An Investigation into the Design, Applicability and Evaluation of a Computerised

Cognitive Behavioural Therapy Programme-SPARX for Māori Young People

Experiencing Mild to Moderate Depression

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Abstract

Depression is a major health issue amongst adolescents in New Zealand particularly for Māori. This research is a part of a larger study, in which a Computerised Cognitive Behavioural Therapy programme (CCBT)-SPARX was designed and evaluated. Four studies exploring the design, applicability and efficacy of SPARX for Māori adolescents experiencing mild to moderate depression have been included in this thesis. In study one I investigated the design and content of the CCBT programme from a Māori perspective using a qualitative methodology. Three different groups were interviewed, taitamarki Kapa Haka group (N=8), taitamariki (adolescent) mothers (N=4) and whānau (7 parents and 7 taitamariki). Results revealed that SPARX taught Cognitive Behavioural Therapy (CBT) skills (particularly relaxation), it was like a computer game that helped with depression and the Māori graphics were applicable to taitamariki. In study two I recruited seven taitamariki to complete SPARX (seven modules). The Child Depression Rating Scale-Revised (CDRS-R) and secondary self-rating scales of depression, anxiety and quality of life were administered before intervention, post treatment and at five-month follow up. The mean scores on the CDRS-R dropped substantially to within normal range at post intervention 22.57 (CI=-8.52-36.63, p=.008) and this decrease was maintained at five month follow up 17.71 (CI=0.77-34.66, p=.043). Secondary measures showed statistically significant improvement for anxiety at months two and five and quality of life at months two and five. Both self report questionnaires at months two and five showed high satisfaction levels. In study three, participants completed a semi-structured interview (N=6) at completion of intervention. Taitamariki found SPARX to be helpful because it taught relaxation and cognitive restructuring skills and helped improve mood. The ability to customise the characters with Māori designs appeared to enhance cultural identity. In study four I analysed the Māori

participant data from the main randomised control trial (N=45) comparing SPARX with

treatment as usual (TAU). This study confirmed findings from the open trial with initial gains at

post intervention (SPARX, -5.13, TAU -6.87) maintained at five month follow up, (SPARX,

-5.50, TAU -5.40), and showed that for this cohort SPARX was as effective as treatment as

usual. The generalisability is limited by the small sample sizes. These results suggest SPARX is

an effective treatment for mild to moderate depression.

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Glossary of Māori Terms

Atua   God

Hapu   Sub tribe

Hinengaro   Mind, intellect, psychology

Hongi   Greeting process where noses are pressed together to symbolise the

                      joining of breathe and spirit

Iwi   Tribe

Kai   Food

Kapa Haka   Traditional group that performs Māori songs and dance

Karakia   Prayers

Kaumatua   Elder, guardian of knowledge and traditions

Kaupapa   A philosophy incorporating the knowledge, skills, attitudes and

                      values of Māori

Māori   Indigenous people of New Zealand

Marae   A designated area of land with buildings on it where Māori meet to

                      gather

Mau rākau   Training in the skilled use of traditional weapons

Moko   Tattoo

Mihi whakatau   Welcome ceremony

Ngati Tama   Tribe

Pakeha   New Zealander who is non Māori

Powhiri   Traditional welcome

Taiaha   Weapon, similar to a spear

Taitamariki	Adolescent
Taranaki	Name for the area of land in and around New Plymouth
Te ha	Breath
Te reo	Māori language
Tikanga	Māori cultural guidelines, values
Tinana	Body
Tupuna	Ancestor
Waiata	Song
Wairua	Spirit, inner spirit
Whakapapa	Genealogy, lineage
Whaikorero	Speech
Whakawhānaungatanga	Interrelationships between others
Whānau	Family
Whānau ora	Healthy Whānau

CHAPTER ONE: INTRODUCTION

Depression in Adolescence

Depression is one of the most common mental health issues that exist for young people (Fergusson & Horwood, 2001; McCauley, Pavlidis, & Kendall, 2001; Watson et al., 2003). Depression can be categorised into three categories: mild, moderate and severe (World Health Organisation, 1992). Mild to moderate depression is the most common form of depression (World Health Organisation, 1992) and is characterised by low mood and a somewhat restricted affect. Severe depression can be termed as a depressive disorder and therefore meets the Diagnostic and Statistical Manual of Mental Health, Fourth Edition, Text Revision, (DSM-IV-TR) criteria for a mood disorder. Adolescent depressive disorder is somewhat different from adult depressive disorder. Adolescents are more likely than adults to experience irritability and anger. They may also move from displays of anger through to being quite restricted and showing a flat affect. Both adult and adolescent depressive disorder affect the central nervous system in a variety of ways, resulting in poor sleep, increase or decrease in appetite, anedonia and, for some, a noticeable decline in processing speed which effects one's ability to pay attention to stimuli and to store and retrieve memories (American Psychiatric Association, 1994).

Diagnosing Depression

At present the field of adolescent psychopathology is dominated by two diagnostic systems, these being the DSM-IV-TR (American Psychiatric Association, 1994) and the International Statistical Classification of Diseases and Related Health Problems (ICD-10) (World Health Organisation, 1992). These two taxonomies are used to diagnose a depressive disorder in adolescents.

DSM-IV Classification

The DSM-IV-TR (American Psychiatric Association, 2000) categorises depressive symptoms along a continuum. Chronic depressive disorders include the diagnoses of dysthymic disorder (DD), chronic major depressive disorder, and major depressive disorder superimposed on a pre-existing dysthymia, or what is sometimes referred to as 'double depression'.

The DSM-IV-TR describes a major depressive disorder (MDD) as containing five of the following symptoms, which need to have been present nearly every day for the same two-week period. One of the symptoms must be depressed mood or loss of interest or pleasure. The other symptoms are: fatigue or loss of energy, insomnia or hypersomnia, diminished ability to think, significant weight loss or failure to make expected weight gains and an increase or decrease in appetite, feelings of worthlessness or inappropriate guilt, psychomotor agitation or retardation, and recurrent thoughts of death or suicide (American Psychiatric Association, 1994).

An adolescent's depressive symptoms are considered clinically significant if the symptoms must be causing distress or impairment in social, school or other areas of functioning. The diagnosis of MDD can be described as being a single or recurrent episode and can be further classified (depending on severity) as being mild, moderate or severe. If depressive symptoms persist for more than 52 weeks a diagnosis of a dysthymic disorder (DD) could be made. The diagnosis of DD is characterised by a chronic depressed mood and must also include two other symptoms such as feelings of hopelessness, low energy or fatigue, poor appetite or overeating, low self-esteem, insomnia or hypersomnia, and poor concentration or difficulty making decisions (American Psychiatric Association, 1994).

The DSM-IV-TR uses very similar criteria when diagnosing adults with a DD. The only differences are that when diagnosing an adolescent there only needs to be a disturbance of one

year instead of two years, and irritability instead of sadness may be the most prominent symptom of depressed mood for an adolescent (American Psychiatric Association, 1994).

ICD-10 Classification

The ICD-10 has a different way of describing MDD. It uses the term depressive episode and has a list of ten symptoms: decreased energy or increased fatigued, loss of confidence or self-esteem, recurrent thoughts of death or suicide and or suicidal behaviour, depressed mood that is abnormal for the individual (which is present most of the day and is largely uninfluenced by circumstances and has a duration for at least two weeks), unreasonable feelings of self-reproach or excessive and inappropriate guilt, indecisiveness and a decrease in concentration, sleep disturbances (insomnia or hypersomnia), anhedonia, a decrease or increase in appetite with related weight changes, and a change in psychomotor activity with agitation or retardation (subjective or objective) (World Health Organisation, 1992).

The diagnosis of mild depressive episode is made when a depressed mood is experienced with either loss of pleasure or tiredness and the presence of two further symptoms (from the aforementioned list) are also experienced. For a moderate depressive episode, a total of six symptoms must be present, and seven or more symptoms are required for a diagnosis of severe depressive episode (World Health Organisation, 1992).

The issue of being able to diagnose an adolescent is problematic due to the differences in criteria between these two systems (Lahey et al., 2004). However, these two systems of classification remain the mainstays with which diagnoses are made.

The Epidemiology of Depression in Adolescence

Depression is predicted to become the leading cause of disability by the year 2020 (Murray & Lopez, 1997). The Global Burden of Disease study conducted by the World

Health Organisation and the World Bank measured mortality and disability from major illnesses such as depressive disorder. This study found that the social and occupational cost of depressive disorder was ranked the fourth highest ahead of cerebrovascular disease and ischemic heart disease (Murray & Lopez, 1997).

Depressive disorder is associated with poor academic functioning, social dysfunction, substance use, attempted and completed suicide (Lewinsohn & Clarke, 1999). In young people the effect of depressive disorder is pervasive and affects not only function but overall development (Lewinsohn & Clarke, 1999). Co-morbidity is high, with up to half of those with major depressive disorder having a life time occurrence of another psychiatric disorder (Kovacs, 1996; Lewinsohn, Rohde, & Seeley, 1998).

Depression is a particularly important risk factor for both suicide attempts and completed suicide and has been identified as an important potential focus in the prevention of suicide (Beautrais, Joyce, & Mulder, 1996). In the 15-19 years age group suicide is a major cause of mortality with death rates similar to motor vehicle accidents (Lewinsohn et al., 1998). Therefore, intervening to reduce depression is of major public health importance, not just because of the reduction of long-term disability due to depression, but also because depression is a major risk factor for suicide.

Estimates of New Zealand Depression Rates

In New Zealand among the adolescent population, depressive disorder is a major health issue with rates of four to eight percent at the age of 15 changing dramatically to rates of 17-18% by the age of 18 (Feehan, McGee, Raja, & Williams, 1994; Feehan, McGee, & Williams, 1993; Fergusson & Horwood, 2001; Watson et al., 2003). There is an

increase in depressive disorder from mid to late adolescence (Feehan et al., 1994; Feehan et al., 1993; Fergusson & Horwood, 2001).

Te Rau Hinengaro: The New Zealand Mental Health Survey found depressive disorder to be a mental health disorder that is common in the New Zealand general population, with 20.7% of this population meeting the criteria for a mental health disorder over a 12 month period of their total life span. For Māori, 29.5% meet this criteria (Oakley Browne, Wells, & Scott, 2006).   In addition, depression is a common disorder among the adolescent population (Wantanabe, Hunot, Omori, Churchill, & Furukawa, 2007). In New Zealand, approximately 9% of male secondary students and 18% of female students reported clinically significant depressive symptoms in the Youth 2000 national survey (Adolescent Health Research Group, 2003b). Rates are higher for Māori and Pacific young people, with 23% of Māori and 22% of Pacific girls reporting depression in the clinical range on the Reynolds Adolescent Depression Scale (RADS) compared with 15% of New Zealand European (NZE) girls (odds ratio in comparison to NZE for Māori 1.46 95% CI 1.20-1.79, and for Pacific 1.25 95% CI 0.96-1.63) (Adolescent Health Research Group, 2004). Rates for Māori and Pacific boys are higher than those for NZE boys but not statistically significant (Adolescent Health Research Group, 2004). Therefore depression affects a significant proportion of adolescents in this country, and affects an even greater number of Māori adolescents.

New Zealand Mental health services at present are only resourced to treat the 3% of people with the most severe mental health problems and they currently see less than 3% of the population, (Oakley Browne et al., 2006). Access rates for children and adolescents are approximately 1.5% (Bir et al., 2007). Seventy five percent of young people with a

depressive disorder are untreated (Draucker, 2005). This may be because adolescents find it difficult to verbalise their distress (Stasiak, 2008). Therefore youth with depressive disorder find it difficult to receive the help they may need (National Collaborating Centre For Mental Health, 2005).

Aetiology of Adolescent Depression

Depressive disorders encompass a number of heterogeneous conditions (Slade & Andrews, 2005) and the aetiology is complex, including biological, psychological and social factors (Cicchetti & Toth, 1998; Davidson et al., 2002; Lewinsohn et al., 1994).

Biological theory of depression.

A majority of the work that is being conducted into the biology of depression is still in its infancy and is considered to be extremely complex (Carr, 2006). The research that has been completed in regards to twin studies suggests that a pre-disposition to a mood disorder such as depression is genetically transmitted. Exactly what biological characteristics are genetically transmitted is unknown at this present time (Jones, Kent, & Cradock, 2002). There are several biological theories that will be discussed such as amine dysregulation, endocrine dysregulation, immune system dysfunction, circadian rhythm abnormalities and seasonal rhythm dysregulation (Carr, 2006).

The amine dysregulation theory suggests that depression occurs when there is a dysregulation of the amine systems in those centres of the brain that are involved in reward and punishment related experiences (Liddle, 2001). The main neurotransmitters that are involved are serotonin and noradrenalin. Anti-depressants in adolescents such as selective serotonin re-uptake inhibitors are used to treat amine dysregulation (Ryan, 2002).

Exposure to chronic stress is also a factor in the onset of depression as this leads to a rise in cortisol levels which is associated with the dysregulation of the hypothalamic pituitary adrenal axis (Carr, 2006).

The dysfunction of the immune system and the development of depressive symptoms can be due to exposure to chronic stress, or acute loss such as bereavement. The impairment of one's immune system increases the risk of getting infections, and illnesses can maintain or exacerbate depression (Kronfol, 2002).

The circadian rhythm de-synchrony theory argues that when circadian rhythms are disrupted which govern the sleep waking cycle, depression can occur. Sleep studies indicate that depressed people have a shortened rapid eye movement (REM), broken sleep, difficulties with sleep onset and early morning waking (Brooks-Gunn, Auth, Petersen, & Compas, 2001). The aetiology for this disruption stems from a dysfunction within the reticular activating system, which has been shown to govern the sleep waking cycle (Carr, 2006).

