scale relative to a participant's child's education scale has good reliability. Two additional measures were added, first was to assess grandparent's levels of stress in relation to their children or grandchildren's education. This question was added to reflect a regular Samoan family may have three generations within one household (Census, 2006). The stress for grandchildren's education scale also has 5-items and is rated from 1 = 'strongly disagree' to 5 = 'strongly agree' with higher scores of 16 - 25 indicating higher levels of stress related to the participants grandchild's education. Cronbach's alpha for this scale was 0.91 indicating excellent internal reliability. Secondly, educational stress for student participants was also added. The scale for students stress related to education was also a 5-point Likert scale rated from 1 = 'strongly disagree' to 5 = 'strongly agree'. Higher scores () indicated higher levels of stress for the participant relative to their own education. A Cronbach' alpha of 0.79 for student education stress scale indicates an acceptable reliability score. For participants who

were not currently studying, or had no children/grandchildren in school, these questions were not administered.

## **Mental Health Measures**

### *Psychological Distress*

The Kessler Psychological Distress Scale (K10) screens for levels of psychological distress and serious mental illness in the past four weeks. The 10-item scale is rated on a five-point Likert scale and possible scores range from 0 – 40. Responses were coded as follows: ‘none of the time’ = 0; ‘a little of the time’ = 1; ‘most of the time’ = 2, ‘some of the time’ = 3, and all of the time = 4. Higher scores ( $\geq 12$ ) indicate the likelihood of a severe mental disorder in the previous month (Wells et. al., 2006). Cut off scores have been used for measures of severity in other research with Pacific populations living in New Zealand (Browne, et. al., 2010).

### *Importance of mental health*

The measure for participants attitudes towards the importance of mental health was adapted from McNatty (2012), which was based on a question from the general health component of the 36-Item Short-Form Health Survey (SF-36). Construct validity of the SF-36 among Pacific peoples is questionable (Ministry of Health, 1999) due to the two factor structure of the SF-36 with a differentiation between mental and physical health (Scott et. al., 2000), therefore adaptations were made for the purpose of this research, to reflect a holistic perspective of health (Pulotu-Endermann, 2001). Questions were added to measure the importance of good mental health, family relationships, spiritual wellbeing, and physical health, to the importance of general health. Participants were asked to rate the 16 items on a

five-point Likert scale (1= “strongly disagree” - 5 = “strongly agree”). Higher scores (?) indicate participants’ agreement with a holistic perspective of good mental health and lower scores indicate participant’s perception that a single aspect (physical, mental, family relationships, or spiritual) is more important for mental wellbeing. Cronbach’s alpha reported by Tsai et al., (1997) is 0.92. For the current study a Cronbach’s alpha coefficient of 0.89 was calculated, indicating good internal consistency.

### ***Beliefs about the causes of mental illness and***

The Beliefs About Causes of Mental Illness scale explores participants beliefs about the causes of mental illnesses. Causes listed are common themes throughout Samoan literature, and were gathered based on a focus group with Samoan adults (Petaia et. al., ?). Responses are rated on a level of 1= “strongly disagree to 5 = “strongly agree”, and indicate the participant’s level of agreeability with the 12 causal statements listed. High scores (43-60) indicate a higher level of agreement with the causal statement whilst low scores (12-37) indicate low agreeability with the causal statement. An additional question was included to allow participants to list any other causes, not already identified, but perceived to be causal. Reliability of beliefs scale was conducted using SPSS with a Cronbach’s alpha of 0.85 indicating good internal consistency of scale items. .

### ***Perceptions on who should provide support for sufferers***

The perceptions of support scale explores participants beliefs about who should support those suffering from mental illnesses. The seven item scale is measured on a five-point scale (1= “strongly disagree - 5= “strongly agree”). Higher scores (21-35) indicate a high level of agreement with the support systems listed and lower scores (7-18)

indicate low agreement with support methods listed in the scale. An additional question was provided for participants to list any “other” forms of support, not already listed, but perceived to be important for supporting individuals experiencing a mental illness. Cronbach’s alpha in the current study was 0.51 indicating unacceptable internal consistency for the scale. \*\*\*(Julia, will this variable therefore not be included in the results section, or do I mention that in the ‘other’ section a large number of participants indicated a variety of supports (holistic approaches) should be accessed, thus the scale does not reflect perceptions of Samoan adults in the study of effective support in the seven items alone)\*\*

### *Experiences of mental illness and treatment preferences*

Participant’s experiences of mental illness, and treatment preferences questions were adapted from McNatty (2012). Participants were asked if they had experienced a mental illness in the past 12 months, with possible responses of “yes”, “no”, or “unsure”. Participants responding “yes” were asked questions regarding medical and non-medical treatments accessed, and reasons for those choices. Participants responding “no” were then asked questions regarding preferred treatment options (medical and non-medical), if they were to be diagnosed with a mental illness.

The measure used to explore the likelihood of participants using medical and non-medical interventions, if diagnosed with a mental illness, was adapted from McNatty (2012). The definition of medical treatment, for the purposes of this research, was “any treatment for a mental illness that is offered by a professional”, for example, talking therapies or prescribed medications. For the purpose of this research, non-medical treatments were defined as “any mental illness treatment practice that is not part of the normal health care system, or offered by a medical professional, but perceived by the participant to have healing effects”. Possible



responses were: “medical”, “non-medical”, “both medical and non-medical treatments”, and “no treatment”. Participants were also asked to state reasons for their preferred options.

The specific forms of medical treatments participants were likely to access, if diagnosed with a mental illness, were explored. Definitions were as follows: 1) Psychotherapy = “talking therapy or counselling”; Antidepressants = “prescribed medications used for the treatment of depressive disorders and other disorders, including anxiety and obsessive compulsive disorders”; Antipsychotics = “medications used to manage psychosis, including delusions, hallucinations, or disordered thought, in particular in schizophrenia and bipolar disorder”. Responses ranged from “very unlikely” - “very likely” on a five-point scale, with more than one selection possible.

The different forms of non-medical treatments participants were likely to access were also explored. The selection of non-medical methods listed included prayer and Samoan “fofo” (massage). Participants could also select “other”, and list (insert text) any non-medical treatment options likely to be used, but not already listed.

To understand the types of mental illnesses participants have experienced, participants were asked to list the types of mental illnesses they experienced. Participants who answered “no” to experiencing a mental illness in the past 12 months were not shown this question.

Participants who experienced mental illness in the past 12 months were also asked if they chose to treat their mental illness using medical treatments (“yes” or “no”). For participants indicating “yes”, a selection of different medical interventions were listed to choose from (“prescribed medication”, “psychotherapy”, or “other”). Psychotherapy was defined as, “dealing with the internal causes of distressing mental or emotional problems of a person by talking with a psychologist”. Participants who selected “other” were asked to specify the method used.

To explore participant's reasons for choosing medical interventions, to treat their mental illness in the past 12 months, a text box was provided for participants to give a brief explanation.

Participants responding "yes" to experiencing a mental illness in the past 12 months were also asked whether they attempted to treat their illness using non-medical interventions ("yes" or "no"). Participants responding "yes" were then asked to select the different types of non-medical treatments utilised, from a list of interventions adapted from McNatty (2012). More than one selection was possible, and participants who selected "other" were asked to specify the treatment method.

Reasons for participants using non-medical interventions, to treat their mental illness in the past 12 months, were explored by asking participants to give a brief explanation about their reasons, for choosing non-medical treatment.

### **Mental illness among immediate family members**

The rates of immediate family members currently experiencing a mental illness were measured using a question from McNatty's 2012 research. Possible response were "yes", "no", or "I don't know". Participants responding "yes" were asked if their family member attempted to treat their mental illness ("yes", "no", or "I don't know"). Participants who answered "yes" were then asked to select the types of medical interventions accessed from a list provided. Participants were also asked if their immediate family member utilised non-medical interventions ("yes", "no", "I don't know"), and a list of non-medical interventions were also listed. Participants who responded "I don't know", regarding their immediate family member's choice of interventions, were not asked about the types of treatment methods their family members accessed.

## **Participants' attitudes towards psychiatric medications**

Participants' attitudes towards prescribed medications for psychiatric illnesses were measured using The Drug Attitude Inventory (DAI-10) (Hogan et. al., 1983). Participants who answered "yes" to medical treatment options (antidepressants or antipsychotics) were asked to rate 10 statements about their experiences with prescribed medications as "true" or "false". Scores range from -1 to +10, a total score of >0 indicates a positive attitude toward psychiatric medications, while a total score of <0 indicates a negative attitude. The DAI-10 has been found to be highly correlated with medication compliance (Hogan et. al., 1983).

## **Attitudes towards Micronutrients as a treatment for stress and mental illness**

To assess participant's attitudes towards the use of micronutrients to treat stress, an adaptation of the 2010 Complementary and Alternative Medicine Survey (CAM) (Ananth, 2011) was adopted from McNatty (2012). For the purpose of this research, micronutrients was defined as "vitamins and minerals involved in a number of the human brain's processes, and required in small amounts to sustain our health. Micronutrients are naturally found in plant extracts and natural-based foods, or can be taken in the form of a tablet or pill". The scale's 12 items were rated on a five-point Likert scale (1="Strongly Disagree to 5="Strongly Agree"), with a possible range of 12 – 60, with higher scores (37 - 60) indicating higher acceptance towards the use of micronutrients to treat stress and lower scores (12 - 12) indicating lower acceptance for the use of micronutrients to treat stress and mental illnesses.

Researchers included a question to explore the number of Christchurch participants interested in participating in future research. Participants were asked: “are you interested in participating in a study using micronutrients to treat stress” (“yes” or “no”). Participants who selected “yes” were directed to a separate survey link asking for their personal details (name, phone number, and/email address). This question was not asked of participants who did not live in the Christchurch region.

### **Mental Illness Risk Factors**

The following measures were considered determinants of negative health outcomes or risk factors (NZHS, 2011/2012). The majority of behaviours and risk factor questions are based on questions from The New Zealand Health Survey (2011/12 & 2012/13), and The Statistics New Zealand Census (2006) questionnaire.

#### *Physical Abuse*

The Partner Violence Screening Tool (PVS) measures participants’ experience of physical violence in the past 12 months (U.S. Department of Health and Human Services Agency for Healthcare Research and Quality [www.ahrq.gov](http://www.ahrq.gov)). The three-item questionnaire asks participants if they have been “hit, kicked, punched, or otherwise physically hurt by someone in the past 12 months, and requires a “yes”, “no”, or “I do not wish to answer” response. Participants responding “yes” to experiencing violence in the past 12 months are asked about “the nature of their relationship with their abuser”. Participants who are in a current relationship are also asked whether they “feel safe in their current relationship” (“yes” or “no”), and whether there is a “partner from a previous relationship who is making them

feel unsafe now” (“yes” or “no). A fourth question was added, for the purpose of this survey, to explore whether participants felt safe amongst their own families (“yes” or “no”)

### *Nicotine*

The New Zealand Tobacco Use Survey (NZTUS) (Ministry of Health, 2009) was adapted for use in this research, to determine smoking status of participants. Participants were asked: “do you smoke cigarettes regularly? (more than one a day)”, with a “yes” or “no” response option. Participants responding “yes”, indicate daily smoking (Ministry of Health, 2008), and were then asked further questions regarding their level of nicotine dependency using The Heaviness of Smoking Index (HSI). The HSI measures levels of nicotine dependency using two items: 1) “How many cigarettes per day do you smoke?” (0 = 1-10 - 3 = 31+). 2) “How soon after you wake up do you smoke your first cigarette?” (0 = “≥ 61 min” to 3 = “≤ 5 min”). Scores of 5-6 indicate high nicotine dependency. Participants were also asked: “Have you ever tried to quit but could not?”, with three possible responses of “yes”, “no”, or “I don’t know”. Yes responses indicate a high level of nicotine dependency (Kawakami et. al., 1999).

### *Cannabis Use*

The Cannabis Use Disorder Test - Revised (CUDIT-R) screens for cannabis use disorder based on the previous six months (Adamson, 2010). Participants were asked for a “yes” or “no” response. Participants who responded “yes” were then asked the remaining eight items of the CUDIT-R, to measure frequency of use, associated problems, and risk of injury (driving, operating machinery, or caring for children). Responses are rated on a 5-point Likert scale: 0 = “never” - 4 = “daily or almost daily”, and possible scores range from 0 - 32.

Scores of  $\geq 8$  or more reflect possible hazardous use, while participants with scores of  $\geq 13$  are likely to meet criteria for cannabis use disorder. The CUDIT-R has been used in New Zealand population studies involving Pacific (Ministry of Health, 2010).

### *Drug Use*

The Drug Abuse Screening Test (DAST) screens for problematic substance use in the past 12 months. The DAST was adapted for the purpose of this research based on questions from the New Zealand Health Survey 2012/13 (Ministry of Health, 2013). Most items are scored one point for each “yes” response, with the exception of the question: “are you able to stop using drugs when you want to?” which is scored one point for a no response. Possible scores can range from 0 - 6 with a cut-off score of three indicating the likelihood of drug abuse (Skinner, 1987).

### *Alcohol Use*

The Alcohol Use Disorders Identification Test (AUDIT) assesses for hazardous alcohol use in the past 12 months, and alcohol related problems in the past six months (WHO, 1989). The 10-item scale records scores on a five-point Likert scale with each question scored from 0 = “monthly or less” - 5 = “Daily or almost daily”. Possible scores range from 0 - 40, and scores of  $\geq 8$  suggest a strong likelihood of hazardous or harmful alcohol use and dependence (Saunders et. al; 1993; Babor et. al., 2001). A lower cut-off point of four may be more useful for women and adolescents (Babor et. al., 2001). The AUDIT has been used in surveys involving Pacific populations in New Zealand (Oakley Browne et. al., 2006; New Zealand Health Survey 2011/12), and has been validated for use across a wide range of groups (Saunders et. al., 1993; Reinert & Allen, 2002).

## *Gambling*

Measurement of participant's gambling activity, and associated problems, in the past 12 months, was adapted from the New Zealand Health Survey (2011/12). Scores are rated from 0 ("no gambling activity") to 9 ("all the gambling activities listed"). Participants selecting at least one form of gambling, in the past 12 months, were then asked questions regarding problems associated with gambling, and concern from others about their gambling ("yes" or "no"). All participants were asked if they have experienced problems in the past 12 months due to someone else's gambling ("yes" or "no").

Before submitting the survey participants were asked to share comments or thoughts about the survey. Participants were also given the opportunity to enter the prize draw, and were directed to a separate link to provide personal details, before submitting their responses.

## RESULTS

### **Statistical Analyses**

Results were analysed using SPSS version 24. Frequencies and descriptive statistics were calculated for independent and dependent variables. Chi-square tests were used to analyse rates of mental health difficulties based on gender, age group and place of birth. Independent t-tests were used to compare gender groups (male and female) for levels of psychological distress, stress and risky health behaviour scales. One-way ANOVA analyses were used to compare group means for levels of stress (low, moderate, high) with psychological distress (K10), health risk behaviours, and treatment access and preferences.

Post hoc tests were used to determine group differences. Adjusted residuals were used for analyses of mental health difficulties and the Tukey test was used for ANOVA analyses of stress and psychological distress. When homogeneity of variance was satisfied the Welch test was used. A p-value of .05 is used for all analyses, and effect sizes were calculated using Cohen's *d*.

### **Sample Characteristics**

Table 1 shows frequencies for participant characteristics. A total of 438 participants completed 80-100% of the online survey. The median age of participants was 35, which is higher than the general Samoan population's median age of 21.5 (New Zealand Statistics, 2014). This difference is attributed to the study's adult age range of 16<sup>+</sup>. Participants were predominantly female (76.0%) (N = 332), New Zealand-born (79.1%) (344) and identified solely as Samoan (60.7%) (N = 264). Almost half of the study group were married or in a de Facto relationship (49.4%) (N = 213). A total of 56.3% (N = 222) were parents and 27.3% (N = 109) were students (either fulltime or part-time).

Over half of the study participants (52.0%) (N = 224) held a tertiary qualification and 74.0% (N = 319) were in paid employment (fulltime or part-time). The median family income bracket for participants who are married or in a de Facto relationship was \$40,000 - \$50,000. This is lower than the median family income (\$72, 700) for the total New Zealand population (New Zealand Statistics, 2014). The median personal income bracket for participants who were single was \$20-25,000. This is higher than the median personal income for the general Samoan population (\$20,000 or less), and lower than the median personal income for the total New Zealand population (\$28.500) (New Zealand Statistics, 2014).

Almost all participants (92.4%) (N = 401) spoke some level (beginner - advanced) of Gagana Samoa (Samoan language) and identified as having religious affiliations (73.5%) (N



= 332). A large proportion (43.5%) (N = 189) were Christchurch residents. A total of 33.4% (N = 145) were Auckland residents and 14.5% (N = 63) were Wellington residents. Smaller groups were made up of Dunedin (44.4%) (N = 19), Waikato (1.6%) (N = 7) and ‘Other’ regions (2.5%) (N = 11) of New Zealand.

*Table 1. Frequencies for Sample Characteristics*

<b>Characteristic</b>	<b>%</b>	<b>N</b>
Gender		
Female	76.0	332
Male	23.3	102
Other <sup>a</sup>	.7	3
Total	100.0	437
Age		
16-24	24.9	110
25-44	63.0	276
45-64	12.1	53
65 <sup>+</sup>	0.0	0
Total	100.0	438
Ethnicities <sup>b</sup>		
Samoa	60.7	264
Multi-ethnic (more than one ethnicity)	39.3	171
Total	100.0	435
Place of Birth		
New Zealand	79.1	344
Samoa	18.4	80
Other <sup>c</sup>	2.5	11
Total	100.0	435
Proficiency in Gagana Samoa (Language)		
Advanced	24.9	108
Intermediate	41.9	182

Beginner	25.6	111
None	7.6	33
Total	100.0	434
Marital Status		
Married/Civil Union/De facto	49.4	213
Separated	6.3	27
Single/Never Married	28.3	122
Other (Widowed/Divorced)	16.0	69
Total	100.0	431
Employment		
Full-Time Worker	55.7	240
Part-Time Worker	9.0	39
Unemployed/Beneficiary/Retired	9.0	39
Students	16.0	69
Working and Studying	9.3	40
Other <sup>d</sup>	.9	4
Total	100.0	431
Personal Income		
No Income/Don't Know/Don't Wish to Answer	31.6	66
\$1,000 - \$10,000	9.1	19
\$10,001 - \$20,000	11.0	23
\$20,001 - \$50,000	26.7	56
\$50,001 - \$150,000	21.1	44
\$150,001+	.5	1
Total	100.0	209
Family Income		
No Income/Don't Know/Don't Wish to Answer	14.1	28
\$1,000 - \$10,000	6.0	12
\$10,001 - \$20,000	2.0	4
\$20,001 - \$50,000	16.6	33
\$50,001 - \$150,000	56.8	111
\$150,001+	5.5	11
Total	100.0	199

Qualifications		
No qualifications	8.1	35
Secondary School	39.9	172
Tertiary	52.0	224
Total	100.0	431
Religious Affiliations		
Yes	78.7	332
No	13.4	55
Prefer not to Answer	7.8	32
Total	100.0	409
Region of Residence in NZ		
Auckland	33.4	145
Waikato	1.6	7
Wellington	14.5	63
Christchurch	43.5	189
Dunedin	4.4	19
Other <sup>e</sup>	2.5	11
Total	100.0	434

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Note: <sup>a</sup>'Other' Gender included fa'afafine (biological males who take on feminine-gendered ways) and fa'atama (tomboy). <sup>b</sup>Participants who identified with more than one ethnicity were counted as multi-ethnic. <sup>c</sup>Other Country of Birth included: Australia, UK and Fiji. <sup>d</sup> Other employment status = Gap Year. <sup>e</sup>Other Region = Hawkes Bay, New Plymouth, Nelson, Blenheim, Invercargill.

### **Psychological Distress**

Figure 1 shows the total distribution of psychological distress scores. A total of 372 participants responded to the K10 questionnaire. The mean for total K10 scores was 8.37 and standard deviation = 5.98 (Skewness = 1.03). Psychological distress scores were divided into four levels: 1 = none or low (0-5); moderate = (6 – 11); high (12-19); very high (20-40).

Psychological distress is defined by scores in the high to very high bracket (Browne, Wells, Scott, & McGee, 2010). Frequencies for total K10 scores are shown in Table 2.

The majority of participants reported none (37.6%) (N = 140) to moderate (36.6%) (N = 136) levels of psychological distress experienced in the past four weeks. A total of 21.2% (N = 79) of participants reported high levels of psychological distress and 4.6% (N = 17) of participants reported very high levels of psychological distress. Overall, 25.8% (N = reported experiencing significant psychological distress in the past four weeks.

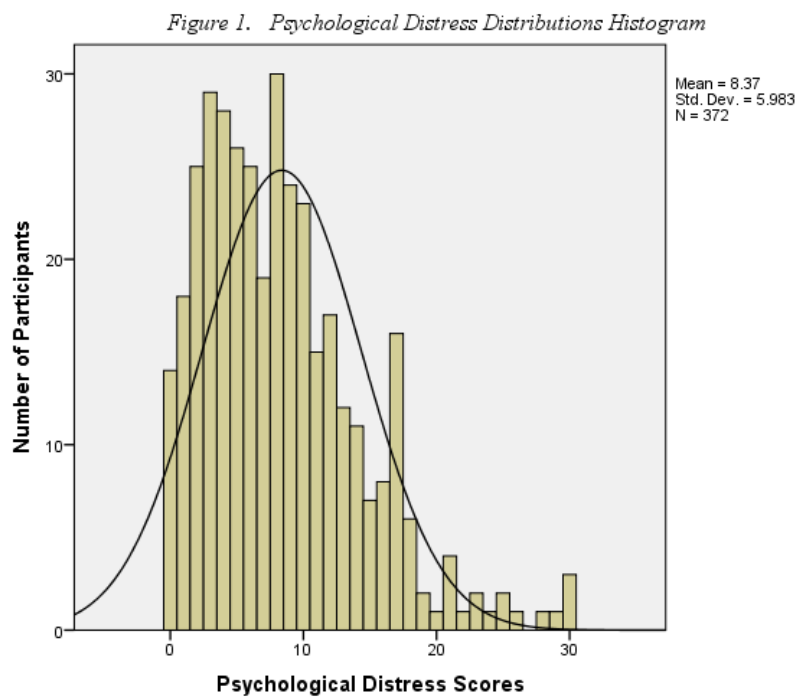


Table 2. *Frequencies for Levels of Psychological Distress*

<b>Level of K10<sup>a</sup></b>	<b>Total K10 Scores</b>	
	<b>N</b>	<b>%</b>
None	140	37.6
Moderate	136	36.6
High	79	21.2
Very High	17	4.6

Total	372	100.0
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Note. <sup>a</sup> K10 = Kessler Psychological Distress Scale-10.

### *Psychological Distress Based on Age, Gender and Place of Birth*

Table 3 shows descriptive statistics and frequencies for psychological distress (high-very high) in the past four weeks based on gender, age group and place of birth. Gender groups were placed into two three categories: 1 = Females; 2 = Males; 3 = Other. ‘Other’ group was excluded from the analysis due to the small sample size. Scores showed a slightly greater percentage of the males (26.2%) (N = 22) reported psychological distress compared to females (25.6%) (N = 73). An independent t-test was used to compare K10 scores between females and males. The analysis showed no significant differences between males and females for levels of psychological distress in the past four weeks based on the K10  $t(368) = .643, p = .520$ .

Age groups were divided into three categories: 1 = young adults (16 – 24); 2 = middle aged (25 – 44); 3 = older adults (45 – 64). A larger proportion of young adults (46.5%) (N = 40) reported psychological distress in the past four weeks compared to middle aged (18.7%) (N = 45) and older adults (24.4%) (N = 11). A one-way ANOVA was conducted to compare K10 scores between age groups. Results showed a significant difference  $F(2, 369) = 8.802, p < .001$ . A post hoc test using Tukey determined that young adults reported higher levels of psychological distress compared to middle aged participants  $t(369) = 3.04, p < .001, d = 0.51$ , and older adults  $t(369) = 2.92, p = .019, d = 0.52$ . There were no significant differences between middle aged and older adults levels of psychological distress in the past four weeks based on the K10.

For place of birth analyses, responses were placed into one of three groups: 1 = NZ-born; 2 = Samoa-born; 3 = Other. A slightly larger proportion of Samoa-born participants

(29.2%) (N = 19) reported psychological distress in the past four weeks compared to NZ-born participants (25.3%) (N = 75). ‘Other’ responses were excluded from the comparisons due to small sample sizes. An independent t-test was conducted to explore the differences and results determined these differences were not significant  $t(359) = -.141, p = .888$ . Participants who were born in NZ and those born in Samoa did not report significantly different levels of psychological distress in the past four weeks based on the K10.

Table 3. *Descriptive Statistics for K10 vs Sample Characteristics*

Characteristics	Total K10 Scores			K10 Category			
	N	M	SD	No	%	Yes	%
Gender							
Females	285	8.48	6.18	212	74.4	73	25.6
Males	85	8.00	5.35	62	73.8	22	26.2
Other	3	10.33	2.08	2	66.7	1	33.3
Age Group							
16 – 24	86	10.70	5.98	46	53.5	40	46.5
25 – 44	241	7.66	5.91	196	81.3	45	18.7
45 – 64	45	7.78	5.37	34	75.6	11	24.4
Place of Birth							
NZ	296	8.45	6.07	221	74.7	75	25.3
=Samoa	65	8.57	5.74	46	70.8	19	29.2
Other	11	5.09	4.09	9	81.8	2	18.2
Overall Total	372	8.37	5.98	276		96	

## Mental Health

Table 4 shows frequencies for rates of mental health difficulties reported by participants in the past 12 months based gender, age group and place of birth. A total of 337 participants responded to questions regarding mental health difficulties in the past 12 months. Responses were placed into one of three categories: 1 = Yes (experienced a mental health difficulty in the past 12 months); 2 = No (Did not experience a mental health difficulty in the past 12 months); 3 = Unsure. The majority of participants (54.3%) (N = 183) reported no mental health difficulties in the past 12 months, and 28.5% (N = 96) were unsure. A smaller number of participants (17.2%) (N = 58) reported to have experienced a mental health difficulty in the past 12 months.

For gender group comparisons, responses were placed into one of three categories: 1 = Females; 2 = Males; 3 = 'Other'. A larger percentage of males (21.5%) (N = 17) reported experiencing a mental health difficulty in the past 12 months compared to females (15.6%) (N = 40). The gender group 'Other' was excluded from the analysis due to small sample sizes. A chi-square test was conducted to explore the rates of mental health difficulties between genders. The analysis showed there was a significant relationship between gender and categories for mental health difficulties ( $X^2 = 7.07$ ),  $df = 2$ ,  $p = .029$ , Cramer's  $V = .145$ . Men were more likely to report experiencing a mental health difficulty in the past 12 months compared to females. Men were also more likely to report being unsure if they have experienced a mental health difficulty in the past 12 months compared to females, and females were more likely to report no experiences of a mental health difficulty compared to males.

For age group comparisons, responses were divided into three groups: 1 = young adults 16-24; 2 = adults 25-44; 3 = middle aged 45-64. A greater percentage of middle aged participants (31.7%) (N = 13) reported experiences of a mental health difficulty in the past 12

months compared to adults (16.0%) (N = 35) and young adults (13.0%) (N = 10). To explore differences between age groups a chi-square test was conducted. The analysis revealed a significant relationship between age and reported rates of mental health difficulties ( $X^2 = 15.22$ ),  $df = 4$ ,  $p = .004$ , Cramer's  $V = .150$ . A post hoc test of adjusted residuals shows that older participants were more likely to report experiencing a mental health difficulty in the past 12 months compared to young and middle aged adults, furthermore, younger adults were more likely to report being unsure if they have experienced a mental health difficulty in the past 12 months.

For place of birth analyses, responses were placed into one of two groups: 1 = NZ Born; 2 = Samoan-Born; 3 = 'Other'. A greater percentage of the NZ-born participants (17.7%) (N = 48) reported experiencing a mental health difficulty in the past 12 months compared to Samoa-born participant's (16.1%) (N = 9). 'Other' was excluded from the comparison due to small sample sizes. A chi-square test used to compare reported rates of mental health difficulties between NZ-born and Samoa-born participants. The results showed no significant relationship between place of birth and reported rates of mental health difficulties in the past 12 months ( $X^2 = .357$ ),  $df = 2$ ,  $p = .836$ . Participants who were born in NZ and those born in Samoa did not report significantly different rates of mental health difficulties in the past 12 months.

*Table 4. Descriptive Statistics and frequencies for Mental Difficulties in the Past 12 Months vs age, gender and place of birth.*

Characteristics	Mental Health Difficulty						
	N	Yes	%	No	%	Unsure	%
Gender							
Females	56	40	15.6	149	58.2	67	6.2
Males	9	7	21.5	33	41.8	29	6.7
Other			50.0	1	50.0	0	.0



<hr/>							
Age							
16 – 24	7	0	13.0	35	45.5	32	1.6
25 – 44	19	5	16.0	126	57.5	58	6.5
45 – 64	1	3	31.7	22	53.7	6	4.6
Place of Birth							
NZ	71	8	17.7	143	52.8	80	9.5
Samoa	6		16.1	32	57.1	15	6.8
Other	0		10.0	8	80.0	1	0.0
Overall Total	37	8	17.2	183	4.3	96	8.5

*Types of Mental Health Difficulties Participants Reported Experiencing in the Past 12 Months.*

Frequencies for types of mental health difficulties reported in the past 12 months are shown in Table 5. Depression (53.4%) (N = 31) was the most commonly reported. Comorbid mental health difficulties were reported by 32.7% (N = 19) of participants.

*Table 5. Frequencies for Types of Mental Difficulties Reported in the Past 12 Months.*

<b>Type of Mental Difficulty</b>	<b>N</b>	<b>%</b>
Depression Only	31	53.4
Anxiety Only	2	3.5
Grief	1	1.7
Stress/Burnout	2	3.5
=Other*	1	1.7
Two Difficulties**	19	32.7
Three Difficulties***	2	3.5

Total	58	100.0
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Note. \*Other included: Talk to oneself. \*\*Two difficulties = depression & anxiety, grief & anxiety, stress & depression. \*\*\*Three difficulties = depression, anxiety & PTSD/depression, anxiety & battered women's syndrome.

### *Mental Health Difficulty and Psychological Distress (K10)*

Table 6 shows frequencies and descriptive statistics for rates of psychological distress based on participant's experiences of a mental health difficulty in the past 12 months. A total of 337 participants answered questions regarding their mental health in the past 12 months. K10 scores were placed into one of two groups: 1 = Yes (high-very high); 2 = No (none-moderate). A total of 53.4% (N = 31) of participants who reported they experienced a mental health difficulty in the past 12 months also reported higher levels of psychological distress in the past four weeks. Participants who reported they were unsure (33.3%) (N = 32) if they had experienced a mental health difficulty in the past 12 months reported higher levels of psychological distress in the past 4 weeks compared to participants who reported no (12.0%) (N = 22) mental health difficulties in the past 12 months.

A between groups ANOVA was conducted to explore the differences between the three mental health categories. Results showed a significant difference for scores of psychological distress between participants who did not report experiencing a mental health difficulty, those who did, and those who were unsure  $F(2, 334) = 34.16, p < .001$ . A post hoc test using Tukey was used to determine the differences. Participants who reported experiencing a mental health difficulty reported higher levels of psychological distress than those who did not  $t(334) = 6.08, p < .001, d = 1.18$ , and those who were unsure  $t(334) = 2.33, p = .026, d = 0.42$ . In addition, participants who were unsure if they had experienced a mental health difficulty in the past 12 months reported significantly higher levels of psychological

distress compared to participants who did not report experiencing a mental health difficulty in the past 12 months  $t(334) = 3.75, p < .001, d = 0.67$ .

Table 6. *Descriptive Statistics for Mental Health Difficulty vs K10*

<b>Mental Health Difficulty</b>	<b>Total K10<sup>a</sup> Scores</b>			<b>K10 Category</b>			
	<b>N</b>	<b>M</b>	<b>SD</b>	<b>No</b>	<b>%</b>	<b>Yes</b>	<b>%</b>
Yes	8	12.16	.22	7	46.6	1	53.4
No	83	6.07	.10	61	88.0	2	12.0
Unsure	6	9.82	.01	4	66.7	2	33.3
Overall Total	37	8.19	.91	52	74.8	5	25.2

Note. <sup>a</sup>K10 = Kessler Psychological Distress Scale.

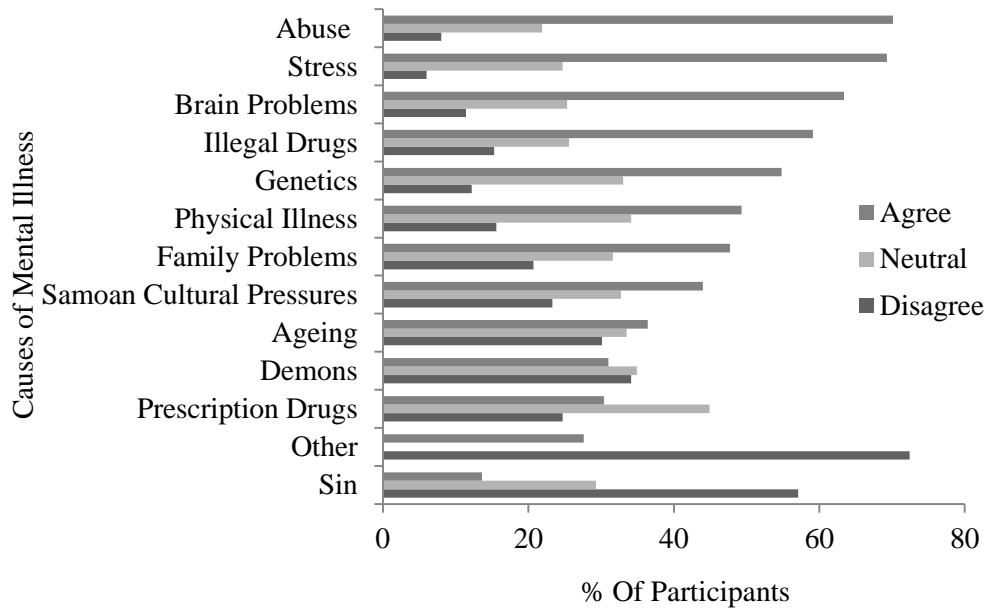
### **Beliefs about Causes of Mental Illness**

Figure 2 displays the frequencies for beliefs about causes of mental illness for a total of 352 participants who responded. Responses were coded into three levels of agreeability: 1 = agree; 2 = disagree; 3 = neither agree nor disagree/undecided. The most common causes of mental illness that participants agreed with (rates of 50% or more) were: abuse (70.1%) (N = 247), stress (69.3%) (N = 244), brain deficits (63.4%) (N = 223), illegal drugs (59.1%) (N = 208) and genetics (54.9%) (N = 193). The most common causes participants disagreed with were sin (57.1%) (N = 201), demons (34.1%) (N = 120) and ageing (30.1%) (N = 106).

A total of ninety eight (27.8%) of participants indicated they believed there were other causes for mental illnesses to those listed in the survey. Participants who entered qualitative data for 'other', a large variety of causes were listed. The most common themes included: social issues/pressures from social networks (16.3%) (N = 57), the interaction of multiple factors (12.2%) (N = 43), trauma (11.4%) (N = 40), financial stress or poverty

(11.4%) (N = 40) and relationship problems (7.3%) (N = 26). For participants who ‘neither agreed nor disagreed’ with many of the causal statements, reasons for these ratings reflected their preference of holistic views and multiple factors that can lead to mental illnesses as opposed to agreeing with single factors.

**Figure 2.** *Frequencies for Beliefs About Causes Of Mental Disorders*



## Stress

Four stress measures were used in the study: Relationship Stress (RS); Financial Stress (FS); Student’s Academic Stress (SAS); Parents Stress for their Children’s Education (PSCE). The total scores for stress measures were grouped into three levels: 1 = Low  $\leq 30$ ; 2 = Moderate 31-39; 3 = High  $\geq 40$ . Frequencies for all four stress measures are shown in Table 7.

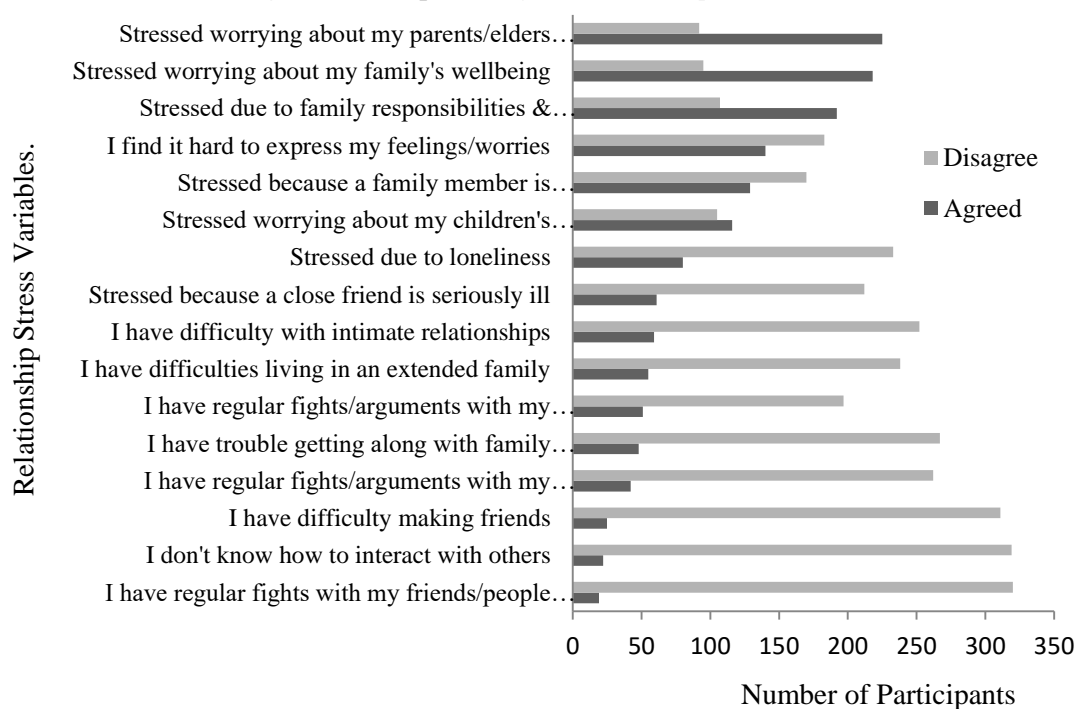
### *Relationship Stress (RS)*

A total of 379 participants responded to RS questions. A greater percentage (46.7%) (N = 177) reported moderate levels of RS, compared to low levels (38.8%) (N = 147), and high levels (14.5%) (N = 55) of relationship stress.

Frequencies for RS variables are displayed in Figure 3. Responses were placed in dichotomous groups: 1 = Agree; 2 = Disagree. Responses of 'neither agree nor disagree' and 'not applicable' were not evaluated. Participants largely agreed with relationship stress due to worrying about the wellbeing of their parents/elders (59.4%) (N = 225), the wellbeing of their families (57.5%) (N = 218) and the wellbeing of their children (30.6%) (N = 116). Participants also largely agreed with stress due to family responsibilities and expectations (50.6%) (N = 192).

The majority of participants disagreed with relationship stress being caused by difficulties expressing one's feelings (48.3%) (N = 183), serious illness of a family member (44.8%) (N = 170), loneliness (61.5%) (N = 233), serious illness of a friend (55.9%) (N = 212), difficulties with intimate relationships (66.5%) (N = 252), difficulties living with extended family (62.8%) (N = 238), fights/arguments with partners (51.8%) (N = 197), trouble getting along with family members (70.4%) (N = 267), regular fights/arguments with parents/elders (69.2%) (N = 262), difficulty making friends (82.1%), interacting with others (84.2%) (N = 319) and having regular fights with friends (82.1%) (N = 320).

**Figure 3.** *Frequencies for Relationship Stress Variables.*



### *Financial Stress (FS)*

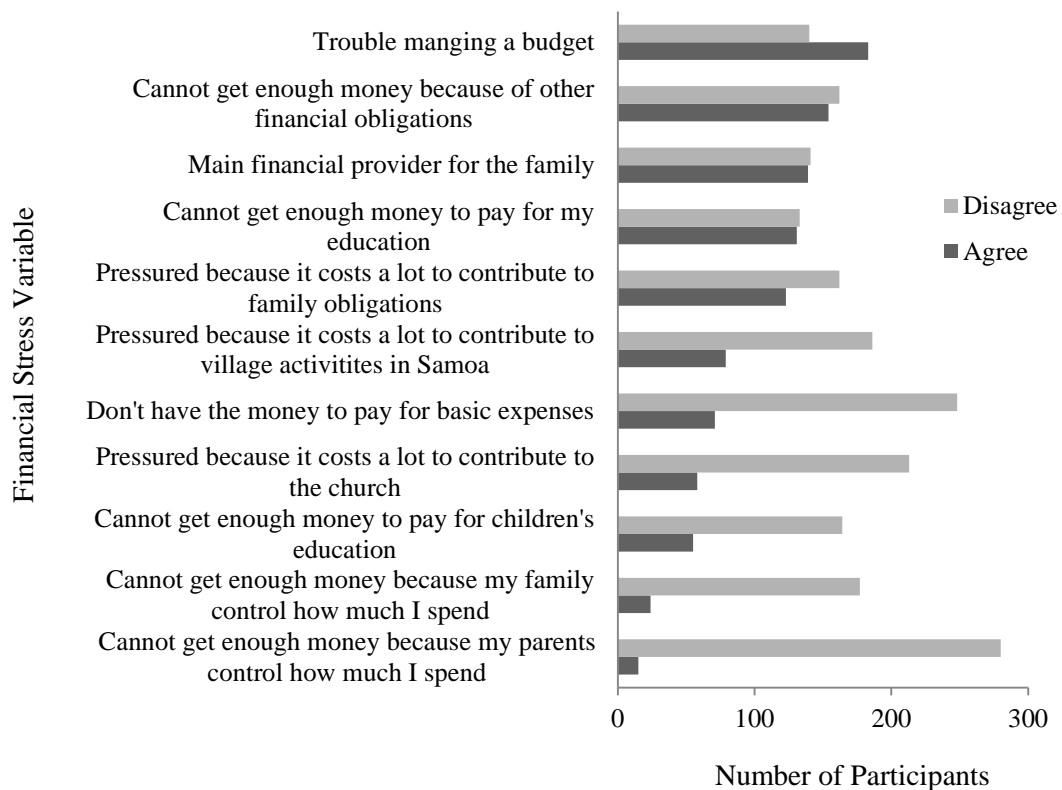
A total of 395 participants responded to FS questions. There was little difference between the percentages of participants reporting low levels of FS (42.8%) (N = 169) and those who reported moderate levels of FS (41.3%) (N = 163). A total of 15.9% (N = 63) of participants reported high levels of financial stress.