One further theory is seasonal rhythm dysregulation, which posits that depression that occurs in winter is due to a decrease in daylight hours. This leads to increased secretion of melatonin by the pineal gland and this results in hibernation-like features of fatigue, over sleeping and an increase in appetite, which can lead to weight gain. The treatment protocol is the administering of light therapy to artificially lengthen the day and reduce the amount of melatonin secretion. This has been shown to improve the mood of adolescents (Swedo, Allen, Glod, Clark, & Teicher, 1997). The time at which melatonin is secreted can be altered by administering melatonin orally at key times during the day.

Psychological theories of depression.

A psychological theory that can help explain the development of a Depressive Disorder in adolescents is cognitive theory. Beck's cognitive model of depression (Beck, 1976), proposes that individuals prone to depression interpret events and circumstances through a negative set of beliefs about the self, the world and the future. As a result cognitive distortions can develop so that information is processed in a way that positive cues are down played and negative cues are over emphasised. Cognitive behavioural therapy (CBT), developed from this theory of cognition, teaches people to self-identify thoughts and behaviours that have contributed to low mood, and then teaches skills that can address these thoughts and behaviours. Cognitive behavioural therapy in children and adolescents (Harrington, Whittaker, & Shoebridge, 1998; Reinecke, Dattilio, & Freeman, 2006) provides evidence of effectiveness for treating the symptoms of depression with good long term and relapse prevention outcomes (Paykel et al., 1999; Wantanabe et al., 2007; Weisz, McCarty, & Valeri, 2006).

Two concepts that are derived from cognitive theory include attributional style (Abramson, Metalsky, & Alloy, 1989) and learned helplessness (Petersen et al., 1993; Seligman, Abramson, Semmel, & von Baeyer, 1979). Attributional style is the way in which people understand events that happen to them. This influences how people come to see themselves, others and the world in which they interact. Those with a pessimistic attributional style understand negative events as being a normal part of themselves, while positive events are viewed as minor events in to which they have had no input. Learned helplessness occurs when people withdraw because they cannot solve problems effectively and depression can result because they are not able to exert control over their environment.

(McCauley et al., 2001). Social learning theorists posit that a depressed mood can lead to an increase in depressive thoughts. This can feed back on further behaviour and thoughts, which can lead to an emotional state where people experience a sense of helplessness. Cognitive behavioural therapy teaches skills that address problem solving and interpersonal conflict, as these areas can be risk factors for the development of depressive disorder in adolescents (Birmaher, Ryan, Williamson, & Brent, 1996; Lewinsohn et al., 1994).

These theories explain that we are not passive recipients of our feelings; they suggest that we can manage them by paying attention to our thoughts and actions. This then leads to taking steps to solve problems and resolve conflict, which in turn can increase a sense of self-efficacy.

Using CBT to Treat Adolescents with Depression

Theoretical background.

The main theory that underpins the resource to be tested is Cognitive Behavioural Theory (CBT). CBT is derived from social learning theory and also draws from operant and classical conditioning theories (Hart & Morgan, 1993). Five interrelated domains are used to help formulate psychological problems (Friedberg & McClure, 2002). These are cognitions, emotions, interpersonal/environmental context, physiology and the individual's behaviour (Friedberg & McClure, 2002). Psychological difficulties are thought not to occur in isolation, but in an interpersonal/environmental context that is influenced by the four other domains. Psychological difficulties stem from the interaction between the individuals' cognitions, emotions and behaviours (Harrington, Whittaker, Shoebridge, & Campbell, 1998). In the CBT model, behavioural changes are thought to occur by making

changes to an individual's cognitive processes, which in turn influences behaviours (Kendall, 1991).

Cognitive Behaviour Therapy has been researched widely and found to be applied successfully to many psychological difficulties in children and adolescents, particularly depression (Butler, Chapman, Forman, & Beck, 2006). Cognitive behaviour therapy is recommended by several national guidelines as the treatment of choice for depression including the National Institute for Clinical Excellence (National Institute for Clinical Excellence, 2003). A review of 12 studies that contained CBT interventions for youth who ranged in age from 8 to 19 years (including prevention and treatment), found that there was a 63% clinically significant improvement in depressive symptoms by the end of the intervention (Lewinsohn & Clarke, 1999; Wantanabe et al., 2007; Weisz et al., 2006). However, there are limitations to the use of CBT to treat depression in adolescents. The evidence suggests it is difficult to maintain positive changes at longer follow-up intervals. The Nice Guidelines also state that the quality of the evidence is generally low to moderate which reflects the small sample sizes that are used (National Institute for Clinical Excellence, 2003).

Common therapeutic techniques with depressed adolescents.

There are many ways to treat depressive disorder such as medication and psychotherapies. For medication the most recent form is Selective Serotonin Re-uptake Inhibitors (SSRIs) such as fluoxetine (National Institute for Clinical Excellence, 2003). For psychotherapies the main evidence supports the use of CBT, Interpersonal Therapy and Family Therapy (National Collaborating Centre For Mental Health, 2005).

Evidence for CBT-Reviews and Meta-analyses

In this section I will discuss some of the early studies, which have reviewed the effectiveness of CBT for adolescents.   Some of the findings have not been promising, however this may be due to the limitations of the studies or meta-analyses, such as a small number of reviewed studies and the inclusion of milder cases of depression. In 1998, two meta-analyses for CBT of adolescent depression were published (Harrington, Whittaker, Shoebridge et al., 1998; Reinecke, Ryan, & DuBios, 1998). These articles contained six randomised controlled trials of individual CBT. The participants were aged between 6 and 18 years and were randomly assigned to CBT or to a comparison intervention (only one study contained an active intervention, that being family therapy). A 36% rate of improvement for the comparison group compared to a 45% rate for the CBT group meant that for every 100 participants that were treated with CBT, only 26 clients improved due to the CBT. The limitations are that CBT may be more suited for the treatment of depressive disorder of moderate severity in adolescence.

One meta-analysis contained six studies (the overlap with Harrington's study only included two studies) which included children and adolescents with diagnosed depression and depressive symptoms (Reinecke et al., 1998). The ages of the participants ranged from 11 through to 19 years. The control groups contained relaxation, supportive therapy and a wait list. The number of therapy sessions ranged between 6 and 14. The meta-analysis found the effect size (ES) (the difference between the treatment and control groups) at post treatment to be 1.02 and at follow-up 0.61. These effect sizes are between large and moderate and suggest that CBT can reduce depressive symptoms post treatment and that depressive symptoms can remain reduced over time (Reinecke et al., 2006).

Lewinsohn and Clarke (1999) conducted a review that contained 12 studies. These studies utilised CBT oriented interventions, which included individual treatment and prevention and group modalities. Participants were aged between 8 and 19 years, the duration of the CBT was between 5 and 16 sessions. The estimated ES was 1.27, suggesting a large effect size. Sixty three percent of clients showed a clinically significant improvement at the end of the treatment concluding that CBT is an effective treatment for depressed adolescents (Lewinsohn & Clarke, 1999).

A meta-analysis conducted by Weisz, McCarty, and Valeri, (2006) reviewed a total of 44 studies. Participants ranged in age from 7 to 19 years and were either diagnosed with depression or were symptomatic with depressive symptoms. Across the psychotherapeutic interventions there was a medium ES of 0.34 while CBT treatments had an effect size of 0.48. Not only was the effect size lower than previous reviews that were conducted but also the findings showed that cognitive treatment outcomes were no better than non-cognitive approaches. The mean ES for 31 CBT treatments was 0.35 while the mean ES for 13 treatments that did not target cognitions (e.g., relaxation training) was 0.47, with the difference not being statistically significant. The authors state that a reason for some of the differences between the reported ES and those found by other reviews, was possibly due to data-analytic methods (Wantanabe et al., 2007; Weisz et al., 2006).

The following studies are randomised controlled trials (RCTs) and were chosen because they are recent studies and contain large sample sizes. Therefore, the evidence may be considered more robust than the previous studies that have been discussed. The Treatment of Adolescents with Depression Study (TADS) (2004) used a large sample (n=439) of depressed adolescents and conducted a four-arm RCT comparing CBT alone, CBT plus fluoxetine (an

antidepressant medication), fluoxetine alone, and a placebo pill. After a 12 week period CBT combined with fluoxetine was identified as being the best treatment compared to the other interventions. It was found that CBT alone was no more effective than a placebo pill. A possible reason for this finding is that the comparison of CBT to a placebo pill is not the same as a comparison with a wait list. This is because the placebo pill condition is said to generate a degree of expectation of improvement. A further finding is that the effect size in the TADS study was significantly lower (ES= -0.07) than the effect sizes of CBT interventions in other studies and reviews. Explanations are that the TADS CBT was not as potent as other methods of CBT in other studies, or that its comparison with a placebo pill created an unexpected result. Perhaps it may have been the first comprehensive comparison of the different treatment methods (Treatment of Adolescents with Depression Study (TADS) Team, 2004). However, the trial continued and by the end of 36 weeks the response rates for CBT alone (81%) caught up to the response rate associated with combination treatment (86%) (March et al., 2007).

A further study was the ADAPT trial and 208 adolescents were recruited from child and adolescent mental health clinics in the United Kingdom (Goodyear et al., 2007). The participants were diagnosed with moderate to severe depression and their ages ranged from 11 to 17 years. In the trial, 103 adolescents were randomised to receive antidepressant medication (fluoxetine) plus routine care, while 105 received CBT, medication and routine care. Routine care was defined as receiving nine appointments over a 28-week period. The therapy consisted of 12 weeks, which was followed by a 16-week maintenance phase. The treatment of CBT was delivered biweekly with a total of 19 sessions. The authors found no evidence for the benefit of combining CBT with antidepressant medication compared with medication alone, which is a contrast to the TADS study. At the 28-week stage, 52% of the participants in the medication

plus CBT group were "much or very much improved" compared with 61% of the patients in the medication plus routine care group. It was also noted that 25% of the CBT group compared with 17% of the participants in the medication group reported no response or worsening of symptoms. A causal factor to explain these results is that the participants in the group that contained medication were monitored to a high degree, which involved intense clinical reviews of adverse events (Hazell, 2007). The routine clinical care could be deemed as added therapeutic support as it contained family support, conflict management and psycho education (Goodyear et al., 2007). This group of young people had severe depression and most of them had received previous psychological interventions before entering the trial (Goodyear et al., 2007).

Recommended Guidelines for Treatment of Depression

Cognitive behaviour therapy has been identified by the National Institute of Clinical Excellence as the psychological therapy that is able to provide support for adolescents with depression (National Institute for Clinical Excellence, 2005). For depression the guidelines recommend that individual CBT, interpersonal therapy or short term family therapy be offered for at least three months (National Institute for Clinical Excellence, 2005).

Summary

In summary, CBT's efficacy has been demonstrated in a number of studies. Some research supporting its efficacy is conflicting, but, despite its limits, CBT is still seen as a helpful therapeutic intervention.

The Argument for Using Computers to Deliver Psychotherapy

Computer administered self-help therapy (also known as e-therapy) has the potential to increase access to therapy, particularly for those people who are not accessing current services. Karolina Stasiak (2008) PhD thesis (supervised by Drs Merry and Hatcher)

reported on a project in which she developed a prototype for a Computerised Cognitive Behavioural Therapy (CCBT) programme for adolescents and piloted it in eight high schools in Auckland with 34 adolescents. Based on Stasiak's findings Dr Merry and Dr Stasiak received funding from the Ministry of Health to develop and evaluate the CCBT programme SPARX. This included developing the CCBT programme into a three dimensional game and trialling it with 187 participants. This current research project addresses an important component of the larger study, which is to investigate its applicability to taitamariki and to test its efficacy.

What is Computerised CBT?

Titov (2007) has defined CCBT as computer programmes that utilise the concepts of CBT via a computer, for duration of two or more sessions. The level of therapist intervention can range from no involvement through to being very involved in the delivery of the CCBT programme. The delivery of the CCBT programme can be either totally online or accessed through on-site stand-alone computers. Each CCBT programme may utilise a combination of many forms of multi-media such as animations, sound, video and web pages. This makes defining CCBT problematic as the only commonality between some programmes is the fact that a computer device is used. Homework assignments can still be included and the computer interface can provide more motivation to complete these tasks (Titov, 2007). Most CCBT programmes will include an introductory session, which includes psychoeducation, and a final session on relapse prevention.

Computerised CBT to Treat Depression – Review of Outcome Studies

A literature search was conducted of the PsychINFO and MEDLINE databases up to November 2008. The search terms used were depressive disorder, computer assisted therapy and

CBT. Two review articles were identified that reviewed RCTs, both these articles had an emphasis on adult CCBT programmes. Three studies were identified pertaining to adolescents.

In one study, authors contrasted the intervention group (efficacy of CCBT for depression) (N=57) with a control group (N=60) (Anderson et al., 2005). The intervention group contained depressed clients who completed five sessions of Internet based treatment for depression. There was minimal therapist input with a total time of two hours per client, and the clients had involvement in an online group. The control group of the study only participated in an online discussion group. The outcome of this RCT was that the treatment group experienced good reductions in terms of depressive symptoms. There was an effect size on the Beck Depression Inventory of 0.94 for between groups at the post treatment evaluation phase of the study. At the six month follow-up stage improvements were generally maintained (Anderson et al., 2005).

Another study using a commercially available CCBT programme for depression called Beating the Blues (Proudfoot et al., 2003), was delivered to the intervention arm (N=77) and was contrasted with treatment as usual (N=66) within a general practice. The Beating the Blues programme contains nine sessions and begins with an introductory video followed by eight therapy sessions. A practice nurse is involved in monitoring the client but this is only for a maximum of ten minutes per session. The control group was able to receive any treatment that was available including any psychological treatments. Within this study there were results that were significant clinically and statistically, across measures of anxiety, depression, work and social adjustment. However, effect sizes were not reported in this RCT. When the results were replicated using another sample it was found that the effect sizes for the treatment group on the following scales were, 1.19 (BDI), 0.73 (Beck Anxiety Inventory) and 0.78 (Work and Social Adjustment Scale). The final outcome which compared the effect size of the superiority of the

intervention group over the control group was 0.51, 0.19 and 0.24 (Proudfoot et al., 2004).