Frequencies for FS variables are displayed in Figure 4. Responses were placed into dichotomous categories: 1 = Agree; 2 = Disagree. ‘Neither agree nor disagree and ‘not applicable’ responses were not evaluated. A large proportion of participants agreed that financial stress was related to trouble managing a budget (46.3%) (N = 183). There was very little difference between participants who agreed that being the main financial provider for their families (35.2%) (N = 139) was a stressor, and participants who disagreed (35.7%) (N = 133) they were the main provider for their families. There was also very little difference

between the proportion of participants who agreed that they were stressed due to not having enough money to pay for their education (33.2%) (N = 131) and those who disagreed (33.7%) (N = 133).

Larger proportions of participants disagreed with financial stress being attributed to not having enough money due to other financial obligations (36.2%) (N = 162), the costs of contributing to family obligations (41.0%) (N = 162), remittances to Samoa (47.1% (N = 186), not having enough money to pay for basic expenses (62.8%) (N = 248), contributing to the church (53.9%) (N = 213), not having enough money to pay for their children’s education (41.5%) (N = 164), not having enough money because the family controls their finances (70.1%) (N = 177), and not having enough money because their parents control their finances (70.9%) (N = 280).

**Figure 4.** *Frequencies for Financial Stress Variables*

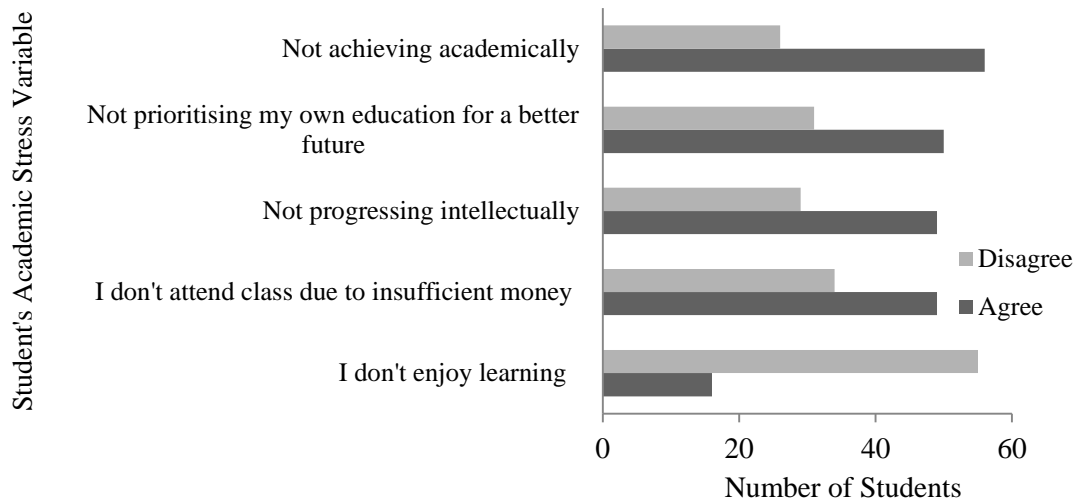


*Student’s Academic Stress (SAS)*

A total of 98 students responded to SAS questions. A larger proportion of students (53.1%) (N = 52) reported high levels of stress related to their academic success, compared to students who reported moderate (27.6%) (N = 27) and low (19.4%) (N =19) levels of stress related to their education.

Frequencies for variables of the SAS scale are displayed in Figure 5. Responses were placed into dichotomous categories: 1 = Yes; 2 = No. ‘Neither agree nor disagree responses were not evaluated. The majority of student’s agreed that their academic stress was related to not achieving academically (57.2%) (N = 56), not prioritising their education (51.0%) (N = 50), not progressing intellectually (50%) (N = 49), and not attending classes to insufficient funds (50%) (N = 49). The majority of students largely disagreed with stress related to not enjoying learning (56.1) (N = 55).

**Figure 5.** *Frequencies for Student's Academic Stress Variables*



*Parents Stress for their Children's Education (PSCE)*



A total of 179 parents responded to PSCE questions. There was little difference in proportions of parents who reported low levels of PSCE (34.6%) (N = 62), and those who reported moderate levels (31.3%) (N = 56) and high levels (31.4%) (N = 61) of PSCE.

Figure 6 displays frequencies for PSCE variables. Responses were placed into dichotomous categories: 1 = Agree; 2 = Disagree. ‘Neither agree nor disagree’ and not applicable responses were not evaluated. A larger proportion of parents agreed with stress related to their children missing school because they don’t have enough money (40.2%) (N = 72) compared to parent’s who disagreed (38.6%) (N = 69), A larger proportion of parents disagreed with stress related to their children not progressing intellectually (51.0%) (N = 28.5), stress due to no prioritising their children’s education (26.8%) (N = 48), their children did not enjoy school (22.3%) (N = 40) or because their children were not achieving academically (45.3%) (N = 81).

**Figure 6.** *Frequencies for Parent's Stress for their Children's Education*

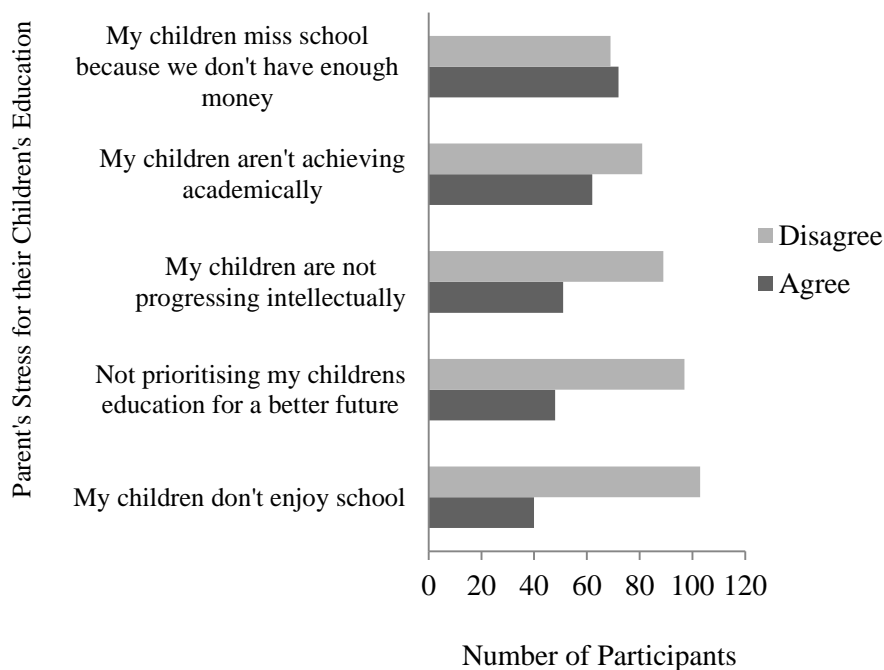


Table 7. *Frequencies for Stress Measures.*

<b>Stress Measure</b>	<b>N</b>	<b>%</b>
<b>Relationship Stress</b>		
Low	147	38.8
Moderate	177	46.7
High	55	14.5
Total	379	100.0
<b>Financial Stress</b>		
Low	169	42.8
Moderate	163	41.3
High	63	15.9
Total	395	100.0
<b>Student's Academic Stress</b>		
Low	19	19.4
Moderate	27	27.6
High	52	53.1
Total	98	100.0
<b>Parent's Stress for their Children's Education</b>		
Low	62	34.6
Moderate	56	31.3
High	61	34.1
Total	179	100.0

### *Financial Stress (FS) and Income*

Table 8 shows descriptive statistics for FS relative to family and personal income. A total of 168 participants who were married or in a de Facto relationship responded to FS questions. Family income responses were placed into dichotomous groups: 1 = Below Median – Median ( $\leq$ \$60,000); 2 = Above Median ( $>$ \$60,001).

An independent t-test was conducted to compare levels of FS based on family income. There was a significant difference for levels of financial stress reported by married or de Facto participants based on their level of income  $t(155) = 3.33, p = <.001, d = .62$ . Participants who were married or in a de Facto relationship and earned above the median family income level for this study, reported lower levels of FS compared to participants who were married or in a de Facto relationship and earned the equivalent of the median family income level or below.

An independent t-test was also conducted to compare levels of FS for single participants based on personal income levels. A total of 121 single/never married participants answered FS questions. The analysis showed no significant difference  $t(119) = .206, p = .837$ . Single participants who earned equal to or below the personal income median of the study population did not report significantly differently levels of financial stress compared to single participants who earned above the personal income median.

Table 8. *Descriptive Statistics for Financial Stress vs Income*

Family Income	N	M	SD
≤\$60,000	117	25.62	7.61
>\$60,001	40	21.08	6.93
Total	157	24.46	7.68
Personal Income			
≤\$25,000	55	25.44	9.84
>\$25,001	66	25.09	8.56
Total	121	25.5	9.13

### **Stress and Psychological Distress (K10)**

A series of between group ANOVA's were conducted to compare the levels of psychological distress among participants based on their levels of stress (Relationship Stress (RS); Financial Stress (FS); Student's Academic Stress (SAS); and Parents Stress for their Children's Education (PSCE). Scores for stress measures were grouped into three levels: 1 = Low  $\leq 30$ ; 2 = Moderate 31-39; 3 = High  $\geq 40$ . Descriptive Statistics for the analyses are shown in Table 9.

#### *Relationship Stress (RS) and K10*

A between groups ANOVA was conducted to compare scores of K10 across levels of RS. Homogeneity of variance was not satisfied therefore the Welch test of variance was conducted. The analysis yielded a significant result  $F(2, 138.175) = 58.0, p < .001$ . A post hoc test using Tukey was used to determine the differences. Participants with low levels of RS reported lower levels of psychological distress compared to participants with moderate levels of RS  $t(138.175) = -3.90, p < .001, d = -0.81$ , and participants who reported high levels of RS  $t(138.175) = -9.19, p < .001, d = -1.65$ . There was also a significant difference between participants who reported moderate levels of RS and those who reported high levels of RS  $t(138.175) = -5.29, p < .001, d = -0.89$ . Participants who reported low levels of RS also reported lower levels of psychological distress compared to participants who reported moderate and high levels of RS. Participants who reported moderate levels of RS also reported lower levels of psychological distress compared to participants who reported high levels of RS.

#### *Financial Stress (FS) and Psychological Distress (K10)*

To compare levels of psychological distress between groups based on levels of FS a between-group ANOVA was conducted. Results showed a significant difference  $F(2, 369) =$

10.38,  $p < .001$ . A post hoc test using Tukey was used to determine the differences. The analysis showed there was a significant difference in K10 scores between participants who reported low levels of FS and those who reported high levels of FS  $t(369) = -4.03$ ,  $p < .001$ ,  $d = -0.64$ . There was also a significant difference between participants who reported moderate levels of FS and those who reported high levels of FS  $t(369) = -2.93$ ,  $p = .003$ ,  $d = -.45$ . Results indicate that participants with low and moderate levels of FS reported significantly lower levels of psychological distress compared to participants who reported high levels of FS.

#### *Student's Academic Stress (SAS) and K10*

To explore the effect of psychological distress on student's levels of academic stress a one-way ANOVA was conducted. The Welch test of equality was conducted due to unequal variances between the groups. The analysis yielded a significant result  $F(2, 42.29) = 20.36$ ,  $p < .001$ . A post hoc test using Tukey was conducted to determine the differences. The analysis showed there a significant difference between students who reported low levels of SAS and students who reported high levels of SAS  $t(42.29) = -7.64$ ,  $p < .001$ ,  $d = -1.39$ . There was also a significant difference between students who reported moderate levels of SAS and those who reported high levels of SAS  $t(42.29) = -6.72$ ,  $p < .001$ ,  $d = -1.29$ . Results indicate that students who reported low and moderate levels of SAS reported significantly lower levels of psychological distress compared to students with high levels of SAS.

#### *Student's Academic Stress across age groups.*

To compare SAS scores across age groups, an independent t-test was conducted ( $N = 97$ ). Responses were divided into two groups: 1 = Young adults (16 – 24) ( $N = 70$ ); 2 = Middle aged (25 – 44) ( $N = 27$ ). Mature adults (45 – 64) were excluded from the analysis due

to the small sample size ( $n = 1$ ). The comparison yielded a significant result  $t(95) = 2.514$ ,  $p = .014$ ,  $d = .56$ . Young adults ( $M = 16.26$ ,  $SD = 4.66$ ) reported higher levels of psychological distress compared to middle aged students ( $M = 13.56$ ,  $SD = 4.96$ ).

*Parent's Stress for their Children's Education (PSCE) and K10*

A one-way ANOVA was conducted to explore differences between PSCE levels and scores for psychological distress. Homogeneity of variance was not satisfied therefore the Welch test of variance was used. The analysis revealed a significant difference  $F(2, 112.68) = 8.25$ ,  $p < .001$ . A post hoc test using Tukey was used to determine the differences. The analysis showed that parents who reported low levels of PSCE reported significantly lower levels of psychological distress compared to parents with high levels of PSCE  $t(112.68) = -4.65$ ,  $p < .001$ ,  $d = -0.73$ . Parents who reported moderate levels of PSCE also reported significantly lower levels of psychological distress compared to parents who reported high levels of PSCE  $t(112.68) = -3.84$ ,  $p = .005$ ,  $d = -0.61$ . Results indicate that parents who reported high levels of psychological distress also reported higher levels of stress related to their children's education.

Table 9. *Descriptive Statistics for Stress Measures vs K10.*

<b>Measures</b>	<b>N</b>	<b>M</b>	<b>SD</b>
<b>Relationship Stress</b>			
Low	145	5.21	4.34
Moderate	172	9.11	5.23
High	55	14.40	6.60
Total	372	8.37	5.98

<b>Financial Stress</b>			
Low	159	7.27	5.28
Moderate	153	8.37	5.82
High	60	11.30	7.17
Total	372	8.37	5.98
<b>Student's Academic Stress</b>			
Low	16	5.50	4.56
Moderate	26	6.42	3.80
High	49	13.14	6.29
Total	91	9.88	6.42
<b>Parents Stress for their Children's Education</b>			
Low	60	6.07	5.13
Moderate	55	6.87	4.85
High	60	10.72	7.43
Total	175	7.91	6.26

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Note. <sup>a</sup>K10 = Kessler Psychological Distress Scale.

### **Stress and Mental Health**

A series of one-way ANOVA analyses were conducted to compare levels of stress between participants who reported having mental health difficulties, those who did not, and those who were unsure. Mental health responses were divided into three groups: 1 = Yes; 2 = No; 3 = Unsure. Table 10 shows descriptive statistics for the comparisons based on relationship stress, financial stress, student's stress for their academic success and parents stress for their children's education.

### *Relationship Stress (RS) and Mental Health*

A comparison of levels of RS between groups of mental health yielded a significant result  $F(2, 334) = 29.56, p < .001$ . A post hoc test using Tukey was used to determine the differences. Participants who reported experiencing a mental health difficulty reported higher levels of RS compared to participants who did not report an experience of a mental health difficulty  $t(334) = 11.76, p < .001, d = 1.12$ . There was also a significant difference between participants who reported experiencing a mental health difficulty and those who were unsure  $t(334) = 5.73, p = .004, d = .55$ . A significant difference was also found between participants who reported they did not experience a mental health difficulty in the past 12 months and those who were unsure if they had experienced a mental health difficulty  $t(334) = -6.03, p < .001, d = -0.56$ . Participants who reported experiencing mental health difficulties in the past 12 months reported significantly higher levels of RS compared to participants who did not report experiencing a mental health difficulty and those who were unsure if they had experienced a mental health difficulty.

### *Financial Stress (FS) and Mental Health*

The comparison of levels of FS across categories of mental health showed no significant differences  $F(2, 334) = 1.41, p = .245$ . Levels of financial stress were not significantly different between participants based on the three categories of mental health.

### *Student's Academic Stress (SAS) and Mental Health*

The comparison for levels of SAS between mental health groups revealed no significant differences  $F(2, 79) = 1.98, p = .145$ . Students, who reported they experienced a mental health difficulty in the past 12 months did not report significantly different levels of



SAS compared to participants who did not report a mental health difficulty and students who were unsure.

*Parent's Stress for their Children's Education (PSCE) and Mental Health*

The comparison of levels of PSCE between mental health groups showed no significant differences  $F(2, 159) = .268, p = .765$ . Parents who reported experiencing a mental difficulty in the past 12 months did not report different levels of PSCE compared to parents who reported no mental difficulty or those who were unsure.

Table 10. *Descriptive Statistics for Categories of Mental Health (MH) vs Stress*

Mental Health Category	Total Stress Scores		
	N	M	SD
MH <sup>a</sup> vs Relationship Stress			
Yes	58	43.64	9.82
No	183	31.87	11.12
Unsure	96	37.91	10.47
Total	337	35.62	11.60
MH vs Financial Stress			
Yes	58	25.55	8.79
No	183	23.54	8.96
Unsure	96	24.73	8.07
Total	337	24.22	8.70
MH vs Student's Academic Stress			
Yes	12	16.50	2.58
No	41	14.32	4.65
Unsure	29	16.31	5.30
Total	82	15.34	4.73
MH vs Parent's Stress for Children's Education			
Yes	32	14.16	6.12
No	88	13.35	5.22

Unsure	42	13.33	5.97
Total	162	13.51	5.58

Note. <sup>a</sup>MH = Mental Health.

### Levels of Perceived Social Wellbeing (PSW).

Table 11 shows PSW descriptive statistics and frequencies and comparisons based on psychological distress and mental health difficulties. A total of 414 participants responded to the PSW scale. Responses for PSW were divided into three groups: 1 = Dissatisfied; 2 = Neither satisfied nor dissatisfied/Undecided; 3 = Agree. Results show a large proportion of participants reported being undecided (74.7%) (N = 309) about the quality of support they receive as a Pacific person from NZ's society and their Samoan communities. A smaller percentage of participants were satisfied (22.2%) (N = 92), and 3.1% (N = 13) were dissatisfied.

### Group Membership Evaluation (GME.)

Table 11 shows GME frequencies for a total of 409 participants who answered GME questions. Scores for GME were divided into three groups: 1 = Disagree; 2 = Neither Agree nor Disagree/Undecided; 3 = Agree. Almost all respondents (96.1%) (N = 393) agreed that being a Pacific person was an important part of their identity. Very few (1.0%) (N = 4) participants reported that being Samoan was not an important part of their identity, and 2.9% (N = 12) were undecided.

Table 11. *Frequencies for Perceived Social Wellbeing and Group Membership Evaluation.*

Measure	N	%
PSW <sup>a</sup>		
Dissatisfied	13	3.1

Neither Dissatisfied/Satisfied	309	74.7
Satisfied	92	22.2
Total	414	100.0
GME <sup>a</sup>		
Disagree	4	1.0
Neither agree nor disagree	12	2.9
Agree	393	96.1
Total	409	100.0

Note. <sup>a</sup> PSW = Perceived Social Wellbeing Scale. <sup>b</sup> GME = Group Membership Evaluation.

*Perceived Social Wellbeing (PSW) and Group Membership Evaluation (GME) comparisons for levels of Psychological Distress (K10)*

Table 12 shows descriptive statistics for psychological distress based on levels of PSW and GME scores. PSW and GME scores were divided into three groups: 1 = Disagree; 2 = Neither Agree nor Disagree/Undecided; 3 = Agree. Comparisons between groups were conducted using a between-group ANOVA.

For PSW, the comparison of psychological distress between participants who were satisfied, undecided or dissatisfied with the supports they receive from NZ society and their Samoan communities showed no significant differences  $F(2, 369) = 2.88, p = .058$ . Participants didn't differ on levels of psychological distress based on their reported levels of satisfaction with support from NZ society or their Samoan communities.

For GME, the analysis also showed no significant differences  $F(2, 369) = .674, p = .510$ . Participants did not report different levels of psychological distress based on the level of importance they reported their culture to be to their self-identity.

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Table 12. *Descriptive Statistics for Perceived Social Wellbeing and Group Membership Evaluation vs K10.*

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Measures	Total K10 <sup>c</sup>		
	N	M	SD
PSW <sup>a</sup>			
Dissatisfied	10	8.30	7.17
Neither Dissatisfied/Satisfied	279	8.78	6.14
Satisfied	83	7.0	5.10
Total	372	8.37	5.98
GME <sup>b</sup>			
Disagree	4	9.0	10.13
Neither agree nor disagree	10	10.50	7.55
Agree	358	8.31	5.90
Total	372	8.37	5.98

Note. <sup>a</sup>PSW = Perceived Social Wellbeing. <sup>b</sup>GME = Group Membership Evaluation.

*Perceived Social Wellbeing (PSW) and Group Membership Evaluation (GME) comparisons for Rates of Mental Health Difficulties.*

Table 13 shows descriptive statistics for reported mental health difficulties based on levels of PSW and GME. To examine differences of PSW and GME between participants based on rates of mental health difficulties, between-group ANOVA analyses were conducted. Responses to mental health questions were divided into three groups: 1 = Yes; 2 = No; 3 = Unsure.

For PSW, the analysis showed a significant result  $F(2, 334) = 6.88, p < .001$ . A post hoc test with Tukey was used to determine the differences. There was a significant difference between participants who reported experiencing a mental health difficulty in the past 12 months and participants who did not  $t(334) = -2.41, p = .002, d = -0.53$ . There was also a difference between participants who reported no mental health difficulties in the past 12 months and those who were unsure  $t(334) = 1.48, p = .037, d = 0.31$ . Results indicate that participants who reported experiencing mental health difficulties in the past 12 months and

those who were unsure reported lower levels of perceived social wellbeing satisfaction than those who did not report experiencing a mental health difficulty.

For GME, the results showed no significant differences  $F(2, 334) = 2.29, p = .103$ . Levels of GME did not differ significantly between participant's who reported a mental health difficulty in the past 12 months, those who did not, and those who were unsure.

Table 13. *Descriptive Statistics for Perceived Social Wellbeing and Group Membership vs Mental Health Difficulties.*

MHD <sup>a</sup>	Total PSW <sup>b</sup>			Total GME <sup>c</sup>		
	N	M	SD	N	M	SD
Yes	58	22.10	4.17	58	23.16	3.29
No	183	24.51	4.97	183	23.03	3.54
Unsure	96	23.03	4.64	96	22.19	3.17
Total	337	23.67	4.83	337	22.81	3.41

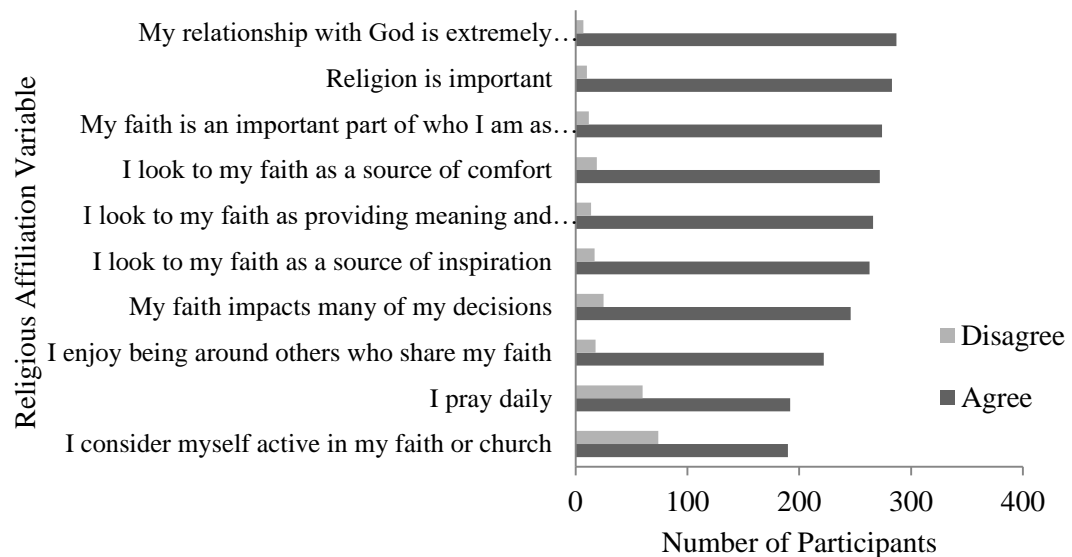
Note. <sup>a</sup> MHD = Mental Health Difficulties. <sup>b</sup>PSW = Perceived Social Wellbeing. <sup>c</sup>GME = Group Membership Evaluation.

## Spirituality

Figure 7 shows frequencies for religious affiliation variables based on the Santa Clara Strength of Religious Faith Questionnaire. A total of 408 participants responded to religious affiliation questions. Responses were divided into dichotomous categories: 1 = 'agree' 2 = 'disagree'. Responses of 'don't wish to answer' were excluded. The results indicate a predominantly religious cohort of participants who regarded their relationship with God important (89.4%) (N = 287) and an important part of their identity (85.4%) (N = 274). The large majority drew on religious belief for coping (84.7%) (N = 272), inspiration (81.9%) (N = 263) and decision-making (76.6%) (N = 222) and gave them purposeful meaning to life

(82.9%) (N = 266). Many also agreed they engaged in prayer (59.8%) (N = 192) and were active in the church (59.2%) (N = 190).

**Figure 7. Frequencies for Religious Affiliation**



### *Religious Affiliation and Stress*

A series of between-group ANOVA's were conducted to determine the effect of the strength of spirituality on levels of stress. Descriptive statistics for stress and religious affiliations are shown in Table 9. Stress measures were divided into three levels: 1 = Low; 2 = Moderate; 3 = High. A total of 409 participants responded to questions regarding religious affiliations. Of these responses 32 responses were excluded from the following analyses as participants who 'did not wish to respond', and those who did not have a religious affiliation were also excluded (N = 55).<sup>7</sup>

### *Relationship Stress (RS) and Religious Affiliation*

Homogeneity of variances for the analyses were not satisfied therefore Welch's test was used. The analysis revealed a significant difference  $F(2, 116.86) = 3.75, p = .026$ . A post hoc test using Tukey was used to determine the differences. There was a significant difference between participants with low levels of RS stress and those with high levels of RS  $t(116.86) = 3.52, p = .022, d = 0.43$ . Participants with low levels of RS reported higher levels of religious affiliation compared to participants who scored higher levels of RS. No significant differences were observed between participants with low levels of RS and those with moderate levels of RS, and levels of religious affiliation.

#### *Financial Stress and Religious Affiliation*

The ANOVA showed no significant differences  $F(2, 310) = .015, p = .986$ . Participants with varying levels of FS did not differ significantly on scores of religious affiliation.

#### *Student's Academic Stress and Religious Affiliation*

The analysis showed no significant difference  $F(2, 77) = .332, p = .718$ . Students who identified with different levels of religious affiliation did not score differently on levels of student academic stress.

#### *Parent's Stress for their Children's Education and Religious Affiliation*

The analysis showed no significant difference  $F(2, 137) = 2.01, p = .137$ . Parent's strength of religious affiliation did not differ across levels of PSCE.

#### *Psychological Distress (K10) and Religious Affiliation*

An independent t-test was conducted to determine the effect of religious affiliation on participant's levels of psychological distress. Responses for K10 were divided into The analysis yielded significant results  $F(2, 293) = 4.95, p < .008$ . To determine where the group differences were, a post hoc test using Tukey was conducted. There was a significant difference between moderate and high spiritual affiliates for K10 scores  $t(293) = 2.61, p = .008, d = 0.46$ . Participants who reported moderate levels of spirituality, scored significantly higher on the K10 compared to participants who reported a strong spiritual affiliation.

### *Mental Illness and Spirituality*

A one-way ANOVA was conducted to examine difference in levels of religious affiliation across categories of mental health difficulties. Responses for mental health difficulties were divided into three groups: 1 = Yes; 2 = No; 3 = Unsure. Descriptive statistics are shown in Table 9. The analysis showed no significant difference  $F(2, 267) = 2.23, p = .110$ . Participants who experienced a mental illness did not score differently on religious affiliation compared to participants who did not experience a mental illness and participants who were unsure.

Table 9. Descriptive Statistics for Stress vs Religious Affiliation

Measure	Total Scores for Religious Affiliation		
	N	M	SD
Relationship Stress			
Low	115	42.67	7.90
Moderate	140	40.61	6.85
High	46	39.15	8.69
Total	301	41.18	7.64
Financial Stress			
Low	132	41.36	7.61



Moderate	123	41.23	7.09
High	58	41.19	9.15
Total	313	41.28	7.70
Student's Academic Stress			
Low	15	42.67	5.34
Moderate	21	42.38	6.58
High	44	41.30	7.07
Total	80	41.84	6.60
Parent's Stress for their Children's Education			
Low	47	42.79	7.26
Moderate	41	39.61	9.09
High	52	39.94	8.70
Total	140	40.80	8.43
Psychological Distress			
None	213	41.88	7.50
High	83	39.25	7.89
Mental Health Difficulties			
Yes	52	39.56	8.98
No	141	42.10	7.58
Unsure	77	40.83	6.94
Total	270	41.25	7.73

### *GME and Religious Affiliation*

Table 14 shows descriptive statistics for comparisons of GME levels with strength of religious affiliations. A between-group ANOVA was conducted to compare levels of GME and variations of religious affiliation. Results showed a significant difference  $F(2, 318) = 4.64, p = .010$ . A post hoc test using Tukey was used to determine the differences. There was a difference between participants who reported their Samoan identity was not important for their self-identity and those who reported it was  $t(318) = -10.27, p = .022, d = -0.88$ .

Participants who reported low levels of GME also reported weaker religious affiliations compared to participants who reported high levels of GME.

Table 14. *Descriptive Statistics for Group Membership Evaluation vs Religious Affiliation*

<b>Measures</b>	<b>Total Religious Affiliation</b>		
	<b>N</b>	<b>M</b>	<b>SD</b>
Group Membership Evaluation			
Disagree	4	31.25	14.77
Neither agree nor disagree	8	37.38	9.05
Agree	309	41.52	7.51
Total	321	41.29	7.73

### **Health Risk Behaviours (HRB's).**

Descriptive statistics and frequencies for rates of HRB's are shown in Table 15.

#### *Tobacco Use*

A total of 301 participants responded to question regarding tobacco use. Sixty four participants (21.3%) reported regular smoking. Responses for Heaviness of Smoking ( $M = 1.02$ ,  $SD = 1.27$ ) were divided into four levels of dependency: 1 = none; 2 = very low; 3 = low to moderate; 4 = moderate. A large proportion (45.3%) ( $N = 29$ ) of smokers reported no dependency, and 34.4% ( $N = 22$ ) reported very low dependency. A total of 20.4% ( $N = 13$ ) of participants reported low-moderate levels of smoking dependency. No participants scored within the high dependency range.

#### *Cannabis Use*

A total of 301 participants responded to question regarding cannabis use. Thirty seven participants (12.3%) reported cannabis use in the past six months. Responses for the CUDIT were divided into three groups: 1 = no hazardous use, 2 = possible hazardous use, 3 = likely to meet criteria for hazardous use. A total of 16.7% (N = 6) of cannabis users reported a hazardous level of cannabis use in the past six months, and 2.8% (N = 1) reported possible hazardous use of cannabis in the past six months.

### *Other Drug Use*

A total of 300 participants responded to questions regarding other drug use. Responses were placed into one of two groups: 1 = not likely to have drug abuse; 2 = Likely to have drug abuse. Twenty nine participants (9.7%) revealed use of other drugs in the past 12 months. A total of 17.2% (N = 5) of drug users were likely to have met criteria for drug abuse in the past 12 months.

### *Alcohol Use*

A total of 300 participants responded to questions regarding alcohol use in the past 12 months. A large proportion (68.7%) (N = 206) of participants reported alcohol use. Positive responses for alcohol use were divided into three groups: 1 = no alcohol difficulty; 2 = Possible alcohol difficulty; 3 = Likely alcohol difficulty. The majority of alcohol users reported no alcohol abuse (69.6%) (N = 142) and a smaller proportion reported possible alcohol abuse (14.2%) (N = 29). A total of 16.2% (N = 33) reported likely levels of alcohol difficulties in the past 12 months.

### *Gambling*

Two hundred and ninety eight participants responded to questions regarding gambling activities. A total of 31.5% (N = 94) reported engaging in gambling activities in the past 12 months and 4.9% (N = 10) reported having gambling problems. A total 38.0% (N = 38) reported problems from someone else's gambling in the past 12 months.

Table 15. *Descriptive Statistics and Frequencies for Rates of Risky Health Behaviours*

<b>Measure</b>	<b>N</b>	<b>%</b>
<b>Smoking Status</b>		
No	237	78.7
Yes	64	21.3
Total	301	100.0
<b>Severity of Smoking Dependency</b>		
None	29	45.3
Very Low	22	34.4
Low – Moderate	9	14.1
Moderate	4	6.3
Total	64	100.0
<b>CUDIT-R<sup>a</sup> (past 6 months)</b>		
No	264	87.7
Yes	37	12.3
Total	301	100.0
<b>Hazardous Cannabis Use (past 6 months)</b>		
No	29	80.6
Possible	1	2.8
Likely	6	16.7
Total	36	100.0
<b>Other Drug Use (past 6 months)</b>		
No	271	90.3
Yes	29	9.7
Total	300	100.0
<b>Other Drug Abuse</b>		

Not likely	24	82.8
Likely	5	17.2
Total	29	100.0
Alcohol Use (past 12 months)		
No	94	31.3
Yes	206	68.7
Total	300	100.0
AUDIT <sup>b</sup>		
No	142	69.6
Possible	29	14.2
Likely Alcohol Difficulty	33	16.2
Total	204	100.0
Gambling (past 12 months)		
Yes	94	31.5
No	204	68.5
Total	298	100.0
Problems with Gambling		
No	193	95.1
Yes	10	4.9
Total	203	100.0
Problems from someone else's Gambling		
No	260	87.2
Yes	38	38.0
Total	298	100.0

Note: <sup>a</sup> CUDIT - R= Cannabis Use Difficulties Identification Test – Revised, <sup>b</sup>AUDIT –

Alcohol Use Difficulties Identification Test.

## Comorbidity

Table 16 shows frequencies for hazardous HRB's for participants who reported experiencing a mental health difficulty in the past 12 months. Of the 58 participants who

reported a mental health difficulty in the past 12 months, 37 (63.79%) indicated hazardous levels of substance or tobacco use or problems gambling. A total of 34.29% (N = 12) of the participants were tobacco users and 2.86% (N = 1) participants reported hazardous cannabis. A small percentage (5.71%) (N = 2) also reported drug use that was likely to meet criteria for drug abuse. For alcohol use, a total of 17.17% (N = 6) of participants reported alcohol use, and 5.7% (N = 2) reported being likely to meet criteria for alcohol abuse. Gambling problems were reported by 5.7% (N = 2), and a larger proportion (34.29%) (N = 12) reported problems from someone else's gambling.

Table 16. *Frequencies for Risky Health Behaviour vs Reported Mental Health Difficulties*

<b>Measures</b>	<b>N</b>	<b>%</b>
Smoking Dependency (Very Low – Moderate)	12	34.29
Hazardous Cannabis Use	1	2.86
Drug Abuse	2	5.71
Alcohol Use	6	17.17
Alcohol Dependency	2	5.71
Problems Gambling	2	5.71
Problems from someone else's Gambling	12	34.29

## **Treatment**

### *Beliefs about Who Should Provide Mental Health Support*

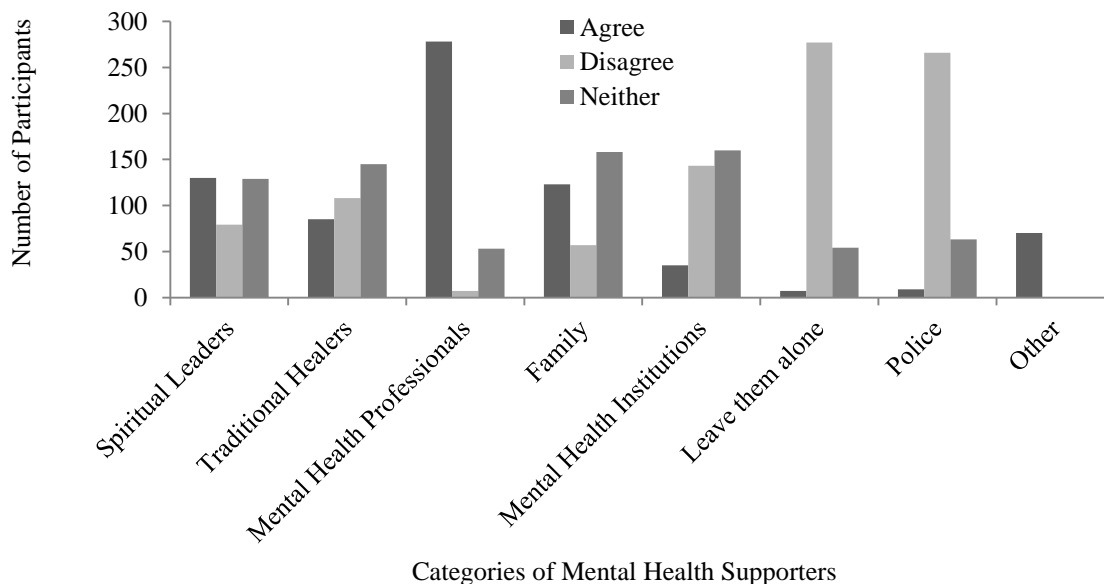
Frequencies for beliefs about who should provide mental health support to mental health patients are shown in Figure 7. A total of 338 participants answered questions regarding their agreeability with the 8 statements regarding who should provide support for people who are experiencing a mental illness. Levels of agreeability were coded into three groups: 1 = agree; 2 = disagree; 3 = neither agree nor disagree/ undecided). Over half of the

participants agreed that help should be sought from mental health professionals or hospitals (52.7%) (N = 178).

An almost even proportion of participants either agreed (38.5%) (N = 130) or were undecided (38.2%) (N = 129). Participants were also mostly undecided about family providing carer for the individual (46.7%) (N = 158) and support from traditional healers (42.9%) (N = 145). Participants also mostly reported being undecided (47.3%) (N = 160) about mental health institutions providing support for mental health issues, although a large percentage also disagreed (42.3%) (N = 143).

There was clear disagreement with leaving individuals who are experiencing a mental health disorder to deal with their difficulty on their own (82.0%) (N = 277) or for police to provide support (78.7%) (N = 266). A list of ‘other’ (11.8%) (N = 40) forms of support from participants included professional help from community support groups or pacific based services, multimodal supports and patient-centred support.

**Figure 7.** *Beliefs about Who Should Provide Mental Health Support*



*Types of Treatment accessed by participants who reported experiencing a mental health difficulty in the past 12 months.*

Table 17 shows frequencies for medical and non-medical treatments accessed by participants who reported mental health difficulties in the past 12 months. Of the 58 participants who revealed experiencing a mental health difficulty 74.1% (N = 43) accessed medical or non-medical treatment. Overall, there was very little difference between proportions of medical treatments accessed (29.31%) (N = 17), non-medical treatments accessed (34.88%) (N = 15) and those who reported no treatment access (25.86%) (N = 15).

Of those who accessed medical treatments, a total of 50.0% (N = 14) engaged in psychotherapy only while 35.7% (N = 10) used prescribed medications only. A smaller number of those who accessed medical treatments (14.3%) (N = 4) accessed a combination of psychotherapy and prescribed medications.

Table 17. *Frequencies for Types of Treatments Accessed by Participants who Experienced Mental Health Difficulties in the Past 12 Months.*

<b>Treatment</b>	<b>Accessed</b>	
	<b>N</b>	<b>%</b>
Non-Medical Only <sup>a</sup>	15	25.86
Medical Only <sup>b</sup>	17	29.31
Combined Medical & Non-Medical	11	18.97
No Treatment	15	25.86
Total	58	100.0
Types of Medical Treatments <sup>c</sup>		
Prescribed Medication Only	10	35.7
Psychotherapy Only	14	50.0
Combined Prescribed Meds & Psychotherapy	4	14.3
Total	28	100.0

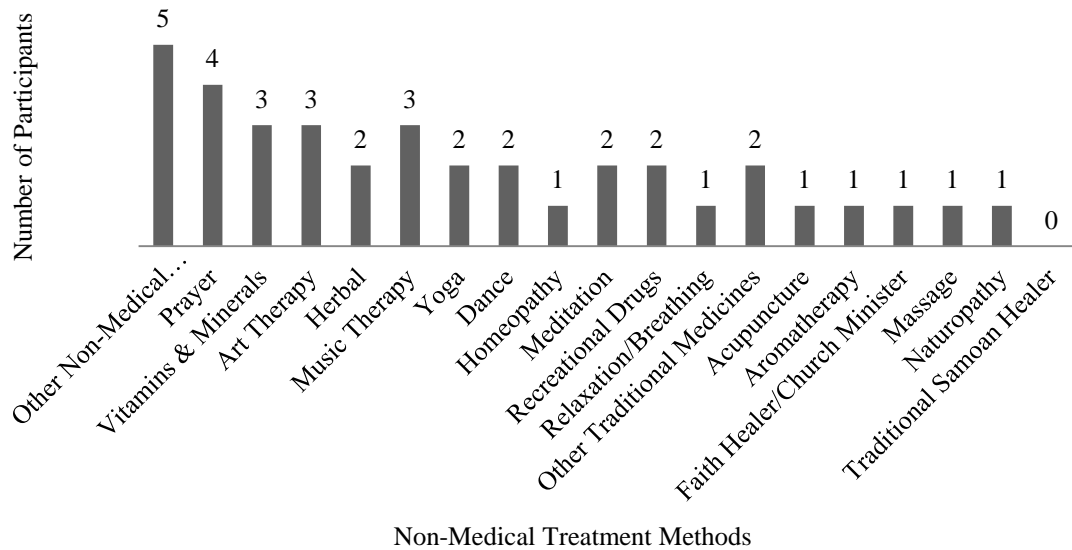


Note. <sup>a</sup> Non-Medical is defined as any mental difficulty treatment practice that is not part of the normal health care system, or offered by a medical professional, but are perceived to have healing effects, for example, natural health products or non-medical healers. <sup>b</sup> Medical is defined as any treatment for a mental difficulty that is offered by a professional talking therapy and/or any prescribed medications, for example, antidepressants or antipsychotics. <sup>c</sup> Includes responses for participants who chose medical only and a combination of medical and non-medical treatments.

Figure 8 shows frequencies for types of non-medical treatments accessed by participants who reported experiencing a mental health difficulty. Responses are from participants who chose non-medical treatments only (N = 15) and those who chose a combination of medical and non-medical treatments (N = 11). Participants were able to choose more than one of the listed non-medical treatment approaches.