A further RCT without therapist contact has produced a much different pattern of results. In such a study the authors (Clarke, Redi, & Eubanks, 2002), randomly allocated the participants to the intervention group (CCBT plus TAU, N=144) or to the control group (access to a health website plus TAU, N=155). There were no differences identified between the groups at both after treatment and follow-up time points. The methodology was then altered in a three arm RCT to increase compliance; postcard reminders were sent to the intervention group or phone reminders made. No reminders were given to the control group. The outcome was that post intervention an effect size of 0.54 for more depressed participants was reported. This study also highlighted that reminders did assist compliance rates (Clarke, Redi et al., 2002).

An Australian study desricbed an RCT utilising a three arm treatment design, which randomly allocated participants into the MoodGym programme (N=182), a website that provided information about the treatment of depression (N=165) or to a control group utilising an attention placebo (N=178) (Christensen, Griffiths, & Jorm, 2004). The participants who used MoodGym and BluePages reported significant decrease in the symptoms of depression, with an effect size of 0.4 for Mood Gym, 0.4 for BluePages and 0.1 for the control group (Christensen et al., 2004).

The same research team then went on to examine how to increase website use and retention of the MoodGym participants (Christensen, Griffiths, MacKinnon, & Brittliffe, 2006). In this RCT, participants were randomly allocated to six different versions of the MoodGym programme. The MoodGym programme varied in the number of sessions and the amount of content, and there was a range of participants in each of the six groups (N=464-468). The modules that contained extended CBT components were associated with a greater degree of improvement. The within-group effect size for the Goldberg Depression Scale ranged from 0.20

to 0.40 (Christensen et al., 2006).

A further RCT (Patten, 2003) was undertaken where participants were randomly allocated to four sessions of CCBT for depression conducted via the Internet (N=420), or to the control group which had access to website information about depression (N=366). There were no reported differences on the reduction of depressive symptoms at the one, two or three month time points. This was thought to be due to a mean interaction time with the CCBT programme of only 50 minutes in total (Patten, 2003).

In summary it appears that both methods of having either therapist involvement or therapist non-involvement prove to be effective. However, there appears to be a greater effect size when there is therapist involvement and good adherence rates apply. Computerised CBT has been demonstrated to be an effective method of treatment for depressive symptoms and Depressive Disorder.

Computerised CBT for Children and Adolescents.

Although CCBT is effective for adults with depression there is a limited amount of research which has investigated CCBT for children and adolescents (McCrone et al., 2004).

Master your mood online, is a face-to-face group CBT course conducted via online closed chat room, hosted by a mental health clinician. Participants were aged 16 to 25 years and were experiencing mild depression. The research design was a pre and post comparison, which contained a sample size of 189. Thirty six percent of participants completed all eight sessions. There were significant reductions in depression and a high level of satisfaction was reported as 80% of participants recommended the programme to others (Gerrtis, Van Der Zanden, Visscher, & Onijn, 2007).

CATCH IT is a free online depression prevention CBT programme that contains

interpersonal therapy and behavioural activation. It consists of 14 modules that the young person completes at their own pace with minimal support from their General Practitioner. The programme consists of text accompanied by graphics and printable exercise sheets. Eighty-four participants (aged 14 to 21) were randomly assigned to either CATCH-IT plus motivational interview (delivered by the GP) or CATCH-IT plus brief advice (1-2 minutes, delivered by the GP). For both groups combined there was a significant post treatment reduction in depressive symptoms. However, no statistically significant differences between the two groups were found although those who had received the motivational interview were less likely to be diagnosed with a depressive episode during at 12-week follow-up (Van Voorhees, Ellis, Stuart, Fogel, & Ford, 2008).

MoodGYM, which has shown to be effective for adults, has been also evaluated for adolescent males and females. Seventy-eight 15 to 16 year olds were randomised to receive MoodGYM or a control programme, which consisted of standard personal development activities. Both activities were delivered at school and supervised by a tutor. The results showed no significant differences between groups on measures of depression, attributional style and self-esteem. Only 40% completed half or more of the modules (O'Kearney, Gibson, Christensen, & Griffiths, 2006).

In summary CCBT has the potential to be a low-cost easily accessible option for those in need of treatment. There is a growing interest in developing appropriate depression prevention programmes for children and adolescents. While there is some evidence for their effectiveness, there are concerns about acceptability of CCBT programmes as evidenced by low adherence rates.

The Dawn of a New Era, the Piloting of a CCBT Programme for Adolescent Depression

Karolina Stasiak (2008) designed a study to investigate the effectiveness of a CCBT programme for depression and her PhD thesis was completed in 2007. This next section will describe the research design process and the results of her study.

The first phase of Stasiak's PhD thesis involved the development of a conceptual framework based on learning theories, and relevant instructional and media design concepts. This contributed to the design of a computer administered cognitive behavioural therapy (CCBT) prototype. A matching computerised psychoeducational (CPE) programme was also developed to control for non-specific factors.

The second phase involved an RCT to pilot the efficacy of CCBT versus CPE. Thirty four adolescents who scored above a clinical cut-off indicating depression using the Child Depression Rating Scale-Revised (CDRS-R) and the Reynolds Adolescent Depression Scale-2 (RADS-2) were randomly assigned to either CCBT or CPE condition. Ninety four percent of CCBT and 82% of CPE participants completed the intervention. The clinician rated CDRS-R and the self rated Reynolds Adolescent Depression Scale-2 (RADS-2), showed that depressive symptoms improved significantly for older adolescents (16-18 years) in the CCBT group compared with those who received CPE. The improvement occurred between baseline and end of treatment and was maintained at the one month follow-up post treatment. An analysis of the younger adolescents (13-15 years) demonstrated a significant improvement of depressive symptoms irrespective of group allocation, indicating that they gained equally from both programmes (Stasiak, 2008). Furthermore, problem solving as measured by the Adolescent Coping Scale (ACS) improved significantly for older adolescents in the CCBT group. In the ACS, non-

productive coping was significantly reduced by CCBT compared with CPE in younger and older adolescents. Paediatric Quality of Life measure showed a significant improvement for all participants but showed no group differences.

The third phase of Stasiak's (2008) project aimed to generate user feedback through a questionnaire (n=21) and in-depth interviews (n=14) with adolescents who had completed either of the two programmes. Adolescents found the programmes equally useful, easy to use and engaging. According to adolescents, the programmes communicated three key messages: education about depression, validation of feelings, and hope for recovery. Content-specific feedback suggested that CCBT taught some adolescents cognitive restructuring and problem solving. Among the most useful CPE topics were anger management and stress reduction. Suggestions for improvement included more use of interactive/game-like technology, programme customisation and reduction of text in favour of multimedia presentation. New topics such as dealing with drugs and alcohol or violence, and recovery stories from credible role models were also suggested (Stasiak, 2008). However, there were only two Māori adolescents in the study. They were both in the control arm and therefore only received psychological education for managing their moderate depression. This highlights the need for a feasibility study to examine the applicability of CCBT for Māori adolescents, which was the purpose as to why I commenced my thesis.

Stasiak's (2008) research is consistent with results from similar programmes overseas which have demonstrated that CCBT programmes can be both helpful and cost effective in adults (Titov, 2007). Computer-based technology has the potential to increase the capacity of primary care and mental health services to meet the needs of young people

who currently are not obtaining the professional help they require, and suffer as a consequence. However little work has been done with adolescents and there is much work required to develop CCBT programmes appropriate for different age groups and settings, which are easy to use, and are clinically proven and cost-effective (Titov, 2007).

<div align="center">**Māori Health**</div>

Māori Concepts of Health and Well-Being

There are Māori concepts of health and well-being and many models that describe this phenomenology. Examples of these concepts will be presented in the following section. It is also important to present an overview of what the Treaty of Waitangi means in relation to health care, and also to describe the current state of Māori mental health within New Zealand. To conclude this section a discussion about the evidence pertaining to CBT and indigenous people will be addressed.

Mason Durie (2003) has developed the Tapa Wha model, which seeks to provide a holistic framework for understanding Māori health and well-being. The Tapa Wha model has been utilised within health settings to ensure that the cultural, physical and spiritual needs of Māori are supported. The Tapa Wha model contains four domains, which are tinana (body), wairua (spirit), hinengaro (mind) and whānau (family). These four areas are identified as being the key areas to strengthen in order to assist Māori in their journey towards health for both individuals and whānau (Durie, 2003).

The powhiri model aims to provide a kaupapa for conducting a therapeutic process that is beneficial for Māori whānau (Geary, 2007). A powhiri is a process, which reduces the space that exists between two groups when they first meet. This process has two functions: the first is to create a sense of cohesion between the groups and the second is to affirm the differences that

may exist between the two groups (Durie, 2001). There is also a spiritual element to this process

as tupuna (ancestors), wairua (spirit) and Atua (God) are important reference points that are

mentioned in the karakia (prayer) and whaikorero (speech) of the kaumatua. The powhiri is

cemented with a hongi and a meal, the hongi is a process of sharing ones breath (te ha) with one

another (Durie, 2001).   The powhiri process has been used as a model to manage the process in

meetings with whānau and also at hui (meetings) (Geary, 2007).

Treaty of Waitangi

The Treaty of Waitangi is a founding document for New Zealand and is the

foundation for forging biculturalism (Herbert, 2002). The significance of the Treaty of

Waitangi is to ensure that Māori can participate and partner with the New Zealand

Government about decisions, which affect the health care of Māori. Further, the Treaty of

Waitangi specifies that Māori are protected in terms of their cultural practice when they

seek these health services (Durie, 1998) and this applies to the treatment of depression. As

CBT is already used to treat depression in New Zealand, it is imperative that more

knowledge be gained about the effectiveness of CBT/CCBT for Māori to ensure that the

obligations of the Treaty of Waitangi are met. A major implication is that practitioners will

need to ensure that CBT is carried out in a culturally competent manner.

Māori Mental Health

The New Zealand (NZ) government has taken several steps to address the mental health

of Māori. This was demonstrated through strategic health documents. An example of this is the

document *He Korowai Oranga: the Māori Health Strategy* (Ministry of Health, 2002a). This

document set out a clear strategy for a five to ten year period. One of its aims was to provide a

strategy for the public sector to work together with other government agencies and build upon

the existing strengths of whānau, hapu and iwi (Ministry of Health, 2002a). *He Korowai Oranga: the Māori Health Strategy* (Ministry of Health, 2002a) articulated that for the concept of whānau ora (healthy whānau) to be achieved, Māori will need to improve their mental health and well-being. Mental health is also listed as a priority in *Whakatataka: Māori Health Action Plan 2002-2005* (Ministry of Health, 2002b). In this document, methods to address change at the level of public sector systems and processes are set out, and acknowledge the need for having a healthy economy and social systems that lead to whānau ora. *Whakatataka: Māori Health Action Plan 2002-2005* (Ministry of Health, 2002b) also aimed to create a framework, which will give guidance to the implementation of *He Korowai Oranga : the Māori Health Strategy* (Ministry of Health, 2002a).

Depression rates for Māori.

Only in recent years has information emerged about the prevalence rates of various mental illnesses for the Māori population. For the adult population this was provided by *Te Rau Hinengaro: The New Zealand Mental Health Survey* (Oakley Browne et al., 2006). Its focus for Māori will be examined here. A process of over sampling was used where the number of Māori included in the sample was doubled compared with what would have been expected using a standard random sampling technique. The purpose was to improve the precision of statistical estimates that were made (Bennett, Flett, & Babbage, 2007). Some of the findings were that in comparison with the composite group comprising non-Māori and non-Pacific peoples, and in comparison with Pacific people, Māori had higher 12-month rates of anxiety, mood, substance use and eating disorders. These differences remained after adjusting for age, sex and socio-economic correlates (Baxter, Kingi, Tapsell, Durie, & McGee, 2006). The Auckland Health Research Group (2003) identified that depressive disorder is an important and common condition

that carries with it a heavy disease burden for all people, and especially for girls. However, rates are particularly high for Māori girls who are significantly more depressed than NZ European girls. While Māori boys have higher rates of depression than NZ European boys, this did not reach statistical significance (Baxter, Kokaua, Wells, McGee, & Oakley-Browne, 2006). High rates of depression are linked to teenage pregnancy, substance abuse, suicidal ideas and completed suicide. These are all shown to be more common in Māori young people (Adolescent Health Research Group, 2003a) and Māori adults (Baxter, Kokaua et al., 2006). There is a six-fold increase of depression in children whose parents are depressed (Rice, Harold, & Thapar, 2002), with additional risk if both parents are affected (McCauley et al., 2001). *Te Rau Hinengaro: The New Zealand Mental Health Survey* provided for the first time, the necessary statistics to highlight the disparities that exist for Māori. Preventing depression for Māori young people has great potential benefits for future generations of Māori.

Cognitive Behavioural Therapy and Māori

What evidence is there for the efficacy of CBT for Māori?

This literature review was written in 2008 and in New Zealand at that time there was very little published literature regarding psychological interventions for Māori (Glover & Hirini, 2005) and no published literature in peer reviewed journals regarding RCTs of CBT for Māori. A literature search of the PsychInfo and MEDLINE databases was conducted, using key search terms 'Māori and cognitive behaviour therapy' and 'Māori and depressive disorder'. No articles regarding the effectiveness of CBT for Māori were identified. A recent report, *Evidence-Based Age-Appropriate Interventions: A guide for Child and Adolescent Mental Health Services* (Dunnachie, 2007) identified current evidence based treatments for children and adolescents in New Zealand, it contained no literature pertaining to CBT and its use with Māori children or

adolescents (Dunnachie, 2007). However, since that time Simon Bennett (2009) has published

his PhD. This research culturally adapted a CBT treatment programme for Māori adults

(Bennett, 2009).