Results show a large variety of non-medical treatment methods were accessed by participants in the past 12 months to treat their mental health difficulties. 'Other' modes were most popular (19.23) (N = 5) and included interventions such as exercise, nutrition, and being around family. Prayer was the second most common (15.38) (N = 4), followed by vitamins and minerals (20.0%) (N = 3), art therapy (20.0%) (N = 3) and music therapy (20.0%) (N = 3).

**Figure 8.** *Non-Medical Treatments Accessed by Mental Illness Sufferers*



### *No Treatment Access*

A total of 25.86% (N = 15) of participants who identified experiencing a mental health difficulty in the past 12 months indicated they did not access treatment. The majority of untreated participants were NZ-born (70.33%) (N = 11), middle aged (25 – 44) (66.67%) mothers (60%) (N = 10), either married or in a de Facto relationship (60%) (N = 10). Sixty percent were also multi-ethnic (N = 10) and fulltime workers (N = 10). The majority of untreated participants also held tertiary level qualifications (66.67%) (N = 10), while 26.7% (N = 4) held secondary level qualifications. A large proportion (70.0%) (N = 7) of untreated participants who were married had a higher median family income (\$60,000 - \$150, 000<sup>+</sup>) than the overall study group. Most untreated participants who were single (80%) (N = 3) also reported a higher median income (\$25,000 - \$60, 000) than the overall study group.

About half (46.67%) (N = 7) of the untreated participants reported high levels of financial stress and a large proportion reported high levels of relationship stress (80%) (N = 12). A total of 18.2% (N = 3) revealed intimate partner violence in the past 12 months. The majority of untreated participants (70.33%) (N = 11) reported alcohol use in the past 12

months, and 18.2% (N = 2) were likely to meet criteria for alcohol abuse. One untreated participant (8.3%) used cannabis in the past 12 months, and one revealed gambling problems (8.3%). A total of five (33.3%) untreated participants revealed problems from someone else's gambling. Frequencies for untreated participant's attitude toward drug medication based on the DAI-10 indicated that 53.3% (N = 8) had a positive attitude towards the use of drug medications for treatment, while 20.0% (N = 3) were undecided.

*Treatment methods preferred by participants who reported no mental health difficulties in the past 12 months.*

Table 18 shows frequencies for treatment preferences by participants who reported no mental health difficulty in the past 12 months. A total of 277 participants responded to questions about treatment preferences if they were to be diagnosed with a mental health disorder. Participants who responded 'No' and 'Unsure' to experiences of a mental difficulty were placed into a single category of No Mental Health Difficulties. The majority of participants (72.2%) (N = 200) showed a preference for a combination of medical and non-medical treatments. Qualitative data provided by participants gives reasons for their preference of a combined medical and non-medical treatment approach. Responses were placed into main themes for a combined medical and non-medical treatment approach: 1 = Participants (32.7%) (N = 91) preferred to have access to both medical and non-medical treatments to determine which method works best. 2 = A total of 22.7% (N = 63) of participants believed that both medical and non-medical treatments have good effects for recovery. 3 = A small proportion (6.9%) (N = 19) reported a preference for non-medical treatment, however if these treatments were not effective then medical treatments would be sought after. 4 = Another 7.9% (N = 22) of participants indicated that 'other' reasons such as a preference for medical or non-medical would depend on the severity of the difficulty.

A total of 14.4% (N = 40) of participants preferred medical treatments only. Reasons for this preference were listed by 24 respondents (60.0%). The majority of responses reflected the participant's belief in the ability of mental health professionals who were the best trained to deal with mental illness, therefore professionals would know the best treatment for optimal outcomes (45.0%) (N = 18). Preference for science based evidence as the most effective treatment was also listed (7.5%) (N = 3) and that mental difficulties were caused by biological deficits therefore medical treatment is needed (5.0%) (N = 2). The types of medical treatments preferred by participants was predominantly psychotherapy (74.9%) (N = 197) followed by anti-depressant medications (27.8%) (N = 73) and a combination of psychotherapy and medications (25.9%) (N = 68). Anti-psychotic medications were the least preferred (19.8%) (N = 52).

Figure 9 shows frequencies for the 277 participants who reported no experience of a mental health difficulty in the past 12 months and the types of non-medical treatment they would prefer if diagnosed with a mental health illness. Prayer was the most common non-medical treatment preferred (64.6%) (N = 179) followed by massage (63.9%) (N = 177). Relaxation breathing was preferred by 49.8% (N = 138) while a total of 44.8% (N = 124) of participants indicated they would access music therapy. Vitamins and minerals were selected as a preference by (44.0%) (N = 122) and acupuncture would be accessed by (38.6%) (N = 107). Herbal treatment (N = 106), Faith Healers (N = 104), and Yoga (N = 101) were indicated by 38.3%, 37.5% and 36.5% respectively. A moderate number of participants indicated they would access Dance (34.3%) (N = 95), Chiropractic (28.9%) (N = 80), Aromatherapy (28.5%) (N = 79), Traditional Samoan Healers (28.5%) (N = 79) and Art therapy (24.5%) (N = 68). Smaller proportions indicated they would access Naturopathy (20.9%) (N = 58), Homeopathy (18.8%) (N = 52), Reflexology (15.5%) (N = 43), Osteopathy (14.4%) (N = 40), Hypnosis (11.6%) (N = 32) and Recreational Drugs (11.6%) (N = 32).

Even smaller numbers indicated they would try Reiki (9.0%) (N = 25), Other non-medicals (8.7%) (N = 24) and Other traditional medicines (2.9%) (N = 8). A total of 6 (2.2%) of participants indicated none of the listed non-medical treatments would be a preference.

A total of 9.4% (N = 26) of participants reported a preference for non-medical treatments only. Reasons for these participants were placed into common themes: 1 = 53.8% (N = 14) reported fears of the negative side effects of drugs; 2 = A total of 34.5% (N = 9) reported they did not believe in medications or did not know enough about them; 3 = A few participants (26.9%) (N = 7) indicated their preference for healing through spiritual prayer; 4 = A smaller group of participants (15.4%) (N = 4) believed that natural resources and nature approaches are more effective than medical approaches; 5 = ‘Other’ reasons (30.8%) (N = 8) included the belief that drugs did not address the social causes of mental difficulties, natural resources provided more effective healing, and talking was more effective than drug taking.

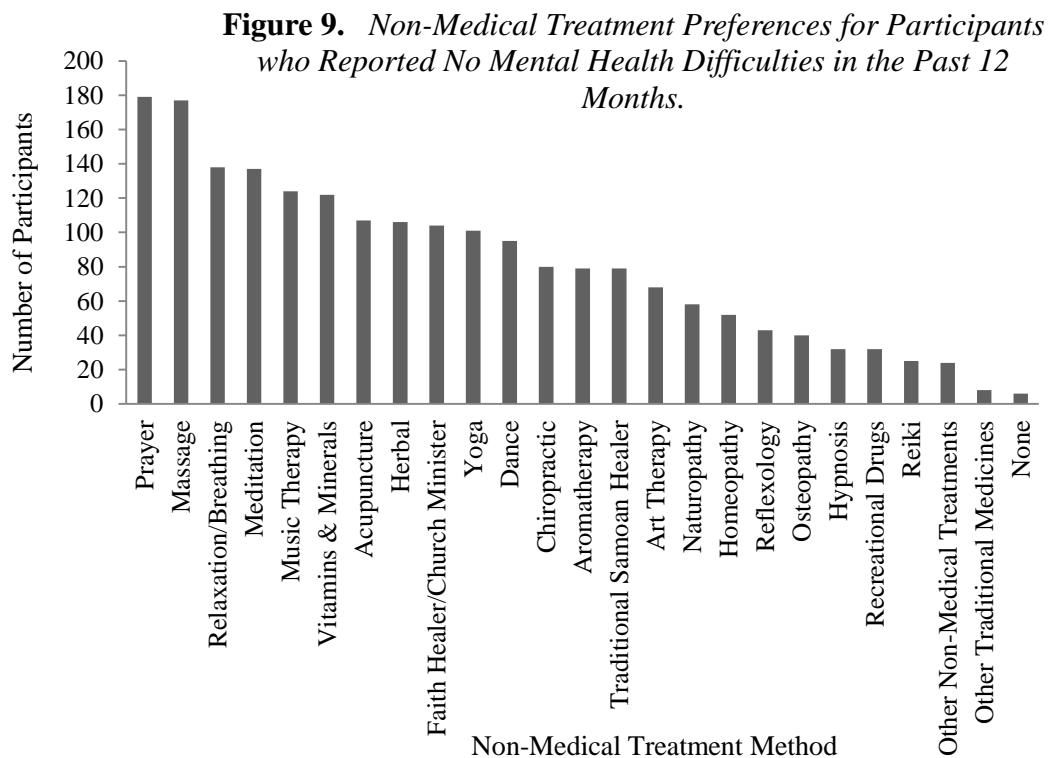
Overall, a total of 4.0% (N 104= 11) preferred no treatment and reasons were related to the dislike for medication and the hope to overcome difficulty without medication or treatment.

Table 18. *Frequencies for Medical Treatments Preferred by Participants who reported No Mental Health Difficulty in the Past 12 Months.*

Treatment Type	Preferred	
	N	%
Non-Medical Only <sup>a</sup>	26	9.4
Medical Only <sup>b</sup>	40	14.4
Both Medical & Non-Medical	200	72.2
No Treatment	11	4.0
Total	277	100.0
Types of Medical Treatment <sup>cd</sup>		
Anti-psychotic Medications	52	19.8
Anti-depressant Medications	73	27.8

Psychotherapy Only	197	74.9
Both Prescribed Meds & Psychotherapy	68	25.9
Total	263	

Note. <sup>a</sup>Non-Medical is defined as any mental difficulty treatment practice that is not part of the normal health care system, or offered by a medical professional, but are perceived to have healing effects, for example, natural health products or non-medical healers. <sup>b</sup>Medical is defined as any treatment for a mental difficulty that is offered by a professional talking therapy and/or any prescribed medications, for example, antidepressants or antipsychotics. <sup>c</sup> More than one option could be selected. <sup>d</sup> Participants who indicated non-medical only were still able to select types of medical treatment they would prefer but not participants who chose no treatment.



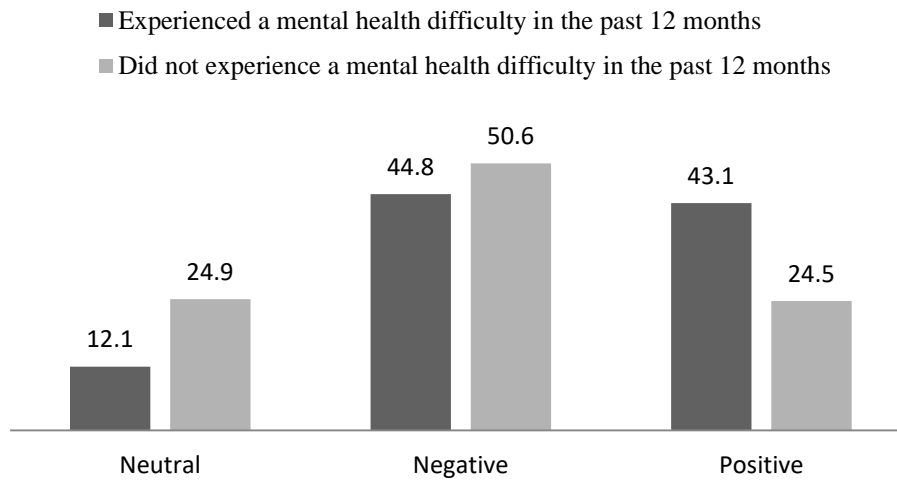
**Attitudes towards drug medication**

Overall, 315 participants answered questions regarding their attitudes towards prescription drugs based on the Drug Attitude Inventory (DAI-10) ( $M = -.97$ ,  $SD = 4.11$ ). Scores for the DAI-10 were divided into three groups: 1 = Negative Attitudes; 2 = Undecided; 3 = Positive Attitudes. More participants indicated negative attitudes towards drug medications (49.5%) ( $N = 156$ ) than positive attitudes (27.9%) ( $N = 88$ ), and 22.5% ( $N = 71$ ) were undecided.

Figure 10 displays frequencies for DAI-10 scores for participants who reported experiencing a mental health difficulty in the past 12 months and those who did not. Scores for mental health difficulty were placed into one of two groups: 1 = Participants who have experienced a mental difficulty in the past 12 months ( $N = 58$ ); 2 = participants who have not reported experiencing a mental health difficulty in the past 12 months ( $N = 257$ ). Scores for mental health difficulties were placed into one of two categories: 1 = Yes; 2 = no. Participants who were in the unsure category for mental health difficulties experienced in the past 12 months were placed in the no category. For participants who had experienced a mental health difficulty showed almost even proportions of negative attitudes (44.8%) ( $N = 26$ ) and positive attitudes (43.1%) ( $N = 25$ ) towards psychiatric medications. A small proportion of participants with a mental health difficulty were undecided (12.1%) ( $N = 7$ ).

For participants who have not experienced a mental health difficulty in the past 12 months a large proportion reported negative attitudes towards drug medications (50.6%) ( $N = 130$ ). An almost even percentage reported positive attitudes (24.5%) ( $N = 63$ ) and were also undecided (24.9%) ( $N = 64$ ) about the use of drug medications.

**Figure 10.** *Attitudes Towards Drug Medications*



### **Attitudes Towards the use of Micronutrients (ATM)**

Table 19 shows frequencies for ATM. A total of 302 participants responded to questions regarding the use of micronutrients to treat stress and mental health difficulties ( $M = 44.53$ ,  $SD = 5.95$ ). Responses were divided into three levels: 1 = Disagree; 2 = Neither Agree nor Disagree/Undecided; 3 = Agree. Almost all participants (98.3%) ( $N = 297$ ) responded in favour of micronutrients to treat stress and mental health difficulties, with only one individual (.3%) who disagreed.

Attitudes towards micronutrients (ATM) for the treatment of stress and mental illnesses.

An independent t-test was conducted to examine the difference in ATM between participants who reported experiencing a mental health difficulty in the past 12 months and those who did not. A total of 306 participant responded to questions regarding micronutrients. Responses were divided into two groups: 1 = Yes (experienced a mental difficulty); 2 = No. The comparison showed a significant difference  $t(74.17) = 2.65$ ,  $p = .010$ ,  $d = .41$ .



Participants who had reported experiencing a mental health difficulty in the past 12 months reported higher agreeability with the use of ATM to treat stress and mental illnesses compared to participants who did not report experiencing a mental health difficulty.

Table 19. *Descriptive Statistics for Attitudes Towards Micronutrients vs Mental Health Difficulties.*

<b>Measure</b>	<b>N</b>	<b>M</b>	<b>SD</b>
Mental Health Difficulties			
Yes	57	46.63	6.86
No	249	44.05	5.62
Total	306	44.53	5.95

## DISCUSSION

The current study had four main objectives. First, was to explore current stress and psychological distress levels among Samoan adults (16<sup>+</sup>) living in NZ, and rates of reported mental health difficulties in the past 12 months. Second, was to understand the causes of stress for Samoan adults and its relation to psychological distress and mental health. Third, was to explore participant's beliefs about the causes of mental health disorders and their preferences for medical and non-medical treatment modalities. Fourth, was to contribute to existing mental health research for the study population and understanding factors contributing to stress and illness that helps to inform service delivery for Samoan adults who may be experiencing high levels of psychological distress or a mental health illness.

This study's sample is largely representative of NZ-born (79.1%) Samoan adult women (76.0%) therefore generalisation of study findings to the general Samoan adult population is limited. However, socioeconomic characteristics for employment and

qualification rates of the overall study are similar to Samoan adults in the general population (New Zealand Census, 2013). Overall, participants were well-educated and in some form of employment (74.0%) (part-time/fulltime). Despite being qualified workers, the median family and personal income brackets were lower than the general New Zealand population.

There was a strong sense of positive ethnic group identity for Samoan adults in the study. A total of 96.1% of the sample identified strong pride and security in their identity as a Pacific person living in New Zealand. A large percent of participants (78.7%) also reported strong religious beliefs based on The Santa Clara Strength of Religious Faith Questionnaire. These religious beliefs govern one's personal decision-making processes and coping with day to day stressors. All in all, participants were largely undecided (74.7%) about their level of satisfaction with the support they received from the NZ society and their Samoan communities as a Pacific person.

### **Psychological Distress (K10)**

Psychological distress is defined as high - very high K10. The cut-offs were set at 0-5 = 'none'; 6-11 = 'moderate'; 12-19 = 'high'; 20-40 = 'very high', and are based on the New Zealand Mental Health Study (NZMHS) cut-offs (Oakley Browne et al., 2006). In this study, a total of 25.8% of participants reported experiencing psychological distress over a four week period. Comparison of the study's findings to the NZMHS (2006) indicates that participants in this study experienced higher levels of psychological distress ( $M = 8.37$ ) compared to the total NZ population ( $M = 8.37$ ) based on the K10. The findings reflect previous findings indicating Pacific suffer higher levels of psychological distress compared to non-Pacific (NZMHS, 2006).

Statistical analyses indicated a moderate significant difference (0.51) in mean psychological distress scores between young adults (16-24) (M = 8.48) and middle aged adults (M = 7.66). There was also a moderate significant difference (0.52) in mean psychological distress scores between young adults and mature adults (M = 7.78). On average, younger adults in the study reported moderate levels of psychological distress compared to middle-aged and mature adults who reported low levels of psychological distress on average.

These results suggest that age has an effect on levels of psychological distress experienced among Samoan adults, and that being a young adult indicates higher susceptibility to developing mood and anxiety disorders. The results are consistent with findings from the NZHS (2006) which indicates that young Pacific carry a higher burden of psychological distress. These higher rates among young Pacifica have been attributed to the challenges young Pasifika face trying to integrate their cultural identity with Western social norms and values (Tiatia et al., 2003).

## **Mental Health**

Mental illness was defined as: “a health problem defined as abnormal thinking, emotions, personality or behaviour patterns that causes suffering or impairs one's ability to interact with others or function in ordinary life, for example; depression, schizophrenia or substance abuse and addictions. Rates of mental health difficulties in this study were measured using a tallying system of category responses: ‘yes’, ‘no’, ‘unsure’. Results show a total of 17.2% of participants reported they had experienced a mental health difficulty in the past 12 months. Mood and anxiety disorders were most commonly reported.

Statistical analyses indicated a small significant difference (Cramer's  $V = .145$ ) between males and females for rates of reported mental health difficulties. Males were more likely to report experiences of a mental health difficulty (21.5%), compared to females (15.6%). Males were also more likely to report being 'unsure' if they had experienced a mental health difficulty in the past 12 months (36.7%) compared to females (26.2%).

Although the effects of gender on rates of mental health difficulties reported are small, the results are worth exploring. In the NZMHS (2006) Pasifika females were found to have higher rates of mental illness compared to males. However, the differences found in this current survey may be a result of the subjective measure of mental health difficulties versus the diagnosed mental health disorders of the NZMHS based on the Composite International Diagnostic Interview (CIDI 3.0). Furthermore, Pasifika males have been identified as being less likely to access services compared to Pasifika females (Ministry of Health, 2008), which may explain the higher rates of males who reported being 'unsure' if they had experienced a mental health difficulty in the past 12 months.

Statistical analyses also indicated a moderate significant difference (Cramer's  $V = .150$ ) in rates of reported mental health difficulties between age groups. A larger proportion of mature adults aged 45-64 were more likely to report experiencing a mental health difficulty in the past 12 months (31.7%) compared to younger adults aged 16-24 who had a smaller proportion (13.0%) who reported experiencing a mental health difficulty. Furthermore, younger adults were more likely to report being 'unsure' if they had experienced a mental health difficulty in the past 12 months (41.6%), compared to proportion of middle aged adults who reported being unsure (26.5%) and the proportion of mature adults who were unsure (14.6%).

The results suggest that older adults were more likely to be sure if they had experienced a mental health difficulty compared to young adults. However, given the higher

levels of psychological distress reported by the younger adults, one may suggest that the large proportion of those who were unsure may have been more susceptible to experiences of a mood or anxiety disorder but not been aware. The literature suggests that a lack of awareness of health risk symptoms may be a barrier to accessing services for Pasifika, and that this accounts for the large proportion of Pasifika who present later with acute symptoms of mental illness (Ministry of Health, 2008). The research findings indicate the important role health promoters and educators have in increasing mental health literacy and providing psycho-education for young Samoan adults to identify and address symptoms that may be related to mental health difficulties.

### **Comorbidity**

According to research, Pasifika peoples are more likely to experience more than one mental disorder (Oakley Browne et. al., 2006). This study found that 21.1% participants who reported to have experienced a mental health difficulty in the past 12 months endorsed both mood and anxiety disorders.

For comorbid substance use disorders, just under a third of those (29.3%) of participants who reported having a mental health disorder also reported comorbid health risk behaviours that were likely to meet criteria for disordered use. The most commonly reported was having some level of tobacco dependency (low-moderate) (34%). Based on the AUDIT, 5.7% (N = 2) had comorbid alcohol abuse, based on the CUDIT, 2.86% (N = 1) had comorbid cannabis use, and 5.71% had disordered use of other drugs. A total of 5.7% also reported problems gambling.

The current study found of the 31.5% of the total sample that had engaged in gambling activities in the past 12 months 4.9% revealed problems with their gambling. A large proportion of participants (38.0%) reported having problems due to someone else's gambling. The small number of participants who identified problems with gambling meant that it was not possible to investigate the relationship between financial stress and gambling. However, the need for more culturally appropriate research has been noted in previous studies for problem gambling amongst Pacific in New Zealand (Perese, 2009).

The study found comorbid mental health difficulties and health risk disorders; however, a comparison of these findings to the levels found in the NZMHS (2006) is limited based on the differences in mental health measures used.