Cognitive behavioural therapy is a western model that supports the concept of

individuality, however for Māori the concept of Whakawhānaungatanga (interrelationships) is

paramount for Māori mental health (Durie, 1994). The promotion of assertiveness and

independence may be a less relevant indicator of a healthy functioning person for Māori and

therefore, the argument can be made that Māori should not receive CBT treatment in isolation

from their supports such as whānau and their community. A further tension appears to be the

incongruence of an empirical based model such as CBT and the spiritual practices of Māori

people, which cannot be quantified easily with strict empirical measures. Therefore, it is

imperative that research be conducted in New Zealand to address the questions of whether CBT

reduces depressive symptoms for Māori and whether there are specific components of CBT that

are either effective or detrimental for Māori.

CBT Interventions for Ethnic Minorities

Ethnic minorities are largely missing from efficacy studies that make up the evidence

base for treatments (Bryant & Harder, 2008; Horrel, 2008; Miranda et al., 2005). This has been

largely due to the fact that major studies have not collected data related to ethnic identity or they

have lacked the statistical power to make the necessary comparisons as the sample groups

containing ethnic minorities have been too small (Miranda et al., 2005). A further strategy for

working effectively with ethnic minorities has been to culturally adapt interventions. However,

there are many contrasting opinions about what constitutes effective cultural adaptations and

there is also limited scrutiny of the empirical basis for these adaptations (Griner & Smith, 2006).

Griner and Smith (2006) conducted a meta-analytic review that examined culturally adapted mental health interventions. The 76 studies showed that interventions targeted to a specific cultural group were four times more effective than interventions provided to groups from a variety of cultural backgrounds. Interventions conducted in a client's native language were twice as effective as an intervention conducted in English (Griner & Smith, 2006).

An examination of the literature regarding the indigenous Native American (NA) people reveals that there is very little empirical data about CBT and its effectiveness (Jackson, Wenzel, Schmutzer, & Tyler, 2006). The following three articles were the only articles that could be found from an online literature review that included CBT treatment for NA clients (Jackson et al., 2006; Renfrey, 1992; Trimble & Fleming, 1989). Renfrey (1992) argued that CBT is congruent with Native American community health needs. In addition, a cognitive behavioural assessment of the client's cultural identification can serve as a guide to the therapeutic process. There is also a need for a bicultural treatment plan that integrates western practices with a NA world view (Renfrey, 1992). Trimble and Flemming (1989) put forward the argument that by incorporating the NA worldview of community and social environments it is possible to apply cognitive behavioural concepts from social learning theory to the needs of NA individuals and communities (Trimble & Fleming, 1989).

One criticism of CBT in relation to its appropriate use with ethnic minority groups includes the relationship between scientific empiricism and spirituality. The importance placed on seeking objective evidence and rational thinking highlight that CBT is grounded in a scientific perspective of the world, which raises the question, is CBT compatible with ethnic minority groups that tend to have predominantly spiritual beliefs (Bennett et al., 2007)?

There is still much work to be done to assess the effectiveness of CBT for ethnic minorities as evidenced by a dearth of recently published articles for both adults (Horrel, 2008) and adolescents (Miranda et al., 2005; Rossello, Bernal, & Rivera-Medina, 2008).

Review of CBT for Ethnic Minorities

A literature search was conducted of the PsychINFO and MEDLINE databases up until November of 2008. The search terms used were 'minority groups', 'racial and ethnic groups and CBT'. Two review articles were found. One article contained an adult focus (Horrel, 2008), which was solely focussed on CBT, whereas the other review article only contained a small amount on CBT and adolescents (Miranda et al., 2005). Only one RCT was found that was specific to an adolescent ethnic minority, CBT and depression (Rossello et al., 2008). The other two RCTs were adult focussed (Jackson et al., 2006; Miranda et al., 2006). There were four papers that addressed practice behaviours that would enhance the effectiveness of CBT for minority adolescents. There were also five books that addressed safe cultural practice but encompassed both an adult and adolescent focus.

Rossello et al., (2008) have conducted the only randomised controlled trial involving CBT with Puerto Rican adolescents. Latinos are the largest minority group in the United States and relatively few treatment studies include members of this population as participants and others fail to analyse the data according to minority group membership (Rossello et al., 2008). The Rossello et al., (2008) study compared individual (I) to group (G) formats of CBT and interpersonal psychotherapy (IPT) for the treatment of depression. Their sample contained 112 Puerto Rican adolescents who were randomised to four treatment conditions (CBT-I, CBT-G, IPT-I, IPT-G). The participants were assessed at pre-treatment and post-treatment with structured interviews to establish diagnosis, and with self-report measures to assess treatment

outcome. The results showed that CBT produced significantly greater decreases in depressive symptoms than IPT and improved self-concept (Rossello et al., 2008).

Miranda et al., (2005) conducted a study that examined the depressive and functional outcomes of 267 predominantly low-income, young minority women randomly assigned to antidepressant medication, group or individual CBT, or community referral over a one-year period. Thirty six percent who were assigned to psychotherapy received six or more CBT sessions and 76% who were assigned to medications received nine or more weeks of guideline-concordant doses of medications. Intent to treat, repeated measures analyses revealed that medication (p< .001) and CBT (p=.02) were superior to community referral in lowering depressive symptoms across one year follow-up. At the one-year follow-up mark 57% assigned to CBT, 51% assigned to antidepressants and 37% assigned to community referral were no longer clinically depressed. These findings suggest that both CBT and antidepressant medication result in clinically significant decreases in depression for low-income minority women (Miranda et al., 2006).

The Jackson et al., (2006) study compared the applicability of CBT in a community sample of European American and Native American individuals. Participants completed the CBT Applicability Scale (CBT-AS), in which they rated their preference for characteristics consistent with three tenets of CBT. The Jackson et al., (2006) study reported traditional NAs as being less likely to talk and label their feelings; traditional NAs are more likely to express their feelings in terms of interpersonal and contextual difficulties. The authors argue that this can lead to some confusion for NAs when trying to complete the corresponding parts of CBT (Jackson et al., 2006). Further, NAs rated learning about how thoughts cause feelings less than European American ratings, and placed more emphasis on spiritual causes for emotional and physical

difficulties (Jackson et al., 2006). The results suggest that several modifications to CBT for therapists working with NA clients require future investigation (Jackson et al., 2006).

A review by Horrell (2008) examined the effectiveness of CBT with adult ethnic minority clients. The review demonstrated that on the basis of the 12 studies, CBT appears to be an effective treatment for use with clients from ethnic minority backgrounds. Seven of the 12 studies demonstrated significant treatment gains with CBT compared with a placebo or wait-list control. Cognitive behavioural therapy was effective in reducing a whole range of symptoms such as depression, PTSD, GAD and Panic Disorder. The Markowitz et al., study, however, did not produce promising results for the use of CBT with ethnic minority groups who were HIV positive. The authors found an increase in self-reported depressive symptoms in a small subgroup of African Americans who received CBT. The authors recommend that further research needs to be conducted to determine whether CBT is a consistently effective intervention for Ethnic Minorities (Horrel, 2008).

In a review conducted by Miranda et al., (2005) entitled *State of the Science on Psychosocial Interventions for Ethnic Minorities* the authors note that no studies published to date examine the relative effects of CBT for reducing depression among different ethnic groups although subsequently there has been one published study (Rossello et al., 2008). They cite Rossello and Bernal (1999) as authors who demonstrated that culturally sensitive applications of CBT can be successful with youths from diverse cultural backgrounds. Rossello and Bernal's (1999) RCT contained 71 Puerto Rican youth who were randomly assigned to CBT, IPT or wait-list control. Cultural concepts such as familism (family values come before individual values) and respeto (respect) were integrated into the psychotherapies offered to investigate the effectiveness of culturally adapting CBT (Miranda et al., 2005). A further RCT, which was,

discussed earlier Rossello et al., (2008), was also discussed as being a study that is effective for the treatment of depression in an ethnic minority.

Conclusion

It is apparent that Māori rates of depression are higher than their NZ European peers. Cognitive behaviour therapy's efficacy has been demonstrated in a number of studies. Some research supporting its efficacy is conflicting, but CBT is still seen as a therapeutic intervention that will most likely provide the help adolescents need to manage their depression. There is minimal evidence that supports CBT for indigenous adolescents and no evidence that supports CBT/CCBT for Māori young people. There is literature that examines an indigenous population and their differences with CBT, there may be differences that exist for Māori. Research into CBT/CCBT to find out about the differences that may exist for Māori and their use /acceptance of CBT models and treatments is clearly needed.

Development of CCBT-SPARX for Taitamariki

The CCBT programme SPARX was developed throughout 2008 and the early part of 2009. The SPARX project was led by Associate Professor Sally Merry and managed by Dr Karolina Stasiak. The Ministry of Health provided funding.

The SPARX development team consisted of Metia Interactive (a computer game company), and doctoral students, Terry Fleming, Mathijs Lucassen and myself. My responsibilities for SPARX included managing the overall Māori content of the SPARX programme, contributing to the writing of the scripts for each module and managing the sound recordings for voice and music used in SPARX. Managing the Māori content included the graphic content, with particular focus on the cultural adaptions of the characters within SPARX. It also involved ensuring that the Māori concepts and language used were appropriate and correct

in terms of Māori protocols. This involved consultation with the Kaumatua for the project

Rawiri Wharemate. The qualitative data from the focus groups (N=7) I conducted were also

utilised to ensure there was good input from Māori (explained further in chapter two).

Each member of the development team was responsible for the writing of the scripts.

This included researching the necessary CBT literature and incorporating this with the distinct

narrative in SPARX. I was given specific responsibility for the inclusion of relaxation

techniques and anger management. This involved researching those areas and writing the script

dialogue, puzzles and challenges for modules one, two and three.

A randomised controlled trial was conducted in 2009 to evaluate the effectiveness of

SPARX. The research team compared SPARX with treatment as usual (standard care provided

to young people with mild to moderate depression). Eighty-five young people were recruited

from a number of sites around the country, including youth health clinics and secondary schools.

Clinician and self-rated outcome measures to assess depression were used, and assessments were

conducted before the SPARX intervention, post intervention (approximately two months after

completing SPARX) and three months after SPARX had been completed. Specially trained

research assistants carried out all assessments.

Theories and content that are contained within SPARX

SPARX is a self-help computer programme for young people in which learning theories and

e-learning strategies are used to convey CBT techniques for managing symptoms of depression.

Dr Iain Doherty, a learning technologist and the Director of the Learning Technology Unit at The

University of Auckland, provided the research team with expertise to ensure that we utilised

proven e-learning strategies and staff from Metia Interactive, a computer games company,

provided gaming expertise.

SPARX is based on objectivist and constructivist learning theories (Gilliani, 2003). An objectivist approach utilises SPARX as the medium to impart and transmit knowledge to the participants. Participants then have the opportunity to reproduce what they have learned by interacting with the characters in SPARX and by completing the homework booklet (Gilliani, 2003). This fits with the theory of CBT, as one of the key roles of the therapist is that of an educator (Kendall, 1991). In this case the SPARX programme is the educator.

A constructivist approach underpins SPARX as adolescent development is a period where new coping templates are being learned (Merril, 2002). SPARX is able to assist participants to approach new and future difficulties in a way where new skills and cognitions can be developed. SPARX therefore seeks to build upon previously learnt coping templates by teaching new skills so the adolescent can build a new coping template (Kendall, 1991).

SPARX utilizes a bi-centric framework (Dede, 2009) in relation to the e-learning component. This is comprised of an ego centric perspective, where one immerses themselves in the learning experience through a fantasy based game and a exocentric position where a person is able to stand back from the learning context and integrate the learning experience through interaction with the Guide (main teaching character within SPARX).

SPARX is based on a body of evidence that includes the following programmes:

- ACTION: A workbook for overcoming depression, (Stark, Kendall, Stafford, Barron, & Thomeer, 1996).

- Mood Management: Leader's manual. A cognitive behavioral skills-building program for adolescents, (Langelier, 2001).

- Resourceful Adolescent Program (RAP), (Shochet, Whitefield, & Holland, 1997).

- Resourceful Adolescent Program, New Zealand adaptation (RAP-Kiwi), (Merry, McDowell, Wild, Bir, & Cunliffe, 2004).

- STEADY Project: Intervention Manual. Cognitive-Behavioral Program for Depressed Youth in Primary Care, (Clarke, DeBar, Ludman, Asarnow, & Jaycox, 2002).

- Taking Charge! A guide for teenagers: Practical way to overcome stress, hassles, and upsetting emotions, (Edelman & Redmond, 2004).

- Think Good - Feel Good: A cognitive behaviour therapy workbook for children and young people, (Stallard, 2002).

In addition, an expert advisory group was consulted that provided ongoing feedback during the project to ensure content fidelity.

SPARX is an interactive fantasy game designed to deliver CBT. It uses gaming technology to engage users and has a direct teaching component where the skills from the 'game world' are put into a 'real life' context by the character of the Guide.

It utilises both first person instruction and a 3D interactive game in which the young person chooses an avatar and undertakes a series of challenges to restore the balance in a fantasy world dominated by GNATs (Gloomy Negative Automatic Thoughts). The programme consists of seven modules (levels) completed sequentially. Each level builds on the one previous to it and addresses core CBT skills. At the beginning and end of each module, the user interacts, in the first person, with a 'Guide', who puts the game into context, provides psych-education, gauges mood and sets and monitors real-life challenges, equivalent to homework. Inside the game, the user's avatar travels to various lands to complete his/her mission while meeting other characters and solving puzzles and completing mini-games. Young people who are not improving in terms of their depressive symptoms (which is checked within SPARX at the start of each level) are

prompted to seek help from their referring clinicians. SPARX is supplemented by a paper notebook with summaries of each module and spaces to add comments about the challenges completed.

The SPARX programme consists of seven levels. Level one is an introductory level where the Guide is introduced. The Guide is a non-playing character that provides the majority of psych-education to the participant. Key concepts are taught such as negative automatic thoughts, the concept of 'hope' (people recover from depression) and relaxation skills.