### **Psychological Distress and Mental Health**

Research shows that increased levels of psychological distress can lead to mental health difficulties. Statistical analyses indicated a large significant difference for levels of psychological distress between participants who reported a mental health difficulty and those who did not (1.18). On average, participants who reported experiencing a mental health difficulty in the past 12 months, were more likely to report high levels of psychological distress based on the K10 ( $M = 12.16$ ). On average, participants who reported no experience of a mental health difficulty were more likely to report moderate levels of psychological distress based on the K10 ( $M = 6.07$ ).

The results indicate that high psychological distress led to mental health difficulties. The findings suggest that participants who reported experiencing anxiety and depression like symptoms most of the time were also more likely to experience problems with their

behaviours and thinking that affected their daily lives. These findings highlight the important task for clinicians and service providers to understand the factors that lead to high levels of psychological distress for Samoan adults. Understanding the causal mechanisms enables interventions to effectively target these areas that can decrease one's risk for psychological distress and mental health difficulties.

What the current study also found was a significant differences between participants who reported being unsure if they had experienced a mental health difficulty and those who did not. The number of unsure participants who were also identified as experiencing high levels of psychological distress (N = 54) reflects possible issues of symptom knowledge or underreporting amongst Pacific peoples who may be experiencing mental illness in New Zealand (NZHS, 2006). The findings reflect The Health Survey (2014/15) findings that although Pacific experience high levels of psychological distress they have lower diagnosis rates for depression and anxiety disorders. What the study highlights is the continued effort to promote health and wellbeing from a population approach, and psychoeducation of the relationship between psychological distress and mental health.

### **Stress and Psychological Distress (K10)**

Previous research has highlighted the role that culturally relative stressors have in the development of psychological distress and mental illnesses (Seiuli, 2015; Tiatia et al., 2003). The stress measures used in the current study were developed to capture the context of fa'aSamoa and the culturally relevant stress factors for Samoan adults living in New Zealand. The measures have four main themes: financial stress, relationship stress, parent's stress for their children's education and student's academic stress. Influential variables for each measure are those variables where participants were more likely to agree than disagree with.

### *Relationship Stress (RS)*

Research has highlighted how the collective practices of fa'aSamoa, ensuring the collectives wellbeing and values of love and service can cause stress for Samoan adults (Seiuli, 2015; Tiatia et al., 2003). In this study, exploration of the RS frequencies reflected this collective wellbeing. A larger proportion of participants were more likely to agree than disagree with worrying about the wellbeing of parents/elders (59.4% vs 24.3%), the wellbeing of family (57.5% vs 25.1%), the wellbeing of children (30.6% vs 27.7%), and stress due to family responsibilities and expectations (50.6% vs 24.6%).

Statistical analyses indicated large significant difference for levels of psychological distress reported between participants with low levels of relationship stress and participants with moderate levels of relationship stress (-0.81). On average, participants with low levels of RS reported low levels of psychological distress while participants with moderate levels of RS also reported moderate levels of psychological distress. The analysis also indicated a large significant difference between participants with low RS and participants with high RS for levels of psychological distress (-1.65). On average, participants with high RS reported high levels of psychological distress.

The results indicate that the higher the levels of relationship stress Samoan adult's experience, the higher their levels of psychological distress. A bi-directional view of the relationship suggests that participants who are psychologically distressed worry more about their family's wellbeing and their ability to meet familial obligations than those who report no or moderate psychological distress. On the hand, high levels of worry about the family's wellbeing and meeting familial obligations can cause psychological distress.

Overall, the results reflect the strong collectivist connections between the self and the family which is the essence of fa'aSamoa. From a clinical perspective, for Samoan adults



experiencing psychological distress it is important to explore the level of their stress that come from fulfilling their roles and responsibilities and how this relates to their self-esteem and identity. It is also important to understand how negative cognitive processes associated with failure to provide for their families is influential in the development of mood disorders, but also their worry for their family's wellbeing plays for individuals experiencing anxiety.

### *Financial Stress*

Research has indicated that income and financial strain related to fa'aSamoa and obligations to the family and church are influential stressors for Samoan adults (Melani Anae, 1997; Thornton et al., 2010). This study found that trouble budgeting was the single most common variable participants were more likely to agree than disagree with as a variable for financial stress (46.3% vs 35.4%).

Statistical analysis indicated financial stress had a moderately significant effect between participants who reported low levels of psychological distress and those who reported high levels of psychological distress (-0.64). There was also a moderate significant difference in levels of psychological distress between participants who reported moderate levels of FS and those who reported high levels of FS (-.45). On average, participants with low, moderate and high levels of FS reported moderate levels of psychological distress; however these were moderately higher for participants with higher levels of FS. The findings indicate that the higher the levels of FS the higher the levels of psychological distress reported for participants and that problems budgeting can cause high levels of psychological distress for Samoan adults.

Statistical analyses also indicated a moderate significant relationship between levels of FS between participant who reported high median family income and those who reported a median income that was equal to or below the median income of the study cohort (.62). On

average, participants who reported higher family income reported low levels of FS compared to participants who reported equal to or below the median income who reported on average moderate levels of FS.

These findings suggest that having lower family incomes caused slightly higher levels of FS. In the context of fa'aSamoa being in a married or de Facto relationship may mean more family commitments to extended families. Therefore, ineffective budgeting has more significant impact on families with lower income levels. Research indicates that financial illiteracy has negative impacts on one's quality of life and long-term outcomes such as retirement planning (Feslier, 2006). The results suggest that financial literacy may benefit Samoan adults with lower family income levels.

This study also found that many participants disagreed rather than agreed that financial stress was due to the pressures of providing financial resources for family obligations (41.0% vs 31.1%), church obligations (53.9% vs 14.7%) and remittances to Samoa (47.1% vs 20.0%). Previous researchers have identified family obligations and contributions to church activities as stressors for Samoan adults (Seiuli, 2015; Thornton et al., 2010). However, the findings in this study may suggest that the predominantly NZ-born participants affiliate less with traditional churches (Levine, 2003) and traditional fa'aSamoa activities (Melani Anae, 1997).

### *Student's Academic Stress (SAS)*

Academic success for the individual brings honour and dignity to the family and is the pathway to a successful economic future (Graham, Meyer, McKenzie, McClure, & Weir, 2010). A total of 109 (10.2%) participants in this study were either fulltime or part-time students. Students were more likely to agree than disagree that stress was due to not achieving academically (57.2% vs 26.5%), not prioritising their education for a better future

(51.0% vs 31.6%), not progressing intellectually (50.0% vs 29.6%) and not attending class due to insufficient money (50.0% vs 34.7%).

Statistical analyses indicated levels of SAS had a large significant effect on levels of psychological distress between students who reported low levels of SAS and those who reported high levels of SAS (-1.39). On average, students with low levels of SAS reported moderate levels of psychological distress while participants with high levels of SAS reported high levels of psychological distress. A large significant difference for levels of psychological distress was found between participants with moderate levels of SAS and those with high levels of SAS (-1.29). On average, participants with moderate levels of SAS also reported moderate levels of psychological distress.

The results indicate that the higher the levels of SAS a student experiences the higher the levels of psychological distress. For Samoan students, stress related to their academic success and prioritising their education causes psychological distress related to symptoms of mood and anxiety disorders. These outcomes were more significant for younger adult students (16 – 24) in the study. For a young Samoan student, success is considered the families success and an important mechanism in which the student can honour their parents (Jemaima Tiatia, 2008) and contribute to the wellbeing of the family. The results are consistent with previous research on the mental health and wellbeing of young Samoan youth and the connection between academic stress and psychological distress (Tiatia et al., 2003).

#### *Parent's Stress for their Children's Education (PSCE)*

Pasifika parents have high aspirations for a better life and future for their children which is achievable through education (Grahame et al., 2010). Parents in this study showed the most common stressor related to their children's education was their children missing school due to problems with finances. Statistical analysis indicated a moderate significant

difference between parents with low levels of PSCE and those with high levels of PSCE and levels of psychological distress (-.73). On average, parents with low levels of PSCE reported no psychological distress while parents with high levels of PSCE reported moderate levels of psychological distress. Furthermore, parents with moderate levels of PSCE were also more likely to report no psychological distress.

The findings indicate that PSCE influences levels of psychological distress for parents. Although these levels are not indicative of high levels of psychological distress the findings indicate that parents with financial difficulties that may stop their children from going to school may experience symptoms relative to mood and anxiety disorders frequently. The finding is important given the parents are a fundamental aspect of the families wellbeing and the impact of ongoing stress for the parent may lead to higher levels of psychological distress and mental health difficulties. The findings also support research indicating that financial difficulties is a significant barrier to academic success for Pasifika students (Zealand, 2010b).

### **Stress and Mental Health**

Statistical analyses indicated mental health difficulties had a significant effect on levels of relationship stress reported by participants in the study. There was a large significant difference in levels of RS between participants who reported experiencing a mental health difficulty and those who did not (1.12). On average, participants who reported experiencing a mental health difficulty reported moderate levels of RS while those who did not experience a mental health difficulty reported low levels of RS. There was also a moderate significant difference in levels of RS between participants who reported experiencing a mental health difficulty and those who were unsure (.55). On average those who were unsure reported

moderate levels of RS. A moderate significant difference in levels of RS were also found between participants who reported they did not experience a mental health difficulty and those who reported they were unsure (.-56).

The findings indicate that participants with mental health difficulties experience higher levels of RS stress compared to those who do not have mental health difficulties and those who are unsure. What the results indicate is the significant impact mental health difficulties or psychological distress can have on one's ability to fulfil their family responsibilities and the burden associated with this. Participants who experienced higher levels of RS worried more about the wellbeing of their families, parents and children compared to participants who did not experience a mental health difficulty. Findings in this study show how the collectivist worldview that guides fa'aSamoa is an important contributor to one's quality of life and wellbeing (Muaiava, 2015; Bethamsmsm, 2008). Clinically, management of these stressors is important for a Samoan adult's quality of life, and are best understood in the context of fa'aSamoa (Tamasese et al., 2005).

### **Stress and Religious Affiliations**

Religious belief and Christian principles govern fa'aSamoa (Samu & Suaalii-Sauni, 2009), therefore Samoan identity and relationships with God are interconnected (Toso, 2011). The Santa Clara Strength of Religious Faith Questionnaire (SCSRFQ) was used in the current study to measure the strength of religious affiliation for participants. Exploration of the (SCSRFQ) variables showed a large percentage of participants (89.4%) had religious beliefs and regarding their relationship with God as important. A large percentage of participants (85.4%) also reported their religion as an important part of their identity. The majority of

religious participants also reported using faith as a coping mechanism (85%) and a source of inspiration (84.9%).

The study also study found that 96.3% of participants who regarded their Pasifika identity as important also reported to have strong religious affiliations. The findings support for the relationship between religion and Samoan identity and culture which makes religion a fundamental component of a Samoan persons wellbeing (Esera, 2001; Pulotu-Endemann et al., 2004).

Statistical analyses showed a significant relationship between religious affiliation and relationship stress. On average, participants with stronger religious affiliations reported low levels of relationship stress compared to participants who reported high levels of relationship stress who reported weaker religious affiliations. Although the effect of religious affiliation on levels or relationship stress was small (0.43), in the context of fa'aSamoa, the findings suggest that the guiding principles of alofa, service, and respect are may result in less worry about familial wellbeing given their faith in God (Clark et al., 2006; Samu & Suaalii-Sauni, 2009).

Religious coping, whether it be the intrinsic belief or the social support, is associated with lower levels of psychological distress in other research (Kidwai, Mancha, Brown, & Eaton, 2014; Kuo et al., 2014). Statistical analyses indicate a significant relationship between religious affiliation and psychological distress. On average participants who reported no psychological distress in the past four weeks reported stronger religious affiliations compared to participants who reported high psychological distress who reported weaker religious affiliations. The effect of religious beliefs on levels of psychological distress was moderate (0.46). The findings support previous research which indicates religious coping is a protective factor for Samoan in the face of adversity (Hardin, 2016).

## **Perceived Social Wellbeing and Psychological Distress and Mental Health Difficulties**

The Pacific Wellbeing Scale is a validated scale that looks at the relationship between perceived social wellbeing and subjective wellbeing (Manuela & Sibley, 2015). The current study found that participants who reported higher levels of psychological distress were more likely to report being 'unsure' or 'undecided' about their satisfaction with the social support they received as a Pacific person from NZ society and their Samoan communities. Furthermore, participants who reported a mental health disorder were less likely to perceive their communities as supportive, compared to participants who reported no experience of a mental health difficulty.

Conceptualising the PSW results in the context of fa'aSamoa is most useful (Thoits, 2013). According to Pacific researchers, stress and familial conflict related to ongoing attempts to integrate one's Pacific culture with the New Zealand culture is a common experience for Pacific families (Robinson et al., 2006; Ofahengaue Vakalahi, 2008). For service providers and clinicians, the findings infer that the social experiences of the Samoan adult cannot be understood effectively without understanding the cultural challenges the individual faces both within their own communities and the wider communities as these are important factors related to psychological distress and mental health difficulties.

## **Belief about the Causes of Mental Health Disorders**

The measure of beliefs in causes of mental health disorders was to determine the factors attributed to causes of mental illness for Samoan adults. This is because culture has been acknowledged as playing a role in cross-cultural differences in beliefs about the causes of mental illnesses (Marsella, 1982). This study found that 50-70% of participants agreed with causes of mental illnesses such as abuse, stress, brain deficits and illegal drugs. Very few

participants' agreed that mental illness was caused by sin and demons. The results indicate participants identified with a more modern biopsychosocial model of causation as opposed to a more traditional school of thought. The findings may be a reflection of the levels of education among study participants and the large proportion of participants who were NZ-born (Health, 2008; Tamasese et al., 2005).

## **Treatment**

### *Treatment access by participants who reported experiencing a mental health difficulty in the past 12 months*

Access to treatment is important for improving mental health disparities in NZ (Jatrana et al., 2010). The current study found 74.1% (N = 43) of participants who reported experiencing a mental health difficulty in the past 12 months accessed treatment. Types of treatment accessed were balanced between medical (29.3%) (N = 17) and non-medical treatments (34.9%) (N = 15). A smaller proportion of participants who reported a mental health difficulty accessed a combination of both medical and non-medical treatments (18.97%) (N = 11). Results showed psychotherapy was most common (50%) compared to prescribed medications (35.7%). This study shows that a large variation of non-medical interventions were also utilised for treatment. These included exercising, socialising with friends and family, prayer, and different types of music, art and dance therapies. The popularity of psychotherapy among participants who experienced a mental health difficulty is positive given the effectiveness of psychological therapies to treat the psychological processes that mediate the effects of stress which may lead to mental illness (Kinderman, Schwannauer, Pontin, & Tai, 2013).



*Treatment preferences by participants who have not experienced a mental health difficulty in the past 12 months.*

Understanding treatment preferences is important. Participants who did not experience a mental illness in the past 12 months (72%) showed preference for the combination of medical and non-medical treatment options. Reasoning for this combined approach was to be able to determine which approach would work best for the individual and the belief that both treatment approaches could be effective for maximised outcomes. Participants who did not experience a mental illness in the past 12 months also indicated a preference for medical treatment approaches over the use of non-medical treatment only. The explanation for this choice was the belief that mental health specialists were trained professionals who knew best and would provide the most effective treatment for the individual. Psychotherapy was indicated as the most preferred medical treatment followed by the use of psychotherapy and medication together. Attitudes towards medications were mostly negative for those who had not experienced a mental health disorder, based on the DAI-10. Types of non-medical treatment that those who did not identify as having a mental disorder would access placed prayer and massage as the most commonly reported methods, followed by relaxation and meditation.

Overall, treatment findings support the clinical model of client-centred individualised therapy that suits the client's needs. The practice of relaxation and meditation are techniques being largely incorporated into therapy with mindfulness and breathing for anxiety. However, traditional healing of prayer and massage most preferred by non-sufferers would be limited if not absent among treatment facilities in New Zealand. The exploration of non-medical treatment options that are effective to both complement and supplement medical treatment options is important for future research. The data indicate preference for a

combined and personalised approach to the treatment of mental illness where both biomedical and non-medical treatment options are acceptable.

*Relationships and Family as important contributors in treatment of mental illness and psychological distress.*

As a collectivist culture, fa'a Samoa wellbeing is reflected in the wellbeing of the family and members within it. The study found high levels of stress related to relationships also determined levels of psychological distress. The study findings confirm two important aspects of treatment for Samoan. First, families and relationships play an important role in the wellbeing and treatment of individuals. Secondly, interventions related to family systems and wellbeing is best approached through psychotherapy, which was an acceptable form of treatment for Samoan adults in the study. Psychotherapy was commonly accessed by participants who had experienced a mental health difficulty and preferred by participants who did not experience a mental health difficulty in the past 12 months.

The findings indicate the importance of interventions that provide effective psychotherapy approaches for Pacific peoples. Te Pou o Te Whakaaro Nui's (2010) therapeutic guide for Pacific peoples talks about therapies such as Talanoa (talking/conversation) that allows the process of outward focus and relationship building as opposed to the inward focus of the individual on the self.

*Religious Coping as a non-medical treatment for stress and mental health difficulties*

What this study found was spirituality and religious coping are important to individuals who identify strongly with their Samoan culture. This strong belief in spirituality

is reflected in the high levels of spiritual coping reported in the study. Religious coping was the second most acceptable support for recovery following support from health professionals. For non-medical interventions, prayer was not only the most preferred by participants who have not suffered a mental health disorder, but was the most commonly accessed non-medical treatment for Samoan adults in the study who did experience a mental health disorder in the past 12 months. Furthermore, the research found that participants who preferred no treatment indicated that spiritual strengthening would be the focus of their intervention if they were to experience a mental health disorder.

The strong connection between religious affiliation and a Samoan adults cultural identity and worldview, has been highlighted by previous researchers as fundamental to the recovery and treatment of mental illness among Samoan (Pulotu-Endemann et al., 2004; Tamasese et al., 2005). The findings indicate that spirituality is an important component of support that should be incorporated into mental health treatment care for Samoan. These findings support recommendations by the Ministry of Health (2008) and Durie (2011) for the integration of spiritual knowledge and practices into New Zealand mental health settings. The findings also highlight the need for further research into the use of prayer for mental wellbeing and the effectiveness of a spiritual treatment approach for recovery from mental health disorders and psychological distress in the context of fa'aSamoa. Such research is important for the development of evidence-based treatment that is ethnic-specific.

### *Untreated Mental Health Difficulties*

Failure and delays in treatment seeking are a pervasive problem following the onset of mental health disorders (Wang et al., 2007). This study found that 25% (N = 15) of participants who reported having a mental health difficulty in the past 12 months did not access treatment, and a total of 18.9% (N = 2) of participants who were untreated were also

likely to meet criteria for alcohol abuse. These rates are similar to non-access rates found among Pacific peoples with mental health disorders in the general population (Ministry of Health, 2008). An exploration of characteristics of untreated participants showed the majority (60%) were middle-aged mothers born in NZ who identified as multi-ethnic and were qualified fulltime workers. Most (70%) untreated participants were married or in a de Facto relationship and had a higher median family income than the general study cohort.

Half of the participants, who did not access treatment but reported a mental health difficulty (N = 7), also reported high levels of financial stress that was not related to level of income. These data showed 70% of those who were married and did not access treatment earned above the median income level of the overall study group (\$60,000 - \$150,000). The same was shown for single participants, a total 80% of single participants who experienced a mental health difficulty and did not access treatment earned over the median income level of the total group. Those who identified as having a mental disorder but who did not access treatment reported moderate to high levels of relationship stress. Among those who were untreated, 20% also experienced intimate partner violence in the past 12 months.

The results paint a profile of a possible sub-group of untreated Samoan adults who are well-educated, NZ-born, mothers who are suffering from high levels of financial and relationship stress. Reasons for the lack of treatment access are important to understand. In the context of fa'aSamoa, it is important to look at the role of the successful Samoan mother to provide for her family and maintain relational obligations and how this leads to high levels of stress and mental illness. Research by Muiava (2015) indicates that the high expectations related to pleasing the family and women's fear of failure are significant contributors to the development of depression and anxiety. It also acknowledges that fear and shame that comes with discussing family or cultural matters in therapy settings creates barriers to accessing treatment.

## **Participants Attitudes towards the Use of Medication**

The Drug Attitude Inventory-10 (DAI-10) was used to measure participants' attitudes towards the use of psychotropic medications for psychiatric illnesses. Based on Azjen's (2002) Theory of Planned Behaviour, attitudes are important to measure as they can predict treatment adherence. This study showed a balance of positive and negative attitudes towards the medications by participants who had reported experiencing a mental health disorders in the past 12 months. Generalisation of this finding to the general Samoan adult population is limited given the small sample size of the group.

For participants who did not report experiencing a mental health difficulty, attitudes towards medications were more negative (50.6%) than positive (24.5%). Previous studies have highlighted medication adherence due to the negative attitudes towards medications as a barrier for Samoan (Ioasa-Martin & Moore, 2012; Samu & Suaalii-Sauni, 2009). The finding is partially supported in this study based on participants who have not experienced a mental health difficulty. Thus, drugs as 'first line' treatment option may be barrier to access for first onset of mental health difficulties.