Level two is based on behavioural theory. Skills such as communication, activity scheduling, behavioural activation and progressive muscle relaxation are taught and then practiced by the participants.

Level three is focused on learning to manage emotions such as anger and distress. Assertiveness skills, negotiation skills and pro-social skills are taught along with key listening skills about how to begin a conversation and follow through with key steps to ensure that the participant has been understood.

Level four teaches problem solving skills, the participant learns to identify what the problem is, think of the solutions and choose the best solution to implement.

Level five contains information about how to recognise unhelpful thoughts. This is addressed by teaching participants to identify GNATs. Participants are taught the different characteristics of these negative thoughts such as a downer (unhelpful negative thought), perfectionism (what I do has to be perfect every time), mind reader (if I can't please others it must be my fault) and, all or nothing thinking.

Level six focuses on cognitive restructuring. Participants learn to challenge or 'swap' negative thoughts using standard CBT techniques such as reality checking, gaining another

perspective and then comparing these with the original negative thought. Participants learn negotiation skills that can assist them to get their emotional needs met through pro-social choices.

In the last module (level seven) the main emphasis is on encapsulating the major themes from all previous six levels. In addition mindfulness skills are taught, which includes distress tolerance and an emphasis on identifying ones own emotional signals so that participants can learn when they need to ask for assistance.

Personal Statement

My father's whānau are from Ngati Tama in Taranaki and I have worked with children, adolescents and their whānau for most of my working career (16 years) as a family therapist and mental health social worker. It is for these reasons that I became involved in exploring the cultural applicability of CCBT for Māori adolescents.

For my Doctorate in Clinical Psychology I described the views of taitamariki and their whānau about CCBT and used these opinions to refine and develop further the CCBT resource. I tested its acceptability and completed a study of its use in a group of taitamariki and assessed its impact on mood, anxiety, quality of life and hopelessness. I completed follow-up interviews about taitamariki opinions of SPARX. Finally I conducted a sub group analysis of the Māori participants from the main SPARX RCT.

CHAPTER TWO: STUDY ONE

An Investigation into the Design Features that Would Make a Computerised Cognitive Behavioural Therapy Programme-SPARX Applicable to Taitamariki

Introduction

Four studies were completed for this research thesis, and these have been organised into four separate chapters. In this chapter I will describe study one. The aim of study one was to conduct a qualitative study into the views of taitamariki and their whānau on the proposed content of the SPARX programme. Study one was important to conduct because I needed to find out from taitamariki and whānau what would make SPARX engaging and applicable from a Māori perspective. The aim of study two was to conduct a pilot study to test the effectiveness of SPARX for Māori taitamariki experiencing mild to moderate depressive disorder. Study three was a qualitative study investigating participants' experiences of completing SPARX. Participants were invited at post intervention (approximately month two) to participate in a semi-structured interview. The ease of use of SPARX, helpfulness, effect on mood, and the reaction of their whānau to SPARX were explored. The purpose of study four was to conduct a sub-group analysis of results for Māori participants in the SPARX RCT.

In this chapter I will describe the research process that was undertaken to identify design features likely to make a CCBT intervention appealing and applicable to taitamariki. I will discuss the epistemological orientation of the study and how I incorporated a Kaupapa Māori research framework. I will then describe the methods used to recruit participants, conduct focus groups, and collect and analyse the data. This is followed by a description of the thematic analysis and a discussion of the results.

Epistemological Orientation

Study one was largely qualitative and it is therefore important to describe the theoretical

position I hold when it comes to the observation, collection and interpretation of data. This is

because qualitative research relies on an individual and their subjective interpretation of the data.

It is this researcher subjectivity which can lead to biases in the collection and interpretation of

the data (Madill & Gough, 2008; Madill, Jordan, & Shirley, 2000). Therefore, it is important to

discuss the different epistemology perspectives so any biases can be minimised in the research

process.

In general, researchers have a long history of adopting a positivist position in which it is

assumed that there is a clear and direct relationship between the world and how we observe it

(Willig, 2001). This has led to a belief that positivists are able to describe exactly the

phenomena in the world and be correct about what is observed. Therefore, a positivist approach

may be better suited to research that is oriented to a scientific modality that involves a clear

cause and effect relationship. Since I was not interested in testing a hypothesis by trying to

validate a causal relationship, a positivist position was rejected. What I wanted to do was

investigate whether the designs that had been developed were applicable to taitamariki.

Therefore, I was attempting to understand particular groups' opinions. A solution to these issues

is proposed by the philosophical orientation of post positivism. This seeks to take into account

participants' own experiences of the world and attempts to understand this process through their

context and their interpretation of the events (Madill & Gough, 2008). Madill et al., (2000)

propose three epistemological categories in qualitative analysis: contextual constructionism,

radical constructionism and realism. A contextual constructionist approach posits that

knowledge is constructed socially and is dependent on the environment and context from where

it is observed and collected (Madill et al., 2000). The theory of radical constructionism disputes the notion that language represents reality and instead states that the main objective is not to define a set reality but to acknowledge that multiple realties can exist and be constructed (Madill et al., 2000). Within a realist position there are three schools of thought, which are defined as naive realism, which maintains that the world is what it appears to be, critical realism, which states that an objective reality does exist but how we interpret this is influenced by the social nature of how events and facts are interpreted, and scientific realism, which posits that through scientific method and processes these can reveal a true description of reality (Madill et al., 2000).

I will be holding a critical realist position. In order to understand the meaning of the data it is essential to understand the context in which the phenomena take place and the method by which the data are collected (Madill et al., 2000). This stance fits with the exploratory nature of this qualitative study in that I am aiming to understand taitamariki and whānau perceptions about the content development of a CCBT programme entitled SPARX.

It is also important to state that I have Māori whakapapa and I am aware of the passion I have to see resources developed for Māori. I am also a trained social worker who has worked in a mental health setting, and I have recently entered the clinical psychology training programme at The University of Auckland. I am aware that these experiences may impact on how I observe, collect and interpret the data and have managed this through awareness and supervision.

Rationale for the Methodology

Although this current study is largely qualitative there is a small section regarding a quantitative questionnaire. The rationale for this was to validate the individual feedback as the majority of data collected in the focus groups could not be individually isolated.

Qualitative methodology was chosen because it fits the exploratory nature of this study by being able to help make sense of phenomena from a participant's perspective and it is less limiting than quantitative methods (Merriam, 2002). The phenomenon that was pertinent to this research was the material that was presented for discussion at the focus groups. A further reason is that qualitative research is designed to address certain issues by the use of open ended questions in order to conduct research that is exploratory in nature (Merriam, 2002; Morrow, 2007).

Qualitative research is inductive rather than deductive (Gilgun, 2005). Inductive analysis involves collecting the raw data, processing it and finally interpreting the data to derive concepts and themes from it (Thomas, 2005). Deductive analysis is about testing whether the data that one is collecting matches specific theories, assumptions or hypotheses (Thomas, 2005). Inductive analysis fits with the exploratory nature of this research in that I am seeking to understand participants' experiences that are not fully understood yet. Inductive methods are also able to put into language people's experiences about the research question that is being put before them (Polkinghorne, 2005). This fits with the aim which was to gather important data about the design of the CCBT programme and then to identify the many contextual variables that may be relevant from the data (Marshall & Rossman, 1995).

A qualitative method which was utilised for this research was thematic analysis (Braun & Clarke, 2006). Thematic analysis was favoured over methods such as discourse analysis. In this study the aim is to organise and summarise the content of the interviews rather than analyse the way in which participants constructed their own experiences. Thematic analysis was used to identify, analyse and present the main themes from the data.

This research is pioneering in the sense that there is no CCBT resource that has been built for use by taitamariki. Qualitative research is appropriate as there are no theories to guide the process of how a CCBT resource should be built. Qualitative research may be used when the quest is to develop new knowledge as a topic is discussed, analysed and interpreted (Marshall & Rossman, 1995).

Kaupapa Māori Methodology

Over the past two decades there has been an increasing awareness from academia to acknowledge Māori epistemology coupled with Māori ways of conducting research. This body of knowledge has come to be known as Kaupapa Māori research (Health Research Council, 2008). Kaupapa Māori research includes methodology, epistemology, theory, Māori tikanga and the implementation of research that benefits Māori whilst at the same time being produced by Māori (Health Research Council, 2008). Kaupapa Māori research also encompasses an analytical approach that is about thinking critically, which includes critiquing pakeha definitions and constructions of Māori people and their worldview. It is also about valuing Māori self-determination and encouraging participation in the research process (Smith, 1999). Kaupapa Māori research does not exclude the use of other methods but it seeks to integrate them in a culturally sensitive way that is beneficial for Māori (Smith, 1999).

In order to conduct research that is beneficial to Māori it is important to reflect first on how Māori have understood research that has been conducted on them rather than for them. Research that has been conducted in the past has often been detrimental to Māori communities (Smith, 1999). The history of research within New Zealand has often reflected a distinct patriarchal process in which Māori have been further marginalised in every domain of society (Edwards, McManus, & McCreanor, 2005). With this in mind one must take a sensitive

approach when conducting research with Māori because it may bring forth reminders about difficulties with research from the past. The challenge for researchers is to work in partnership with Māori so that the outcomes can benefit both Māori and researcher.

For this research, a Kaupapa Māori approach meant that I needed to employ methods that aided the process of building relationships with potential participants to ensure that the research process was beneficial. A further dynamic to Kaupapa Māori research meant that time frames for the collection of data needed to be extended, as more time was required for consultation with Māori and the implementation of Māori protocols. For example, when conducting one particular focus group a powhiri needed to be held. A powhiri is a process, which reduces the space that exists between two groups when they first meet. This process has two functions: the first is to create a sense of cohesion between the groups and the second is to affirm the differences that may exist between the two groups (Durie, 2001). There is also a spiritual element to this process as tupuna (ancestors), wairua (spirit) and Atua (God) are important reference points that are mentioned in the whaikorero (speech) of the Kaumatua. The powhiri is cemented with a Hongi and a meal; the Hongi is a process of sharing ones breath (Te ha) with another (Durie, 2001). These rituals were used to allow us, as researchers, to join together with the focus groups. Karakia (prayer) was also initiated at the start and end of some of these groups. Kai was an important part of this as it assisted the process of meeting with whānau. By following cultural guidelines (tikanga) this enabled a sensitive approach to help ensure the smooth facilitation of the meetings.

Aims

The following section outlines the aims for study one:

- To investigate the design factors (graphics, characters, environment and sound) that would make a computerised cognitive behavioural therapy (CCBT) resource applicable and acceptable to Māori adolescents experiencing mild to moderate depressive disorder.

- To explore Māori adolescents opinions about the content of the CCBT programme. This included gaining opinions about the main characters and the Māori designs in the SPARX programme, as taitamariki would be engaging repeatedly with them.

- To undertake a qualitative study to investigate what Māori whānau think about CCBT being utilised with their adolescents, and what resources whānau need to support their taitamariki when they are using SPARX.

Methods

Focus Group Recruitment

I identified three types of groups for inclusion in this part of the study. A kapa haka group, a group of taitamariki parents, and whānau groups. The kapa haka group was identified because it contained taitamariki who strongly identified as being Māori. This was beneficial as it provided data from a group of taitamariki who would have Māori cultural knowledge about the designs in SPARX. Participants did not need to be experiencing depressive symptoms nor were they screened in order to be eligible to participate.

The co-ordinators of the kapa haka group and taitamariki parent group explained the project to the taitamariki and gave out participation information sheets (Appendix A) and consent forms (Appendix B) to those who were interested. Then a date was set to meet with the focus group. The whānau participants were recruited through personal contacts that I had and

through contacts with colleagues in the Department of Psychological Medicine and fellow students in the Doctor of Clinical Psychology programme. I then made contact with a parent or caregiver and sent them the information and consent forms. If they agreed to proceed I made an appointment time to meet to conduct a focus group.

Focus Group Process-Interviews

Participants were shown the prototype design of the CCBT programme and asked for feedback through the process of focus groups in August and September 2008. A semi-structured interview (Appendix C) was conducted with all of the focus groups. The interviews lasted between 30 and 60 minutes. Feedback was asked for according to the aforementioned aims from a taitamariki and whānau perspective about the design and applicability of the content of the SPARX programme. At the end of the focus group, participants were invited to complete a questionnaire (Appendix D), which enquired about their views of the focus group and the prototype SPARX programme. The purpose of the questionnaire was to validate quantitatively the data that was gathered from the focus groups.

I conducted the kapa haka focus group with Dr Karolina Stasiak, a research fellow with experience in conducting focus groups, who was also the study manager of the main study and who had experience of working with Māori in research settings. The focus group was held at the kapa haka group's school Marae. A Kaupapa Māori process was followed, as we were both welcomed with a powhiri and I responded with a mihi (formal speech) and a waiata (song). In accordance with a Kaupapa Māori process we were offered a cup of tea and food, which symbolised the coming together of the kapa haka group and ourselves as researchers.

The second type of focus group included taitamariki parents who were all female. This focus group came about through a contact with a parent from one of the whānau focus groups.

This parent had worked in a day programme with the taitamariki parents and suggested that I conduct a focus group with them. It made sense to interview this group as depression significantly affects Māori female adolescents (Adolescent Health Research Group, 2003b). Therefore, it is important that SPARX is applicable to this group and having their feedback would assist with this process. A Kaupapa Māori process was followed which involved a mihi whakatau (welcome speeches), karakia and kai.

The third group comprised of whānau interviews that were held in whānau homes. Whānau involvement is important for Māori and is one of the four cornerstones of holistic well being (Durrie, 2001). I conducted the whānau interviews and a Kaupapa Māori process was followed which involved a mihi whakatau (welcome speeches), karakia and kai.