## **Participants' Acceptance of Micronutrients to Treat Stress and Mental Illness.**

Research indicates Samoan adults are more likely to have concerns regarding side effects of psychiatric medicines (Suaalii-Sauni et al., 2009) which may influence their access to treatment services. Therefore, this study included a measure to look at Samoan adult's attitudes towards micronutrients as a treatment for stress and mental illness. Overall, results showed a total of 98.3% of participants agreed that research into the effectiveness of

micronutrients to treat stress and mental health difficulties and indicated they would access micronutrients for themselves and their families if proven to be effective. Furthermore, participants who reported an experience of mental health difficulties in the past 12 months were significantly more likely to accept micronutrients as an alternative treatment method compared to participants who did not report a mental health difficulty in the past 12 months.

The high level of agreeability for the use of micronutrients found in the current study has important implications for future researchers. From a health psychology perspective, preference for treatment predicts treatment behaviours (Ajzen, 2002). The current state of medication adherence and treatment outcomes for Pasifika adults in New Zealand is concerning (Jatrana et al., 2010). This finding starts to answer the questions of what other alternatives may be effective for this subgroup to improve disparities in mental health outcomes given previous research findings of the negative attitudes towards medications (Ioasa-Martin & Moore, 2012). Research into the effectiveness of micronutrients is growing (Rucklidge & Kaplan, 2013; Sole et al., 2017) (add Gately & Kaplan, 2009; Kazdin, 2016; Schlebusch et al., 2000). No randomised controlled trials for Samoan adults or Pacific populations have been conducted to date. However, the findings indicate that micronutrient treatments may prove to be an acceptable alternative treatment for this population.

## **Limitations**

Limitations of the current study should be taken into account when interpreting results. First, the study sample is not considered representative of the general Samoan adult population in New Zealand given the large proportion of females in the sample. Secondly, the current study does not measure mental health disorders compatible to wider population studies, thus comparisons in rates of mental health disorders and associated analyses in this

study are limited. Thirdly, stress measures used in the study should not be considered comprehensive coverage of stressors for Samoan adults. Fourth, the methodology of the current study did not involve the culturally important concept of 'talanoa' (qualitative data) that is considered important for contextual purposes which may limit the true understanding of results in relation to the individual's wellbeing and individualised experiences. Fifth, the generalisation of treatment preferences for participant who reported experiencing a mental health difficulty and the characteristics of untreated Samoan adults are not generalizable to the general Samoan population given the small sample sizes of each group. Further large scale investigations are required to understand treatment preferences of the general Samoan adult population in New Zealand who have experienced mental health difficulties. Sixth, there was a 69% completion rate for the study. Drop-outs may be attributed to the length of the survey, which took 20-30 minutes to complete.

## **Summary**

In the context of the study's limitations, the research findings point to various aspects of culturally relevant stressors that lead to psychological distress, and the impact of relationship stress on mental illness. Although these measures are not considered exhaustive, they provided understanding for some of the cultural complexities effecting Samoan adults mental wellbeing. The stress findings highlight the need for effective stress management interventions and strategies tailored to Samoan adults living in NZ. Based on the current study, psycho-education and effective stress management are key interventions to maintain low levels of stress and decrease one's risk of psychological distress that leads to mental illness. Some key elements for stress management would be financial literacy skills, effective ways to cope with worry about the family's wellbeing, addressing the psychological

processes that play a part in the development of mood and anxiety disorders. Increasing supports for students and strengthening spiritual coping.

Comorbid mental health and substance use disorders have a significantly negative impact on one's psychological wellbeing and quality of life (Pirkola et al., 2009). Research also shows comorbidity is associated with lower access rates and a lack of effective assessment of the needs of individuals with substance use disorders and their mental health needs (Adamson et al., 2006). The small sample sizes in this study of participants with mental health difficulties and other health risk disorders make comparisons to NZHS (2006) data unsuitable; however, the results still highlight the need for more research regarding comorbid mental health disorders among Pasifika and the health seeking behaviours.

Increasing service access by Pacific communities has been a fundamental issue and target for health services in New Zealand to address the significant disparities in mental health outcomes. For treatment of mental health disorders, the study found that beliefs in what causes mental illness were not traditional but were more in agreement with a biopsychosocial perspective that acknowledges the role that factors such as abuse, stress and neurological deficits can play in the development of mental disorders. The three most common supports deemed important based on research findings are professional mental health, spiritual support and family support. For mental health services to be culturally responsive to the needs of Samoan adults, religious wellbeing needs to be incorporated into conventional treatment approaches. Ola fa'aleagaga (spirituality) is drawn on in times of illness and distress for Samoan adults.

Both medical and non-medical methods for treatment are perceived as acceptable with preferences for medical methods of psychotherapy and non-medical religious approaches such as prayer. Furthermore, the idea of having options to choose was important for participants when making treatment decisions. The acceptability of micronutrients for



treatment of stress and mental health difficulty indicates an area that needs further research in the search for effective treatment modalities that are responsive to Samoan adult's preferences.

The study also points to the notable area of untreated mental health disorders as a significant area for mental health services to address (Ministry of Health, 2008). The current study did not find causal factors for untreated mental health disorders but findings indicate psychological factors may be more influential than financial barriers for Samoan adults. The need to improve treatment services to meet these needs is important for improving the mental wellbeing of Samoan adults (16+) living in New Zealand.

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## APPENDIX

Talofa Lava and thank you for your interest in our study.

### Background

This study looks at measuring current levels of stress and mental illness and the influence of income, quality of relationships, and education for Samoan men and women aged 16+ living in New Zealand. It also aims to gather information on beliefs of what causes mental illness and understanding the medical and non-medical treatment preferences for stress and mental illnesses.

Who can participate

Samoan men and women aged 16 years or more who are currently living in New Zealand.

What does participation involve

Completion of the online questionnaire will take approximately 20 minutes. Participation is voluntary with the right to withdraw at any time without penalty. This can be done by closing the questionnaire at any stage or not hitting the submit button at the end of the questionnaire. Withdrawal of participation includes any information you have provided even after submission, should this remain practically achievable.

### Will I be paid

Participants who complete and submit their questionnaire go into a draw to win one of two Apple iPad Mini's.

## Confidentiality

All data gathered from participants as a result of the study will remain confidential. All data collected will be accessed through a computer locked file requiring a password, and only accessible by the researcher and primary supervisor. No identifying information is required for completion of the questionnaire and a separate link is provided for participants to list contact details to enter the prize draw. This link ensures your questionnaire responses and contact details are separated for confidentiality. These entries cannot be traced back to your questionnaire responses or linked in anyway.

For participants living in Christchurch who may be interested in future studies, trialing non-medical (micronutrients) treatments for stress, a separate link is also provided for your contact details. This again ensures you cannot be identified or linked with your questionnaire responses.

## What will happen to the information you provide

Results of the study may be published in scientific and medical journals and used to inform policy makers about current levels of psychological distress amongst Samoan men and women aged 16+ living in New Zealand. It also looks to establish the influence of stress related factors such as education, income, quality of relationships, substance use and addiction behaviours, to stress and mental illnesses. In addition information regarding beliefs of what causes of mental illnesses and the relative treatment methods preferred amongst this population may help to inform future research and mental health practices.

The questionnaire asks about stress, mental illness, substance use and intimate partner or family violence that may cause distress for some or raise questions of concern for others. If following the completion of the questionnaire you experience distress or have any concerns relating to your mental wellbeing, substance use or violence, you are encouraged to please consult your family doctor or contact your local services. A brief list of support agencies for mental health, violence and substance uses has also been provided below for your information and further support.

Reason for the study

This study is being carried out as a requirement for a University of Canterbury Masters of Science degree by Peati Mene -Vaele (peati.mene-vaele@pg.canterbury.ac.nz) under the supervision of Professor Julia Rucklidge (julia.rucklidge@canterbury.ac.nz). You may receive a copy of the project results by contacting the researcher at the conclusion of the study. We are also happy to discuss questions or concerns regarding the study and your participation.

This study has been reviewed and approved by the University of Canterbury Human Ethics Committee. Please forward any complaints to The Chair, Human Ethics Committee, University of Canterbury, Private Bag 4800, Christchurch (human-ethics@canterbury.ac.nz).

Thank you again for your interest.

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Peati Mene-Vaele

Professor Julia Rucklidge

## AGENCIES

### **Auckland:**

Alcohol and Drug Helpline - 0800 787 797

Counties Manukau Health - Pacific Services 09 270 9994

Lotofale - Pacific Mental Health Services - 0800 623 468

Mental Health Services - 09 623 4812

National Network of Stopping Violence - 09 489 3770

Pathways - 09 261 401

Salvation Army Budgeting Services - 09 639 1103

### **Wellington:**

Alcohol and Drug Helpline - 0800 787 797

National Network of Stopping Violence - 04 298 1404

Pathways - 04 473 6849

Taeaomanino Trust - 04 2374216

Vakaola Pacific Community Health Inc - 04 237 7759

Salvation Army Budgeting Services - 04 384 4713

### **Christchurch:**

Alcohol and Drug Central Co-ordination Service - 03 338 4437

Aviva Family Violence Service - 0800 2842 669

National Network of Stopping Violence - 03 365 6266

Mental Health Services - 03 366 6936

Pacific Hope Limited - 027 775 9995

Pacific Trust Canterbury - 03 366 3900

Christchurch Budget Service Inc - 03 366 3422

### **Dunedin:**

Alcohol and Drug Helpline - 0800 787 797

Anglican Family Care - 03 418 2530

Community Alcohol & Drug Service 03 476 9760

Dunedin Budget Advisory Service - 03 471 6158

Family Mental Health Service - 03 489 3728

National Network of Stopping Violence - 0800 474 1121

Salvation Army Bridge Programme - 03 477 9852

### **Micronutrients Survey**

Q1 Talofa Lava and thank you for your interest in our study.

**Background** This study looks at measuring current levels of stress and mental illness and the influence of income, quality of relationships, and education for Samoan men and women aged 16+ living in New Zealand. It also aims to gather information on beliefs of what causes mental illness and understanding the medical and non-medical treatment preferences for stress and mental illnesses. **Who can participate** Samoan men and women aged 16 years or more who are currently living in New Zealand. **What does participation involve** Completion of the online questionnaire will take approximately 20 minutes. Participation is voluntary with the right to withdraw at any time without penalty. This can be done by closing the questionnaire at any stage or not hitting the submit button at the end of the questionnaire. Withdrawal of participation includes any information you have provided even after submission, should this remain practically achievable. **Will I be paid** Participants who complete and submit their questionnaire go into a draw to win one of two Apple iPad Mini's. **Confidentiality** All data gathered from participants as a result of the study will remain confidential. All data collected will be accessed through a computer locked file requiring a password, and only accessible by the researcher and primary supervisor. No identifying

information is required for completion of the questionnaire and a separate link is provided for participants to list contact details to enter the prize draw. This link ensures your questionnaire responses and contact details are separated for confidentiality. These entries cannot be traced back to your questionnaire responses or linked in anyway. For participants living in Christchurch who may be interested in future studies, trialing non-medical (micronutrients) treatments for stress, a separate link is also provided for your contact details. This again ensures you cannot be identified or linked with your questionnaire responses.

What will happen to the information you provide  
 Results of the study may be published in scientific and medical journals and used to inform policy makers about current levels of psychological distress amongst Samoan men and women aged 16+ living in New Zealand. It also looks to establish the influence of stress related factors such as education, income, quality of relationships, substance use and addiction behaviours, to stress and mental illnesses. In addition information regarding beliefs of what causes of mental illnesses and the relative treatment methods preferred amongst this population may help to inform future research and mental health practices.

Risks involved: The questionnaire asks about stress, mental illness, substance use and intimate partner or family violence that may cause distress for some or raise questions of concern for others. If following the completion of the questionnaire you experience distress or have any concerns relating to your mental wellbeing, substance use or violence, you are encouraged to please consult your family doctor or contact your local services. A brief list of support agencies for mental health, violence and substance uses has also been provided below for your information and further support.

Reason for the study: This study is being carried out as a requirement for a University of Canterbury Masters of Science degree by Peati Mene-Vaele (peati.mene-vaele@pg.canterbury.ac.nz) under the supervision of Professor Julia Rucklidge (julia.rucklidge@canterbury.ac.nz). You may receive a copy of the project results by contacting the researcher at the conclusion of the study. We are also happy to discuss questions or concerns regarding the study and your participation. This study has been reviewed and approved by the University of Canterbury Human Ethics Committee. Please forward any complaints to The Chair, Human Ethics Committee, University of Canterbury, Private Bag 4800, Christchurch (humanethics@canterbury.ac.nz).

Thank you again for your interest. Ia manuia; Peati Mene-Vaele  
 Professor Julia Rucklidge

AGENCIES Auckland: Alcohol and Drug Helpline - 0800 787 797 Counties Manukau Health - Pacific Services 09 270 9994 Lotofale - Pacific Mental Health Services - 0800 623 468 Mental Health Services - 09 623 4812 National Network of Stopping Violence - 09 489 3770 Pathways - 09 261 401 Salvation Army Budgeting Services - 09 639 1103 Wellington: Alcohol and Drug Helpline - 0800 787 797 National Network of Stopping Violence - 04 298 1404 Pathways - 04 473 6849 Taeaomanino Trust - 04 2374216 Vakaola Pacific Community Health Inc - 04 237 7759 Salvation Army Budgeting Services - 04 384 4713 Christchurch: Alcohol and Drug Central Co-ordination Service - 03 338 4437 Aviva Family Violence Service - 0800 2842 669 National Network of Stopping Violence - 03 365 6266 Mental Health Services - 03 366 6936 Pacific Hope Limited - 027 775 9995 Pacific Trust Canterbury - 03 366 3900 Christchurch Budget Service Inc - 03 366 3422 Dunedin: Alcohol and Drug Helpline - 0800 787 797 Anglican Family Care - 03 418 2530 Community Alcohol & Drug Service 03 476 9760 Dunedin Budget Advisory Service - 03 471 6158 Family Mental Health Service - 03 489 3728 National Network of Stopping Violence - 0800 474 1121 Salvation Army Bridge Programme - 03 477 9852

Q2 CONSENT I have read and understand the purpose of the study and understand that any information that I provide will be kept confidential by the researchers and that any published results cannot identify participants. I also understand that participation is voluntary and I may withdraw at any time without penalty.

- I agree to participate (Please select the >> button to start the questionnaire)
- I have decided not to participate. (Please select the >> button to exit the questionnaire)

Q3 Please answer the following questions about background information by selecting the option that best describes you, or by inserting your answers in the spaces provided.

Q4 What is your age?

Q5 What is your gender?

- Female
- Male
- Other: \_\_\_\_\_

Q6 Do you identify as a Samoan:

- Yes
- No

Q7 Do you have a Samoan parent(s)/ grandparent(s)/ or ancestors?

- Yes
- No

Q8 Please indicate any other ethnic groups you identify with: (more than one answer possible)

- NZ Maori
- NZ European
- Chinese
- Cook Island Maori
- Fijian
- Indian
- Japanese
- Tongan
- Korean
- Niuean
- Other: \_\_\_\_\_
- No other ethnicity

Q9 Where were you born?

- New Zealand
- Samoa
- Other: \_\_\_\_\_

Q10 Please enter, how many years you have lived in New Zealand:

Q11 Please rate your ability to speak Samoan:

- Advanced
- Intermediate
- Beginner
- Not at all



Q12 What region of New Zealand do you live in?

- Auckland
- Waikato
- Wellington
- Christchurch
- Dunedin
- Other: \_\_\_\_\_

Q13 Which of the following employment statements currently applies to you? (more than one answer can be selected)

- Paid Employee - Full Time (30hrs or more a week)
- Paid Employee - Part Time (at least 15 hours or more a week)
- Employer
- Self- Employed and Without Employees
- Unpaid family worker
- Unemployed
- Disability Benefit
- Retired
- Full Time Student
- Part Time Student (less than 0.8 EFTS for the year)
- Other (Please Specify): \_\_\_\_\_

Q14 What is your highest level of qualification:

- No secondary school qualifications
- National Certificate Level 1/ NCEA Level 1/ NZ School Certificate
- National Certificate Level 2 / NCEA Level 2 / NZ Sixth Form Certificate
- National Certificate Level 3/ NCEA Level 3/ NZ Higher School Certificate/NZ University Entrance or NZ Bursary
- NCEA Level 4
- Other NZ secondary school qualification (please specify): \_\_\_\_\_
- Overseas Secondary School Qualification
- Trade Certificate
- Diploma or Certificate Level 5
- Advanced Trade Certificate
- Diploma or Certificate Level 6
- Teachers Certificate/Diploma
- Nursing Diploma
- Bachelor Degree / Level 7 Graduate Diploma / Certificate
- Bachelor Hons/ Post Graduate Diploma or Certificate
- Masters Degree

- PhD/ Doctorate Degree
- Other (please specify): \_\_\_\_\_

Q15 What is your current marital status:

- Married or Civil Union - Not Separated
- Separated / Dissolved
- Widowed or Widower / Surviving Partner
- Never Married / Never in a Civil Union / Single
- De Facto / Spouse - Not Married
- Dating
- Other: \_\_\_\_\_

Q16 The following questions ask about being a Pacific person in NZ, with no right or wrong answers. Please choose the options that best describe you.

Q17 Please indicate your levels of satisfaction or dissatisfaction with being a Pacific person in NZ.

	Completely Dissatisfied	Dissatisfied	Neither Satisfied nor Dissatisfied	Satisfied	Completely Satisfied
Support provided by the NZ government to you as a Pacific person.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your position in New Zealand as a Pacific person.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The support you receive as a Pacific person in NZ.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your personal needs being met by NZ.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your relationship with NZ society.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The support you receive as a Pacific person in the community you live in.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The support you receive in the community you live in.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q18 Please indicate what level you agree or disagree with the following statements related to being a Pacific person:

	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
The fact that I am a Pacific person is an important part of my identity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Being a Pacific person is an important part of how I see myself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Being a Pacific person gives me a good feeling.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am glad to be a Pacific person.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am proud to be a Pacific person.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q19 Do you have a religious affiliation: Note: Religious affiliation is the self-identified association of a person with a religion, denomination or sub-denominational religious group

- Yes
- No
- Prefer not to answer

Q20 Please select your level of agreement or disagreement with the following statements related to religious faith:

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
My religious faith is extremely important to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I pray daily.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I look to my faith as a source of inspiration.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I look to my faith as	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

providing meaning and purpose in my life. I consider myself active in my faith or church. My faith is an important part of who I am as a person. My relationship with God is extremely important to me. I enjoy being around others who share my faith. I look to my faith as a source of comfort. My faith impacts many of my decisions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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Q21 The following questions ask about your income and financial stress. Please select the options that best describe you.

Q22 Please indicate your total annual income after tax (include income from all sources):

- Loss
- No income
- \$1,000 to \$5,000
- \$5,001 to \$10,000
- \$10,001 to \$15,000
- \$15,001 to \$20,000
- \$20,001 to \$25,000
- \$25,001 to \$30,000
- \$30,001 to \$40,000
- \$40,001 to \$50,000
- \$50,001 to \$60,000
- \$60,000 to \$70,000
- \$70,001 to \$100,000
- 100,001 to \$150,000
- \$150,001 or more

- Don't Know
- Do not wish to answer

Q23 Please indicate your total COMBINED income after tax (include income from all sources):

- Loss
- No income
- \$1,000 to \$5,000
- \$5,001 to \$10,000
- \$10,001 to \$15,000
- \$15,001 to \$20,000
- \$20,001 to \$25,000
- \$25,001 to \$30,000
- \$30,001 to \$40,000
- \$40,001 to \$50,000
- \$50,001 to \$60,000
- \$60,000 to \$70,000
- \$70,001 to \$100,000
- 100,001 to \$150,000
- \$150,001 or more
- Don't Know
- Do not wish to answer



village activities back home in Samoa.						
I have trouble managing a budget.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I cannot get enough money because of other financial obligations.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q25 The following questions ask about children and education. Please select the options that best describe you or insert your answers in the spaces provided.

Q26 Do you have children?

- Yes (please insert the number of children) \_\_\_\_\_
- No

Answer If Do you have children? Yes Is Selected

Q27 Do you have any children going to school (including University or Tertiary Institutions)?

- Yes (please insert the number of children going to school) \_\_\_\_\_
- No



Q28 Are you financially responsible for the education of your children?

- Yes
- No

Q29 Do you have grandchildren?

- Yes
- No

Q30 Do you have any grandchildren going to school (including University or Tertiary Institutions)?

- Yes (please insert the number of children going to school) \_\_\_\_\_
- No

Q31 Are you financially responsible for the education of your grandchildren?

- Yes
- No

Q32 Please select how much you agree or disagree with each of the statements regarding the education of your children:

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I feel stressed when I see my child/children miss school as a result of us having insufficient money.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel stressed that we are not prioritising my child/children's education for them to have a better future.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel stressed due to my child/children not achieving academically.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel stressed because it appears that my child/children are not progressing in their intellectual	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

development. I feel stressed because my child/children don't enjoy school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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Q33 Please select how much you agree or disagree with each of the statements regarding the education of your grandchildren:

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I feel stressed when I see my grandchildren miss school as a result of not having insufficient money.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel stressed that we are not prioritising my grandchildren's education for them to have a better future.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel stressed due to my grandchildren not achieving academically.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel stressed because it appears that my grandchildren are not progressing in their intellectual development.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel stressed because my grandchildren don't enjoy school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q34 Please select how much you agree or disagree with each of the statements regarding your education:

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I feel stressed when I don't attend classes as a result of having insufficient money.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel stressed that I am not prioritising my education to have a better future.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel stressed due to not achieving academically.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel stressed because it appears that I am not progressing in my intellectual development.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel stressed because I don't enjoy learning academically.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



member has been seriously ill.						
I have been stressed because a close friend has been seriously ill.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have been stressed worrying about the wellbeing of my children.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have been stressed worrying about the wellbeing of my family.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am stressed about the wellbeing of my parents/elders.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q37 The following questions ask about violence from a partner or other persons. Please select the options that relate to you.