A consultation process was also held with a group of Māori mental health clinicians. However they did not give consent to have their opinions recorded for thematic analysis. They did consent to provide constructive feedback about the designs and content of the CCBT programme and also provided an endorsement of the CCBT programme.

Participants

In total, there were 26 participants from the seven focus groups. Three types of groups were interviewed. There were eight taitamarki in the kapa haka group, four taitamariki mothers in a group, and five whānau interviews, which included 14 participants of whom seven were parents or caregivers, and seven were taitamariki.

Focus Group Questionnaire

Participants were invited to complete a questionnaire, which enquired about their views on the focus group and the prototype CCBT programme. This questionnaire was used to validate the focus group process and give participants the opportunity to either agree or disagree with the

themes that were emerging from their particular focus groups. Nineteen of the 26 participants

chose to complete a questionnaire. The questionnaire contained five questions, which consisted

of four Likert scales (a five point ordinal scale), four free-text spaces, and one closed question.

Participants were asked also to provide demographic data including age, gender and ethnic

identity. Numerical data was analysed using descriptive functions of the Statistical Package for

the Social Sciences (SPSS) 15.0. The free-text comments were analysed using thematic analysis

(Braun & Clarke, 2006). The first question in the questionnaire asked participants, "How much

were you able to express your opinions in the focus group?". They were able to choose from a

five point Likert scale: "Not at all" (1), "A little" (2), "Half the time" (3), "A lot" (4) or "Totally"

(5). The Likert scale for questions two to four were "Didn't like it at all" (1), "Liked it a little"

(2), "It was neither good nor bad" (3), "Liked it" (4) or "Liked it a lot" (5). Question two asked,

"Overall what did you think about the look and style of the game?". Question three enquired,

"Overall what did you think about the content (messages and information to help people) in the

game?". Question four asked, "Overall what did you think about the cultural content in the game

(Māori costume design and building/environment designs)?". Question four did not have any

written comment section to it. Question five asked participants if they would like to make any

other comments.

Qualitative Data Analysis

Transcription was mostly verbatim, repeated words were not included. The focus group

interviews were transcribed and read through to gain an initial understanding of what themes

were emerging from the data. The transcripts were then loaded into a computer software

programme NVivo8. This programme was used to identify and categorise the themes pertaining

to the participants' views on the development of SPARX. Braun and Clarke's (2006) six-step

process of thematic analysis (TA) was used. This is a qualitative analytical method where the primary purpose is to identify, analyse, and search for themes and patterns from data.

Initial codes were generated during the first reading of the data and codes that were similar but distinct were kept separate. A second reading of the data confirmed the coding of the themes. No further codes were generated at this point. The next step was to examine the initial codes; coded extracts were read and assessed for consistency. For the purpose of meeting the criteria for reliability, another researcher read one third of the transcripts and their themes were compared to the themes that I found. Any differing opinions about themes were discussed until agreement was reached about what themes to include.

Table 1

Braun and Clarke's six-step process of thematic analysis

Phase	Description of Process
1. Familiarising with data	Transcribing data, re-reading transcripts, noting down ideas.
2. Generating initial codes	Coding data systematically across the entire data set, collating data relevant to each code.
3. Searching for themes	Collating codes into potential themes, gathering all data relevant to each potential theme.
4. Reviewing themes	Checking if the themes work in relation to the coded extracts and the entire data set, generating a thematic 'map'.
5. Defining and naming themes	Ongoing analysis to refine each theme, generating clear definitions and names for each theme.
6. Producing the report	Selections of extract examples, final analysis of extracts.

Note: Analysis of qualitative data adapted from Braun and Clarke (2006).

Qualitative Results-Thematic Analysis of Focus Group Interview Data

A number of themes emerged from the data, and these have been organised into five

categories found in Table 2. Each category contains several themes that represent taitamariki

and whānau opinions about the content development and applicability of SPARX.

Table 2

Categories and themes from analysis

Categories	Themes
What participants thought was working well in the design.	SPARX was able to teach skills.
	SPARX is like a computer game that can help with depression.
	Graphics appeared to be applicable to taitamariki.
	Māori designs within the SPARX environment were relevant for Māori.
The characters in SPARX.	The value of Māori designs.
	Relevancy of the Māori designs on the characters.
	Important that SPARX characters include their whakapapa.
	The SPARX characters were able to teach participants skills.
	The Guide could be a role model for taitamariki.
Whānau opinions about SPARX.	Inclusion of whānau in the process.
	Resources for whānau.
	Range of sites for use of SPARX.
What SPARX needs for further development.	Gender applicability.
	Level of complexity.
	Use of language.
The text in SPARX.	Amount of text.
	Use of Māori language.
	Use of audio rather than text.
	Include language with which participants can identify.

What Participants Thought was Working Well in the Design

Taitamariki and whānau thought that SPARX would be able to teach skills and that SPARX looked like a computer game that could help with depression. The majority of taitamariki found the graphics and designs from SPARX to be applicable.

SPARX was able to teach skills.

Most participants were enthusiastic about the idea of a computer programme that could teach them particular skills about managing depression. One particular skill that most participants easily understood was the breathing relaxation skill. Participants found that SPARX encouraged and motivated them to complete the breathing relaxation exercise. Participants reported also that they were able to follow it clearly.

> *Male Participant 1 (P1): How everything in there we knew and everything that gets you thinking, especially when they said to breathe. It makes you want to breathe with it and it is only a video game.*
>
> *Female P 2: The main thing was probably breathe in, breathe out. It is a good exercise.*
> *Female P 3: It is good to breathe when you get angry.*
> *Female P4: It calms you down.*

SPARX is like a computer game that can help with depression.

Participants acknowledged that SPARX was like playing a computer game, which assisted with the engagement of the resource. Participants also described SPARX as being a resource that can help adolescents who are experiencing depression.

> *Female P1: This game is more about helping you through it (depression) though I just realised it now. It is helping you through when you are depressed, so we already know what depression is. That is why we are playing the game.*
>
> *Female P1: This is already super cool! If I was depressed I would not be depressed any more.*

Graphics appeared to be applicable to taitamariki.

Participants agreed that the graphic designs within SPARX were applicable to the audience the design team was targeting. It was thought that the overall graphics within SPARX were of a high standard and extremely engaging.

> *Female P1: The imagery is stunning isn't it, they have done an amazing job with the graphics.*

> *Female P2:   It (graphics) looks very good.*

Māori designs within the SPARX environment were relevant for Māori.

Most participants noticed the Māori designs within the SPARX environment. Most participants thought that the inclusion of Māori specific designs helped to enhance the engagement and gaming experience of SPARX.

> *Female P2: Hey, that is cool…Yes, it snuck up to me. And poutama's got a good meaning too. That is really cool. That is like telling them to get happier. So it makes you feel like you have got to try.*
> *Female P1:   Yes, I was feeling that too.*
> *Female P2:   It is Māori as, like they chose you to do it.*
> *Female P1:   They want me to save them.*

The Characters in SPARX

Most of the participants valued the Māori designs on the characters and there was a range of opinion about whether participants found them relevant for themselves. Participants were also interested in the whakapapa of the characters in SPARX. They wanted to know who the characters were and their origins. Participants acknowledged that the characters were able to teach skills and wondered whether the Guide character could be a role model for taitamariki.

The value of Māori designs.

Most participants in the focus groups thought that the Māori designs on the main SPARX characters were a good idea. Most understood the hybrid design of the characters whereby they

were seen as being Māori but existed in a different context such as a medieval fantasy environment.

> Female P1: He is awesome (Guide character).
> Female P2: He is cool.
> Int: I have had other comments that he might look maybe like an American Indian or some other culture.
> Female P2: Yes, just because of what he is wearing though that's all.
> Female P1: I reckon he looks mean as. He looks like a medieval Māori.

There were some differing views. A small number of participants, both taitamariki and parents, did not understand the hybrid concept of the designs.

> Female P3: It looks like a couple of people from the medieval time that have nothing to do with anything Māori – they don't really look Māori.

Relevancy of the Māori designs on the characters.

Participants' opinions were mixed about the relevance of the Māori designs on the characters. Some participants found the Māori designs to be relevant; where as some found that just because the characters had Māori designs, it did not make SPARX more applicable to them. No participants thought that the Māori designs were a distraction or hindered them liking the SPARX resource.

> Interviewer: From the focus groups the feedback I have got is that for each kid it is almost a unique experience. Some Māori kids aren't too fussed about having figures that apply to them, whereas some other feedback we've got is that it is a good thing.

> Female parent P1: It depends where they are on the identity scale. If they really identify with Māori then they will be over there and if they don't they will be somewhere in between. Because that was another thing that came up in our study was the number of kids that said they had Māori ancestry but didn't identify as Māori. And then there were the ones that strongly identified with Māori, so it is about where they are at and we can't really cater to everybody.

Important that SPARX characters include their whakapapa.

Participants thought it was important that the characters include their whakapapa in the

SPARX programme. Some participants did not like knowing nothing about the characters'

backgrounds or whakapapa that they met in SPARX. For example some participants wanted to

know some information about the characters' values, for whom they may be fighting and the

origin of the clan or hapu. It was also thought that being introduced to the characters could help

make them seem less like strangers.

> *Female P1: Oh, right. I am just wondering whether these characters could be introduced earlier on – like a cast of characters. You get the game and you get to choose all your buddies or what have you.*
>
> *Female P1: I will choose that person because they were a protector of children, or they were the warrior of whatever.*
> *Male P1: Because you could say which tribe you are from and then pick your tribe and stuff and different tribes have a different dude or something.*

The SPARX characters were able to teach participants skills.

The feedback indicated that taitamariki connected with the characters in SPARX and

thought they could teach the taitamariki skills.

> *Female P1: Cass was cool because I felt cool helping her, you felt good.*
>
> *Int: And what did you pick up from Cass?*
> *Female P2:   Oh positive attitude helps someone become confident.*
> *Female P1:   And you can use your techniques not only to help yourself but others who are also doing the same as you.*

The Guide could be a role model for taitamariki.

It was thought that perhaps the Guide could be utilised as a role model for taitamariki.

> *Male P1: As a young person growing up both my parents have been there for me. Actually one of my mates has topped himself from being depressed and one of the reasons why he killed himself was his family was too hard to get to and there was nothing to help him on his journey. I think some young people find it hard to talk to their parents. Some of their parents are not even looking after them like housing, maybe that's something for the parents to look at as well. Yes, because being a young person we see things and if we*

had a role model, we would go straight to them. But some young people don't really have role models in terms of what they want to do. For me I have a love of film and kapa haka. I go to my brother for kapa haka, I go to (name) for example for filming if I need help in those areas that I am depressed in. But not many people have people to look up to, to help them on the way and maybe the video game (SPARX) would be something to help them along. And maybe at the end of the game you could guide them to actually go and talk to their parents or wherever they are living and talk to them. Get them to sit down and help them do what they want. Yes, that's how he killed himself, the parents weren't there, his brothers and sisters weren't there.

Whānau Opinions about SPARX

Whānau expressed a range of opinions about when they needed to be informed that their taitamariki were using SPARX. Whānau thought that they would benefit from having resources to support them while their taitamariki were using SPARX. There were also differing opinions about where whānau would want their taitamariki to be using SPARX.

Inclusion of whānau in the process.

Whānau have differing opinions about when they need to be informed that taitamariki are using SPARX. Some parents expressed that they wanted to know before their taitamariki used SPARX, while other whānau preferred to be informed when their taitamariki were either using SPARX or had completed it. Some parents were comfortable with not being informed as long as their taitamariki could talk to someone about depression and get the support they needed, such as from extended whānau or a clinician.

Male Parent P1: I am very much a traditionalist and if it was my child I would like to know before they got onto the computer that they were going through this type of depression. For me if I as a parent, or even a brother or cousin to me, I would prefer some kind of means of being able to identify that there is a problem and actually being with them, right beside them, as they work through it. So if they get an opportunity to sit on the computer on their own then I am aware of that, but I wouldn't want them to spill their feelings to a computer first. I would be very hurt if that was my child. If they went to a computer to seek guidance first and foremost.

Female Parent P1: I think it would be good to be included. That goes without saying for me, that the whānau is included right throughout the whole process from beginning to end. But I was just saying when it came to the computer thing that it would be best for

them to do it on their own and then talk about the results of the game or what have you after. Because I think that needs to be spoken about in the whānau.

Resources for whānau.

There was a range of opinion about how SPARX could be used with whānau members. However most participants in the focus groups agreed that it was important to think about extra resources that whānau could use to support them while their taitamariki completed the SPARX programme. It was thought that this could include having an extra module within SPARX that is applicable to whānau members. Alternatively, a booklet could be developed that provided psychological education to whānau about depression.

> *Female P1: I think you should have another disk (SPARX) for the parents… something anyway just so then they can help the child through that.*
> *Male P1: Help them to understand it.*
> *Female P1: Yes, so then they have an understanding and they are all on the same page with it all.*
>
> *Female P1: If there was some sort of resource that the families could access so they could understand a bit more about it (SPARX) and it doesn't have to be in the game form. It could be in those scrapbooks or those books (pointing at the resource booklet that accompanies SPARX).*

Range of sites for use of SPARX.

Whānau were open to a range of different localities where their taitamariki could be using SPARX. This varied from SPARX being used at a high school, library, health provider or in the whānau home.

> *Male Parent P1: If they want to get dropped off at the library that is fine, if they want to do it in their room and close the door, that's fine. If they want me out of the house, that's fine.*

What SPARX Needs for Further Development

Participants suggested that SPARX needed more activities for males and that the puzzles and challenges needed to be more difficult. SPARX also needed to include language that reflects taitamariki understandings about depression.

Gender applicability.

Participants, both male and female, thought that SPARX needed more activities that would appeal to male adolescents. These added activities would need to direct male adolescents to participate in physical challenges such as fishing, skate boarding, kapa haka or mau rākau. Reasons given for this opinion were that SPARX contains a lot of text and male adolescents may not want to sit down at a computer and read a lot of content.

> *Male parent P1: I think it (SPARX) is pretty good but I would probably get lost on the computer because I don't know if many Māori boys or the other kids like using computers because I definitely don't and I get lost straight away and I just think I would just sit there. I don't want to just sit there and watch and listen to video games or something. Maybe SPARX needs relaxing things like fishing or something or more activities to do in the game.*

Level of complexity.

Some taitamariki participants thought that the puzzles and challenges within SPARX needed to be made more difficult. At present they appeared to be very easy to complete and needed further improvement. Other suggestions were for more interaction, as there are long periods of time where the participant's character walks through the level without anything to do.

> *Female P2: That was so boring.*
> *Female P1: That was easy.*
> *Female P3: Too long.*
> *Int: So too long. What were the boring things?*
> *Female P 2: There was too much walking.*
> *Female P 3: All it is really is walking, walking, walking.*

Use of language.

Participants thought that adolescents do not always have the necessary language to be able to identify that they may be experiencing depression. Adolescents may need education about what terms to use to describe how they are feeling. It was thought that perhaps mental health professionals need to listen more carefully to the colloquialisms of adolescents and then use them in their clinical practice.

> *Female P2: Most young people don't actually know what they are feeling until it is pointed out to them.*

> *Female parent P1: You know what you were talking about with regard to the language, how you need to teach young people a whole new language, maybe it is the other way round. Maybe it is them teaching us the language and then us interpreting it. So if they are saying they are feeling, what is that phat – well, what does that mean? What does that mean to us academic people? Well, I don't know, tell us.*

The Text in SPARX

Participants thought that there was too much text in SPARX. Participants also stated that Māori words helped to assist taitamariki to connect with SPARX. The use of audio clips helped to assist those taitamariki who do not like reading or have difficulty with literacy. It was also important to include language with which taitamariki could identify.

Amount of text.

A majority of participants found that there was too much text in SPARX. The participants indicated that the text needed to be shortened so that it was more manageable to read.

> *Int: Does it read alright the text?*
> *Female P1: Yes, it does. It is just a lot of words. And it could probably be shortened or you could get straight to the point and maybe the facts are at a different stage or before something.*

The feedback also highlighted that adolescents may become negative towards SPARX because

of the large amount of text they need to read. This may result in taitamariki fast forwarding

through large chunks of text and therefore not understanding the information.

> *Female P3: It seems like there is heaps of dialogue before you actually get to the game.*
> *Female P1: That is why people would just push that one (button to fast forward text) and just go boo, boo.*

Use of Māori language.

Even though SPARX is a programme for all ethnicities, some of the participants stated

that it was important to incorporate Māori language in the text as a way to help connect

taitamariki to SPARX. Participants also thought that including Māori language might help

taitamariki to have ownership of the SPARX programme.

> *Int: Do you think it's important to have Māori words in there (SPARX)*
> *Female P1: Just a few, because you can connect or relate to it.*
>
> *Female parent P1: It might just give it a little bit of ownership back to those young people (to have Māori terms in the text) – this is my language… It is not an American thing; it is actually a Māori thing or a New Zealand thing.*

Use of audio rather than text.

The participants in the focus groups stated that there should be text with the audio clips.

The audio clips were thought to help support those taitamariki who struggled with the amount of

text or who simply do not like to read.

> *Female P3: What if you had a voice over instead of the writing?*
> *Int: Yes, that is another good point. We are going to do that.*
> *Female P 3: Not many people our age like to read.*
> *Female P1: I don't like reading.*

Include language with which participants can identify.

Some participants thought that the language used in SPARX needed to reflect adolescent

culture. This meant having colloquial language that replaced mental health terms such as

'depression', for example, replacing 'depression' with terms such as 'feeling down' or 'low mood'. Further, participants wanted to reduce any formal or academic language.

> *Female 1: In a nutshell, I don't know if that language is youth friendly.*

> *Int: Do you prefer it written in that way or would you rather have it more pitched at your age with slang words?*
> *Male P1: Yes, use some slang words (in the SPARX text).*

Focus Group Questionnaire Results

The first question had a mean rating of 3.95 (SD 1.17) (See Figure 1). Seven people responded with written comments ,which featured the themes that they were able to express their opinions openly and that communication with the facilitator was easy.
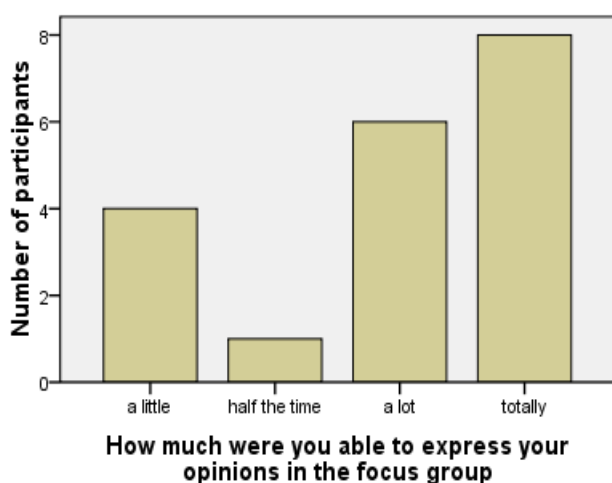
Figure 1. Bar graph of question one responses

Question two had a mean rating of 4.2 (SD .76) (See Figure 2). Five participants responded with comments to this question. The general themes were that the characters needed more graphic patterns and detail to look Māori, SPARX needed to include more physical action in the game play, and add more colour and graphics to reflect the fantasy theme.
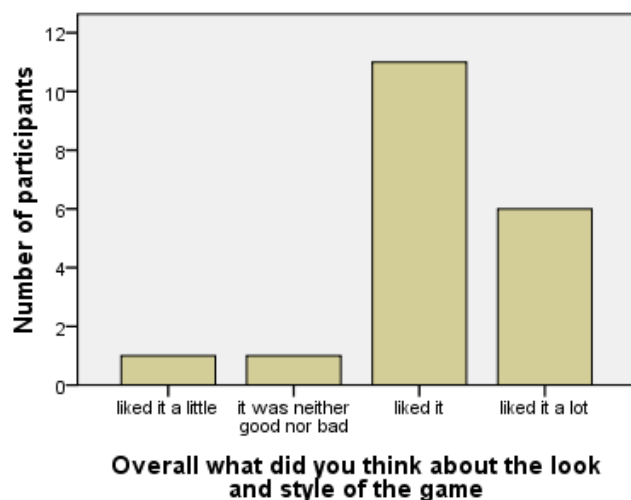
Figure 2. Bar graph of question two responses

Question three had a mean rating of 4 (SD .88) (See Figure 3). Seven participants wrote comments to this question. The themes ranged from including less text, to making the demonstration level shorter to play. A further comment stated that most of it is playable (SPARX) and easy to complete.
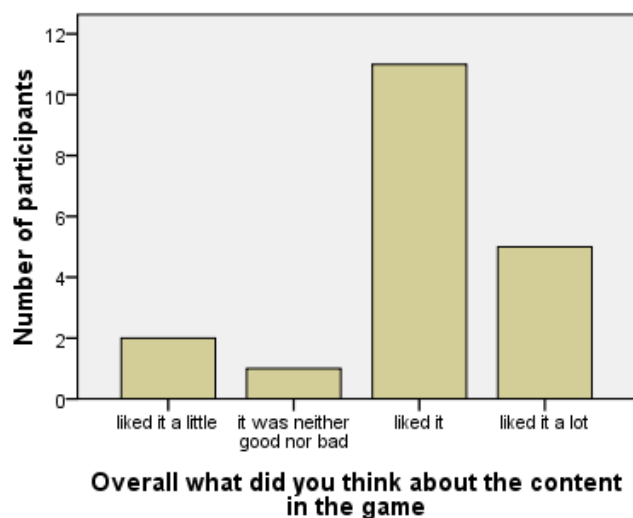
Figure 3. Bar graph of question three responses

Question four had a mean rating of 4.2 (SD .60) (See Figure 4). Question four did not have any written comment section to it.
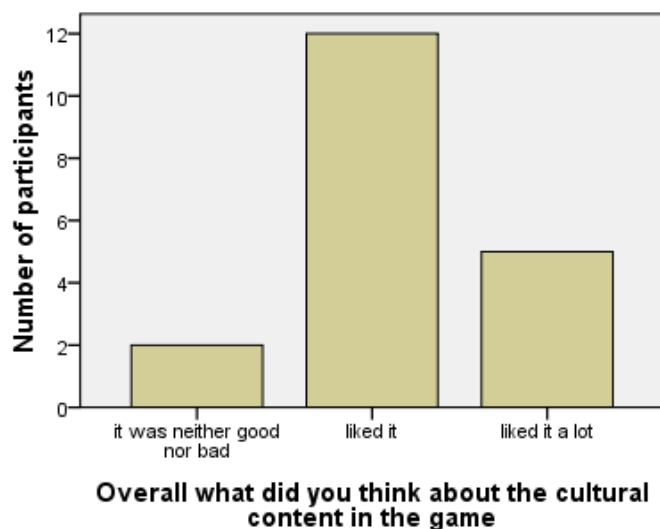
Figure 4. Bar graph of question four responses

Question five asked participants if they would like to make any other comments. Eight participants answered this question and included comments that it was a cool game to play and that they enjoyed the focus group session. Comments were also made about wanting relationships with other characters in the game and including Māori humour. Further feedback included the need for more Māori designs such as moko, and that SPARX needed to include activities such as the taiaha.

Discussion

Summary of Main Findings

Overall, participants were positive about the prototype. Study one provided important information about taitamariki and whānau opinions concerning the initial design and applicability of a CCBT programme for taitamariki experiencing mild to moderate depression. Many themes emerged from the qualitative data such as SPARX is able to teach CBT skills and SPARX is like a computer game that can help with depression. The computer graphics appeared to be applicable to taitamariki,. The Māori designs within the SPARX environment and on the characters costumes were also relevant for Māori. Taitamariki and whānau thought it was

important that SPARX characters include their whakapapa. The SPARX characters were able to

teach participants skills and the Guide could be a role model for taitamariki. Whānau had

opinions about SPARX where they wanted to know when their young person was going to be

using SPARX. Resources for whānau were identified such as the importance of having

information about SPARX available for whānau. A range of sites where SPARX could be used

was also deemed to be important. These could include general practitioners offices or places

within schools. Areas for further development for SPARX were identified.   These included:

having more gender appropriate games within SPARX for male taitamariki, increasing the level

of complexity of SPARX, particularly the puzzles, reducing the amount of text in SPARX,

providing text in Māori language, using audio to reproduce the text, and using language with

which taitamariki and whānau participants can identify with.

It was encouraging for the design team that focus group feedback indicated SPARX had

the look and feel of a commercially produced game.   This is because the design team wanted to

avoid adolescents being discouraged from trying SPARX because it did not look like a

commercially produced game. In the current gaming market there is a comprehensive amount of

software available for adolescents, and they are exposed to gaming software that is of a high

quality. This presented a challenge because as a team we did not have the budget or capacity to

develop a computer resource that could compete with the million dollar budgets of game

developers. The comments made by taitamariki indicated that the design team was successful in

terms of the graphic designs and game play within SPARX.

There was important feedback pertaining to the use of te reo in SPARX. The main

themes were that it would help connect taitamariki to SPARX, and it would give taitamariki

ownership of the SPARX programme. The literature endorsed this concept, as text interventions

conducted in a client's indigenous language were twice as effective as an intervention conducted in English (Griner and Smith 2006). This assumption can be followed up through the post intervention semi-structured interviews.

The results from the quantitative questionnaires demonstrated that most participants were able to express their opinions in the group, most people liked the graphic style of SPARX, the majority liked the content of SPARX, and most liked the cultural content of SPARX.

These findings are particularly important as a CCBT resource like SPARX has never been developed previously. Study one was able to provide information that was utilised in the ongoing development of SPARX to help ensure its applicability to taitamariki.

A skill that participants thought was beneficial to learn was a breathing relaxation exercise. It appears that participants were able to learn CBT skills without the aid of a therapist. This fits with the literature (Christensen et al., 2004), which purports that CCBT programmes without direct therapist input can teach skills.

It was encouraging that most of the participants noticed the Māori designs within the SPARX environment and thought the designs enhanced the engagement and gaming experience of SPARX. This is important as culturally adapted mental health interventions targeted to a specific cultural group are four times more effective than interventions provided to groups from a variety of cultural backgrounds (Griner & Smith, 2006). Although SPARX was designed to appeal to more than one cultural group, SPARX does contain a lot of Māori specific artwork, and Māori based characters, and the audio voices have a distinct Māori accent to them. Further feedback about the applicability of the cultural adaptations will be gathered at the follow up interviews, after the SPARX intervention (see chapter four). This will also help to determine the

applicability of SPARX for taitamariki. This information could be used to assist with the development of resources for the general population in New Zealand.

The contrast of opinions about the cultural adaption of SPARX highlights that Māori are not homogeneous in their worldview, and that Māori, individually and collectively as a whānau, exist and interact with their environment like all other ethnic groups. The implication is that the SPARX prototype was not and perhaps cannot be applicable to all Māori. Durie (2001) emphasises that some Māori are involved in a Māori community, there are Māori who are involved in mainstream society, and some Māori are isolated from both environments. Therefore, Māori need to have a choice about how they identify ethnically. Although SPARX was not designed specifically for Māori it has been argued previously that due to the high rates of depression particularly among taitamariki females (Adolescent Health Research Group, 2003a) it is important to ensure SPARX is acceptable to Māori. A strength of SPARX is the fact that the graphic designs represented a leap forward in terms of contemporary tikanga employed within modern game design (R. Wharemate, Kaumatua, personal communication, 2008). Therefore, it was important to have taitamariki state not only that they noticed the designs, but also that they thought it helped to engage taitamariki with the SPARX resource.