Q38 Have you ever been hit, kicked, punched, or otherwise physically hurt by someone, in the past 12 months?

- Yes
- No

Q39 Please indicate the nature of your relationship with the person(s) you have been physically hurt

by: (more than one can be selected)

- Intimate Partner
- Person from previous relationship
- Parent or caregiver
- Other family member
- Health Professional
- A friend
- A work colleague
- A stranger
- Other: (please describe) \_\_\_\_\_

Q40 Do you feel safe being amongst your family?

- Yes
- No

Q41 Do you feel safe in your current relationship?

- Yes
- No

Q42 Is there a partner from a previous relationship who is making you feel unsafe now?

- Yes
- No

Q43 The following questions ask about stress with no right or wrong answers. Please select the options that best describe you.

Q44 From the list below please select the options that relate best to how you have felt in the past 4 weeks.

	Never	Occasionally	Very Often	Always
How often did you feel tired out for no good reason?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often did you feel nervous?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often did you feel so nervous that nothing could calm you down?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often did you feel hopeless?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often did you feel restless or fidgety?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often did you feel so restless you could not sit still?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often did you feel depressed?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often did you feel that everything is an effort?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often did you feel so sad that nothing could cheer you up?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often did you feel worthless?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q45 The following questions are related to attitudes about mental health, with no right or wrong answers. Please select the options that best describe you.

Q46 Please select the level to which you agree or disagree with the following statements about the importance of mental health: Note: Mental Health is defined as the wellbeing of a person's mind and emotions.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Good mental health is important for leading a healthy life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Good mental health is not important for leading a healthy life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Good spiritual health is important for leading a healthy life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To have good mental health you must have spiritual health.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Spiritual health is not important for good mental health.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Good physical health is important for leading a healthy life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There are more important things in life than good mental health.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To have good mental health you must have good physical health.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To have good mental health you must have good family relationships.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
You don't	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>





Q47 The following questions are related to thoughts about causes of mental illnesses and treatment, with no right or wrong answers. Please select the options that best describe your views and experiences. Note: Mental Illness is a health problem defined as abnormal thinking, emotions, personality or behavior patterns that causes suffering or impairs one's ability to interact with others or function in ordinary life. For example, depression, schizophrenia or substance abuse and addictions.

Q48 Please select the level to which you agree or disagree with the following statements related to causes of mental illnesses:

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
It is caused by a family problem.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is caused by using illegal drugs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is caused by spiritual ghosts or demons.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is a medical problem affecting the brain.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is a curse or a result of sin.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is caused by chronic stress.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is caused by ageing or growing old.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is caused by physical illness.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is caused by using prescription drugs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is caused by a genetic problem or runs in the family.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is caused by the pressures of living with conflicting Samoan and European values.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is caused by	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

abuse.					
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Q49 Do you think there are other causes for mental illness that were not described in the previous question?

- Yes (Please Specify): \_\_\_\_\_
- No

Q50 Please select the level to which you agree or disagree with the following statements related to seeking help or treatment for mental illnesses:

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Sufferers should seek help from church ministers for counselling or faith healers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sufferers should seek help from traditional healers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sufferers should seek help from the hospital or a mental health doctor.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The family should care for sufferers at home.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sufferers should be placed in mental health institutions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sufferers should be left alone to do whatever they want to do.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The police and courts should decide whether to place sufferers in jail.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q51 Do you think there are other options for mental illness treatments that were not described in the previous question?

- Yes (Please Specify): \_\_\_\_\_
- No

Q52 Have you experienced a mental illness in the past 12 months?

- Yes
- No
- Unsure

If Yes Is Selected, Then Skip To Please describe what type of mental i...

Q53 If you were to be diagnosed with a mental illness, and medical and non-medical treatments were found to be equally effective for treating a mental illness, which option listed below would you prefer for treatment: Note: Medical Treatments are defined as any treatment for a mental illness that is a form of psychotherapy or counselling, any kind of professional talking therapy or any prescribed medications, for example anti-depressants or anti-psychotics. Definitions: Psychotherapy = also called talk therapy, therapy, or counseling. Anti-depressants = prescribed medications used for the treatment of depressive disorders and other disorders including dysthymia, anxiety, and obsessive compulsive disorders. Anti-psychotics = medications used to manage psychosis including delusions, hallucinations, or disordered thought, in particular in schizophrenia and bipolar disorder. Non-Medical Treatments are defined as any mental health care treatment practice that is not part of the normal health care system, or offered by a medical professional but are perceived to have healing effects. (For example natural health products or non-medical healers)

- Medical treatments only
- Non-medical treatments only
- Both medical and non-medical treatments
- No treatment

Q54 Please explain briefly why you would prefer non-medical treatment only for a mental illness.

Q55 Please explain briefly why you would prefer medical treatment only for a mental illness.

Q56 Please explain briefly why you would prefer both medical and non-medical treatments for a mental illness.

Q57 Please explain briefly why you would prefer no treatment for a mental illness.

Q58 If you were to be diagnosed with a mental illness how likely would you be to use the following medical treatments (more than one can be selected): Note: Medical Treatments are defined as any treatment for a mental illness that is a form of psychotherapy, counselling, any kind of professional talking therapy and/or any prescribed medication. (For example antidepressants or antipsychotics)

	Very Unlikely	Unlikely	Undecided	Likely	Very Likely
Counselling/Talking Therapy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Antidepressant Medications	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Anti-psychotic Medications	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other Prescribed Medication	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Psychotherapy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q59 If you were to be diagnosed with a mental illness, which of the following non-medical treatments would you use (more than one can be selected): Note: Non-Medical Treatments are defined as any mental health care treatment practice that is not part of the normal health care system, or offered by a medical professional but are perceived to have healing effects. (For example herbs or natural health products)

- Acupuncture
- Aromatherapy
- Art therapy
- Chiropractic
- Dance Movement Therapy
- Faith Healer/Church Minister
- Herbal Medicine

- Homeopathy
- Hypnosis
- Massage
- Meditation
- Music Therapy
- Naturopathy
- Osteopathy
- Prayer
- Recreational Drugs (Marijuana/Street Drugs)
- Reiki (Japanese Spiritual Practice)
- Reflexology
- Relaxation/Breathing Technique
- Traditional Samoan Healer
- Other Traditional Medicine (please specify) \_\_\_\_\_
- Vitamins & Minerals
- Yoga
- Other (Please Specify) \_\_\_\_\_
- None of the above

Answer If Have you ever experienced a mental health difficulty in the past 12months? <span style="font-family: times new roman,times,serif;">Yes</span></span> Is Selected

Q60 Please describe what type of mental illness you experienced in the past 12 months?

Answer If Have you experienced a mental illness in the past 12months? <span style="font-family: times new roman,times,serif;">Yes</span></span> Is Selected

Q61 Did you attempt to treat your mental illness using a medical treatment? Note: Medical

Treatments are defined as any treatment for a mental illness that is a form of psychotherapy, counselling, any kind of professional talking therapy and/or any prescribed medication. (For example antidepressants or antipsychotics)

- Yes
- No

Answer If Did you attempt to treat your mental illness using a medical treatment? Note: Medical Treatments are defined as any treatment for a mental illness that is a form of psychot... **Yes** Is Selected

Q62 Please indicate which type of medical treatment you accessed to treat your mental illness: Note: Psychotherapy is defined as dealing with mental or emotional states of a person through talking with a psychologist.

- Counselling
- Prescribed Medication
- Psychotherapy
- Other: \_\_\_\_\_

Answer If Please indicate which type of medical treatment you accessed to treat your mental illness: Note... **Prescribed Medication** Is Selected

Q63 The following questions ask about your attitudes to prescribed medications for a mental illness, with no right or wrong answers. Please choose the options that best describe you.

Answer If Please indicate which type of medical treatment you accessed to treat your mental illness: Note... Prescribed Medication Is Selected

Q64 Please choose whether the following statements are True or False for you, in relation to your experiences with using drug medications.

	True	False
For me, the good things about medication outweigh the bad.	<input type="radio"/>	<input type="radio"/>
I feel weird, like a "zombie", on medication.	<input type="radio"/>	<input type="radio"/>
I take medications of my own free choice.	<input type="radio"/>	<input type="radio"/>
medications make me feel more relaxed.	<input type="radio"/>	<input type="radio"/>
Medication makes me feel tired and sluggish.	<input type="radio"/>	<input type="radio"/>
I take medication only when I am sick.	<input type="radio"/>	<input type="radio"/>
I feel more normal on medication.	<input type="radio"/>	<input type="radio"/>
It is unnatural for my mind and body to be controlled by medications.	<input type="radio"/>	<input type="radio"/>
My thoughts are clearer on medication.	<input type="radio"/>	<input type="radio"/>
By staying on medications, I can prevent getting sick.	<input type="radio"/>	<input type="radio"/>

Answer If Have you experienced a mental illness in the past 12months? Yes Is Selected

Q65 Did you attempt to treat your mental illness using any non-medical treatments? Note: Non-Medical Treatments are defined as any mental health care treatment practice that is not part of the normal health care system, or offered by a medical professional but are perceived to have healing effects. (For example herbs or natural health products)

- Yes
- No



Answer If Did you try any other forms of treatment for your mental health difficulty? Note: 'Other' meani... <span style="font-family: times new roman,times,serif;"><span style="font-size: 16px;">Yes</span></span> Is Selected

Q66 Please indicate which of the following non-medical treatments you have accessed for your mental illness (more than one can be selected): Note: Non-Medical Treatments are defined as any mental health care treatment practice that is not part of the normal health care system, or offered by a medical professional but are perceived to have healing effects. (For example herbs or natural health products)

- Acupuncture
- Aromatherapy
- Art therapy
- Chiropractic
- Dance Movement Therapy
- Faith Healer/Church Minister
- Herbal Medicine
- Homeopathy
- Hypnosis
- Massage
- Meditation
- Music Therapy
- Naturopathy
- Osteopathy
- Prayer
- Recreational Drugs (Marijuana/Street Drugs)
- Reiki (Japanese Spiritual Practice)
- Reflexology
- Relaxation/Breathing Technique
- Traditional Samoan Healer
- Other Traditional Medicine (please specify) \_\_\_\_\_
- Vitamins & Minerals
- Yoga
- Other (Please Specify) \_\_\_\_\_
- None of the above

Q67 Please describe why you chose to use a non-medical treatment for your mental illness:

Q68 Do you have any family members who are currently receiving treatment for a mental illness?

- Yes
- No

Answer If Do you have any family members who are currently receiving treatment for a mental illness? <span style="font-family: times new roman,times,serif;">Yes</span></span> Is Selected

Q69 Has your family member attempted to treat their mental illness?

- Yes
- No
- I don't know

Answer If Has your family member attempted to treat their mental illness? <span style="font-size: 16px;"><span style="font-family: times new roman,times,serif;">Yes</span></span> Is Selected

Q70 Please indicate what current methods of treatment your family member has accessed for this

mental illness (more than one can be selected):

- Acupuncture
- Aromatherapy
- Art therapy
- Chiropractic
- Dance Movement Therapy
- Faith Healer/Church Minister
- Herbal Medicine
- Homeopathy
- Hypnosis
- Massage
- Meditation
- Music Therapy
- Naturopathy
- Osteopathy
- Prayer
- Recreational Drugs (Marijuana/Street Drugs)
- Reiki (Japanese Spiritual Practice)
- Reflexology
- Relaxation/Breathing Technique
- Traditional Samoan Healer
- Other Traditional Medicine (please specify) \_\_\_\_\_
- Vitamins & Minerals
- Yoga
- Other (Please Specify) \_\_\_\_\_
- None of the above

Q71 The following section is about attitudes to using micronutrients to treat stress and mental illnesses, with no right or wrong answers. Please select the options that best describe you. Note: Micronutrients are defined as vitamins and minerals involved in a number of the human brain's processes and required in small amounts to sustain our health. Micronutrients are naturally found in plant abstracts and natural-based foods or can be taken in the form of a tablet or pill.

Q72 Please select whether you agree or disagree with the following questions about using micronutrients to treat stress and mental illnesses:

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I feel I don't know enough about micronutrients and how they work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel micronutrients as an alternative treatment to stress should be included in clinical care.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel people who fear the side effects of medicines from doctors are more likely to try micronutrients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel people experiencing stress should try non-medical treatments first	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Micronutrients contain natural formula's which are healthier than taking drugs given by a medical doctor.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel the more knowledge a person has about micronutrients, the more likely they would be to use it as a treatment for stress.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would be more likely to try micronutrients as a stress	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

<p>treatment if it was offered by medical doctors.</p>					
<p>If evidence showed that micronutrients were effective for treating stress and had less side effects than conventional medications, I would try using micronutrients to treat my stress symptoms</p>	○	○	○	○	○
<p>I view micronutrients as a worthwhile possible treatment for stress disorders</p>	○	○	○	○	○
<p>If I were to use micronutrients to treat my own stress symptoms and found positive results, I would be happy to recommend them to others.</p>	○	○	○	○	○
<p>If I were to witness others use micronutrients to treat their stress symptoms and see positive results, I would be happy to use micronutrients or recommend them to others.</p>	○	○	○	○	○
<p>I feel that using micronutrients is a good idea for everyday life but not for trying to treat stress disorders.</p>	○	○	○	○	○

<p>I feel that micronutrient treatment used to treat stress symptoms that have not been tested in a scientific manner should be discouraged</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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Answer If What region of New Zealand do you live in? <span style="font-family: times new roman,times,serif;">Christchurch</span></span> Is Selected

Q73 As a Christchurch resident, are you interested in participating in a study using micronutrients to treat stress?

- Yes
- No

Answer If Please click the following link to enter your&nbsp;contact details for future study trials of micronutrient treatments and stress. &nbsp; &nbsp; Is Selected

Q74 Please click on the link to enter your contact details for a future micronutrient study:

[http://canterbury.qualtrics.com/SE/?SID=SV\\_6GyhRX9JwoOksAJ](http://canterbury.qualtrics.com/SE/?SID=SV_6GyhRX9JwoOksAJ)

Q75 The following questions relate to your current use of tobacco. Please choose the options that best describe your levels of use.

Q76 Do you smoke cigarettes regularly (that is one or more a day)?

- Yes
- No

If No Is Selected, Then Skip To The following questions are related t...

Answer If Do you smoke? Yes Is Selected

Q77 In a typical day, how many cigarettes, do you smoke?

- \_\_\_\_\_
- Don't Know/Unsure
- Prefer not to answer

Q78 How soon after you wake up do you have your first smoke?

- Within 5 minutes
- 6-30 minutes
- 31-60 minutes.
- After 60 minutes
- You don't smoke in the morning
- Don't know/unsure

Q79 Have you ever tried to quit but couldn't?

- Yes
- No
- Don't Know/Unsure



Q80 The following questions are related to your current use of Cannabis. Please choose the options that best describe your levels of use.

Q81 Have you used any cannabis in the past 6 months?

- Yes
- No

If No Is Selected, Then Skip To The following list of questions is re...

Answer If Have you used any cannabis in the past 6 months? <span style="font-family: times new roman,times,serif;"><span style="font-size: 16px;">Yes</span></span> Is Selected

Q82 In the past 6 months, how often did you use cannabis?

- Never
- Monthly or less
- 2 to 4 times a month
- 2 to 3 times a week
- 4 or more times a week
- Daily or almost daily

Q83 How many hours were you &quot;stoned&quot; on a typical day when you had been using cannabis?

- Less than 1
- 1 or 2
- 3 or 4
- 5 or 6
- 7 or more

Q84 How often during the past 6 months did you find you were not able to stop using cannabis once you had started?

- Never
- Monthly or less
- 2 to 3 times a month
- 2 to 3 times a week
- 4 or more times a week
- Daily or almost daily

Q85 How often in the past 6 months did you fail to do what was normally expected from you because of using cannabis?

- Never
- Monthly or less
- 2 to 3 times a month
- 2 to 3 times a week
- 4 or more times a week
- Daily or almost daily

Q86 How often in the past 6 months have you devoted a great deal of your time getting, using or recovering from cannabis?

- Never
- Monthly or less
- 2 to 3 times a month
- 2 to 3 times a week
- 4 or more times a week
- Daily or almost daily

Q87 How often in the past 6 months have you had a problem with your memory or concentration after using cannabis?

- Never
- Monthly or less
- 2 to 3 times a month
- 2 to 3 times a week
- 4 or more times a week
- Daily or almost daily

Q88 How often do you use cannabis in situations that could be physically hazardous, such as driving, operating machinery, or caring for children:

- Never
- Monthly or less
- 2 to 3 times a month
- 2 to 3 times a week
- 4 or more times a week
- Daily or almost daily

Q89 Have you ever thought about cutting down, or stopping, your use of cannabis?

- Never
- Yes, but not in the past 6 months
- Yes, during the past 6 months

Q90 The following list of questions is related to information about your involvement with OTHER drugs, not including cannabis, during the past 12 months. Please select the options that best describe your levels of use.

Q91 Have you used drugs other than those required for medical reasons?

- Yes
- No

If No Is Selected, Then Skip To The following questions related to yo...

Answer If Have you used drugs other than those required for medical reasons? Yes Is Selected

Q92 Are you always able to stop using drugs when you want to?

- Yes
- No

Q93 Have you had "blackouts" or "flashbacks" as a result of drug use?

- Yes
- No

Q94 Does your spouse (or parents) ever complain about your involvement with drugs?

- Yes
- No

Q95 Have you ever experienced withdrawal symptoms (felt sick) when you stopped taking drugs?

- Yes
- No

Q96 Has a partner, relative, friend or a doctor or other health worker been concerned about your use of marijuana, or other drugs, or suggested you cut down?

- Yes
- No

Q97 The following questions related to your use of alcohol. Please answer them as best you can.

Q98 In the past 12 months have you used alcohol?

- Yes
- No

If No Is Selected, Then Skip To The following questions are related t...

Answer If In the past 12 months have you used alcohol? Yes Is Selected

Q99 How often do you have a drink containing alcohol?

- Monthly or less
- 2 to 4 times a month
- 2 to 3 times a week
- 4 or more times a week
- Daily or almost daily

Q100 How many drinks containing alcohol do you have on a typical day when you are drinking?

- 1 - 2
- 3 - 4
- 5 - 6
- 7 - 8
- 9 - 10
- 10 or more

Q101 How often do you have six or more drinks on one occasion?

- Never
- Monthly or less
- 2 to 4 times a month
- 2 to 3 times a week
- 4 or more times a week
- Daily or almost daily

Q102 How often during the last six months have you found that you were not able to stop drinking once you had started?

- Never
- Monthly or less
- 2 to 4 times a month
- 2 to 3 times a week
- 4 or more times a week
- Daily or almost daily

Q103 How often during the last six months have you failed to do what was normally expected from you because of drinking?

- Never
- Monthly or less
- 2 to 4 times a month
- 2 to 3 times a week
- 4 or more times a week
- Daily or almost daily

Q104 How often during the last six months have you first needed a drink in the morning to get yourself going after a heavy drinking session?

- Never
- Monthly or less
- 2 to 4 times a month
- 2 to 3 times a week
- 4 or more times a week
- Daily or almost daily

Q105 How often during the last six months did you have a feeling of guilt or remorse after drinking?

- Never
- Monthly or less
- 2 to 4 times a month
- 2 to 3 times a week
- 4 or more times a week
- Daily or almost daily

Q106 How often during the last six months have you been unable to remember what happened the night before because you had been drinking?

- Never
- Monthly or less
- 2 to 4 times a month
- 2 to 3 times a week
- 4 or more times a week
- Daily or almost daily

Q107 Have you or someone else been injured as a result of your drinking?

- Yes
- No

Q108 Has a partner, relative, friend or a doctor or other health worker been concerned about your drinking or suggested you cut down?

- Yes
- No

Q109 The following questions are related to your participation in gambling activities. Please answer them as best you can.

Q110 Please indicate which gambling activities you have taken part in over the last 12 months

- Lotto
- Instant Kiwi or Scratch Ticket
- Housie (Bingo for Money)
- Horse or dog racing through NZ TAB
- Sports betting through NZ TAB
- Gaming machines / pokies / or table games at a casino
- Gaming machines or pokies at a pub or club
- Paying to gamble on overseas websites
- Other gambling activity
- None of the above

Q111 In the past 12 months has your gambling caused you problems?

- Yes
- No

If No Is Selected, Then Skip To In the past 12 months, have you had p...

Q112 In the past six months has a partner, relative, friend or a doctor or other health worker been concerned about your gambling or suggested you cut down?

- Yes
- No

Q113 In the past 12 months, have you had problems because of someone else's gambling?

- Yes
- No



Q114 Please use the space below if you wish to make any comments or share any thoughts you have about the survey:

Q115 Thank You, you have successfully completed the survey questions. Please indicate if you would like to enter the draw to win one of two Apple iPad Mini's.

- Yes
- No

Answer If THANK YOU! You have completed all the required questions for this study.We would like to extend o... Yes Is Selected

Q116 Please click on the link below to enter your contact details for our prize draw. Note: Entering your details in the link below allows us to separate your contact details from your questionnaire answers in order to maintain your privacy. [http://canterbury.qualtrics.com/SE/?SID=SV\\_diLHNNH37rdCBC3H](http://canterbury.qualtrics.com/SE/?SID=SV_diLHNNH37rdCBC3H)

Answer If THANK YOU! You have completed all the required questions for this study.We would like to extend o... No Is Selected

Q117 Please click on the submit button (>>) to enter your responses.