Strengths of the Study

This study conducted interviews with taitamariki and whānau who provided vital information about how SPARX could be beneficial for the entire whānau. A whānau perspective is a strength of this study as it aligns with the New Zealand government's response to whānau well-being which is to develop a social policy about whānau ora (healthy whānau). For example *He Korowai Oranga: the Māori Health Strategy* (Ministry of Health, 2002a), articulates that for the concept of whānau ora to be achieved, Māori will need to improve their mental health and

well-being. The mechanism for this to occur will be *Whakatataka: Māori Health Action Plan 2002-2005* (Ministry of Health, 2002b). The SPARX resource may be one particular way to help achieve whānau ora.

This study was able to incorporate consumer input through a mixed method design. The use of a questionnaire was important as it helped to validate the qualitative information, and more importantly, those individuals who may have felt unable to express their opinions through the focus group format were able to do so with the questionnaires.

Limitations of the Study

This study contained a small sample size, which was also limited to focus groups as opposed to individual interviews. Individual interviews may have provided a greater range of in-depth opinions. Due to the small sample size the views are not a reflection of all Māori. Therefore, it is important not to infer the opinions from this study through to the general Māori population.

Practice Implications for Clinicians

Participants reported that the language in SPARX should be able to describe the many facets of depression, and also the language should reflect the colloquialisms that taitamariki use. The function of this approach could be to de-stigmatise depression, as the aim would be to move away from terms that are entrenched in mental health services for adolescents, and use terms that adolescents find less stigmatising. It has been demonstrated that stigmatisation does lead to discrimination and the possibility of adolescents accessing mental health services less often (Pinfold et al., 2003).

It has been found that culturally adapted mental health interventions targeted to a specific cultural group are four times more effective than interventions provided to groups from a variety

of cultural backgrounds (Griner & Smith, 2006). The initial feedback about SPARX indicated that for taitamariki the cultural adaptions helped to enhance the engagement of SPARX. The practice implication for clinicians is that the current therapeutic interventions that are used for taitamariki should be explored to investigate how they can be adapted culturally.

Whānau clearly indicated that they would benefit from support while their young people were receiving a therapeutic intervention. This contributes to research findings that clearly articulate that whānau need to be engaged and supported when their young people are receiving support (Durie, 2001). The practice implication for the child and adolescent mental health field when intervening in a taitamariki life is that the whānau should be resourced actively to ensure they are able to support their taitamariki.

Changes Considered and Made to CCBT Prototype as a Result of this Study

As a result of the feedback, the design team had to consider changes in the following areas. Participants reported that the well-being of whānau is as vitally important as the well-being of the individual. This point was clearly made when whānau stated that they would like resources to support them while their taitamariki were completing the SPARX programme.

As a design team we made the following changes. The amount of text within SPARX was proving to be problematic. The clear message was that taitamariki could be put off reading the text and might choose to fast forward through it and therefore, not be able to learn any of the prescribed CBT skills. This was important feedback for the design team. It resulted in the design team editing down the text and a decision was also made to use audio files to replicate all the text that was seen on the computer screen. The purpose of this was to cater for those taitamariki who had difficulty with literacy and to cater for different learning styles (Stasiak, 2008). This finding has implication for clinicians, which is the importance of being able to

assess the learning style of an adolescent client in order to deliver therapy in a way that an adolescent can understand and apply it to their particular problem.

The male participants in the focus groups wanted more physical activities such as fighting, shooting creatures or other characters, or activities such as fishing and skate boarding. This was important feedback as research shows that males are less likely to complete CCBT programmes (Richardson, Stallard, & Velleman, 2010). One of the challenges and a possible weakness was that we could not include violent content within SPARX. We had to also ensure SPARX could be used by people who were inexperienced gamers, as depression is more of a concern for adolescent females than it is for adolescent males (Adolescent Health Research Group, 2003a). This was a potential barrier to being able to compete with other games that are already on the commercial market. This question will be asked at the follow-up interviews about whether taitamariki males thought that SPARX needed fighting or violence within it for them to engage. A result of trying to balance the level of difficulty resulted in criticism that the puzzles and challenges within SPARX were too easy. The design team took this feedback and developed more difficult challenges and puzzles, and developed the ability for the participant to shoot and destroy negative automatic thoughts. It will be important to follow up this development with a question when it comes time to conduct the post intervention semi-structured interviews.

Summary

Study one has been vital to complete as it assisted in providing direction for the continued development of SPARX. In general, taitamariki and whānau supported the contemporary tikanga approach to the graphic designs that were used for the characters and environment within SPARX. These findings are important as a resource like SPARX has never been developed previously. Study one provided information that was utilised in the development

of SPARX to help ensure its applicability to taitamariki. The next chapter describes study two, a pilot study to investigate the acceptability and efficacy of using CCBT (SPARX) to treat mild to moderate depressive disorder in Māori adolescents aged 12-19 years.

CHAPTER THREE: STUDY TWO

An Investigation into the Efficacy of SPARX for Taitamariki

Introduction

In study one I described the process of obtaining feedback from taitamariki and whānau and how this was used to inform the final design of SPARX. In this chapter I will describe a pilot study I conducted to investigate the acceptability and efficacy of using CCBT (SPARX) to treat mild to moderate depressive disorder in Māori adolescents aged 12-19 years. Although the SPARX RCT was designed to recruit as many taitamariki as possible, it was not possible to guarantee taitamariki would participate. This pilot study was to ensure there were data on the efficacy of SPARX for taitamariki, and to gather more detailed feedback from taitamariki who completed the programme. Method, results and discussion of the pilot study will be presented in this chapter.

Aims

- To assess the impact of completing SPARX on participants' mood, anxiety, hopelessness and quality of life.

- To interview participants about the ease of use of SPARX, whether they found the resource helpful, whether they felt that their mood had improved, what the participants thought of the Māori designs, and whether their whānau were supportive of the resource.

Primary Hypotheses

That SPARX a CCBT resource, would decrease depressive symptoms for Māori youth immediately post treatment (two months) and that any gains would be maintained at a five month follow-up time point (three months after the intervention).

Inclusion Criteria

Participants were eligible for inclusion in the study if they:

- Experienced mild to moderate depressive symptoms as assessed using the Patient Health Questionnaire (PHQ-9) (Kroenke, Spitzer, & Williams, 2001) with scores of 10-19 inclusive;

- Were 12 to 19 years of age on date of consent;

- Were able to provide written consent and have parental consent if under the age of 16;

- Resided in a city or region where the programme was trialled;

- Had reasonable English language ability (minimum of 1 year of schooling in English)

- Self-identified as being Māori.

Exclusion Criteria

Participants would be excluded from the study if they:

- Had severe depression or high suicide risk[1];

- Scored seven on item 12 on the CDRS-R and five or higher on item 13 on the CDRS-R (they were at risk of self harm);

- Scored less than 54 (t-score) on the CDRS-R (had no or minimal symptoms of depression);

- Had an intellectual disability or physical limitations that would result in them not being able to use the computer programme;

- Had any other major mental health disorder where the primary focus is not depression;

- Had received within the last three months, or were already receiving, psychological therapy or antidepressant medication for the treatment of depression;

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[1] This is assessed as part of the CDRS-R interview.

Recruitment of Participants

Participants were invited by School Guidance Counsellors (SGCs) to complete SPARX. The duration of treatment was four to seven weeks (seven modules completed sequentially). Two schools within the wider Auckland area were invited to participate in the study. These were chosen because they expressed interest in the study, had the necessary infrastructure and had relatively large Māori populations. Estimates were that Māori comprised about 30% of their school's population.

Screening Eligibility Check and Consent Process

School Guidance Counsellors explained the study to potential participants who were then screened for depression using the PHQ-9. Those in the mild to moderate range with scores of 10 to 19 inclusive and at low risk of self-harm were invited to complete baseline assessments. Participants were given written information sheets (Appendix E) and consent forms (Appendix F and G). All participants under the age of 16 were given an information sheet and consent form for parents or guardians. Written consent was collected from all participants and from parents or guardians of those under 16 years of age. Suggestions about alternative treatment options were provided to those young people with severe depression and those at moderate or high risk of suicide.

Screening and Baseline Assessments

Once consent was obtained, a safety and risk assessment was conducted as per the studies protocol and those at risk were referred on for further intervention. Once eligibility was confirmed, the baseline data was collected at pre-intervention beginning with demographic

information (including any treatment to date for this episode of depression). Trained school guidance counsellors or I administered the CDRS-R.

Primary Outcome Measure

The primary outcome measure was the change in depressive symptoms after completion of the treatment as compared with the baseline measured by the CDRS-R (a clinician based assessment).

Description of Outcome Measures

Child Depression Rating Scale-Revised (CDRS-R).

The CDRS-R (Poznanski & Mokros, 1996) is an observer rated scale based on validated adult scales but adapted specifically for children and adolescents. It is relatively brief (takes approximately 30 to 45 minutes to complete), is easy to use and has been shown to demonstrate good internal reliability, test retest reliability, interrater reliability, and concurrent validity with multiple other measures (Myers & Winters, 2002a). Sensitivity to change has also been adequately demonstrated (Brooks & Kutcher, 2001). The CDRS-R is a continuous scale, which allows for an investigation in changes in a total score.

Reynolds Adolescent Depression Scale 2nd edition (RADS-2).

The RADS-2 (Reynolds, 2002) is a validated self completed 30 item questionnaire on the symptoms of major depression and dysthymic disorder, with scores ranging from 30 to 120 (mean 60 +/-2). The earlier version of the Reynolds Adolescent Depression Scale (which is almost identical), has been shown to have excellent internal reliability, construct validity, stability with diverse samples of community youths, and correlates well with other measures (Brooks & Kutcher, 2001; Myers & Winters, 2002a). The RADS-2 is a continuous scale, which allows for an investigation of changes in a total score. This scale has been used in the New

Zealand (NZ) Youth 2000 national survey and the Resourceful Adolescent Programme (RAP-Kiwi) study, demonstrating that it is valid and appropriate to use with NZ adolescents (Walker et al., 2005).

Mood and Feelings Questionnaire long version (MFQ).

The MFQ (Angold et al., 1995) is self-administered and designed to detect clinical depression in children and adolescents. It has good test retest reliability and good validity (Daviss et al., 2006). The MFQ is a continuous scale, which allows for an investigation of changes in a total score. The MFQ assesses a comprehensive range of cognitive and physiological symptoms of depression in children and adolescents. It contains 33 items and takes approximately ten minutes to complete. The MFQ asks children and adolescents to rate recent depressive symptoms on a three point Likert scale (0 = not true, 1= sometimes, 2= true) (Daviss et al., 2006).

Paediatric Quality of Life Enjoyment and Satisfaction Questionnaire (PQ-LES-Q).

The PQ-LES-Q (Endicott, Nee, Yang, & Wohlberg, 2006) is a self-administered questionnaire and is designed to assess quality of life in children and adolescents. It has been designed for use with both healthy individuals and those with acute and chronic health conditions. The measure comprises four subscales: physical functioning (eight items), emotional functioning (five items), social functioning (five items) and school functioning (five items). The PQ-LES-Q has been found to have sound psychometric qualities and internal reliability qualities but no data are yet available on its test retest reliability (Endicott et al., 2006). The PQ-LES-Q is a continuous scale, which allows for an investigation of changes in a total score. This scale has been translated into several different languages including Spanish for Hispanic Americans (Varni, Seid, & Kurtin, 2001) and German (Felder-Puig et al., 2004), suggesting its ability to be used with different cultures.

The Spence Anxiety Scale.

The Spence Anxiety Scale (Spence, Barrett, & Turner, 2003) is a self administered

questionnaire which has demonstrated high internal consistency, satisfactory reliability and high

concurrent validity with other measures of child and adolescent anxiety (Spence et al., 2003).

The SAS is a continuous scale, which allows for an investigation of changes in a total score. The

Spence Anxiety Scale consists of 44 items, 38 of which assess specific anxiety symptoms

relating to six sub-scales, namely social phobia, separation anxiety, panic attack/agoraphobia,

obsessive-compulsive disorder, generalised anxiety and physical injury fears. Participants are

requested to indicate frequency of anxiety symptoms on a four-point Likert scale ranging from

Never (scored 0) to Always (scored 3) (Spence et al., 2003).

The Kazdin Hopelessness Scale (HPLS).

The Kazdin Hopelessness Scale (Kazdin & Weisz, 1998) is 17 item modification of the

Beck Hopelessness scale. The HPLS is a continuous scale, which allows for an investigation of

changes in a total score. It is self administered and has been widely used in studies of suicidality

in youth and has good internal consistency and moderate reliability (Thurber, Hollingsworth, &

Miller, 1996).

Clinical Global Impression Improvement scale (CGI).

Clinical Global Impression Improvement scale (Rush et al., 2002) is used widely in

studies for the treatment of depression in adults and adolescents. The clinician is required to rate

how much the patient's illness has improved or worsened relative to a baseline state. A patient's

illness is compared to change over time and rated on a seven point scale from Very Much

Improved through to Very Much Worse. The CGI has good concurrent validity and it has good

sensitivity to change over time (Rush et al., 2002).

Satisfaction with the intervention questionnaire.

The satisfaction questionnaire is a short post programme questionnaire completed by participants, which assessed their satisfaction and enjoyment of the intervention at month two (Appendix H) and month five time points (Appendix I). The month two questionnaire contains three sections. The first section asked taitamariki to rate the programme according to whether the topics were useful to them. The second section asked taitamariki to rate the main features of SPARX using a Likert five point scale. The third section asked taitamariki to report on how long SPARX took to complete and how many levels they completed.

Semi-structured interview.

A semi-structured interview (Appendix J) explored how SPARX was perceived by the participants. This interview also explored questions about the ease of use of SPARX, whether SPARX was helpful, whether taitamariki thought their mood had improved, what taitamariki thought about the Māori designs in SPARX, and whether taitamariki whānau were supportive or unsupportive of the resource.

Method

Figure five highlights the stages the participants followed through the research process. Over a period of 13 months from September 2009 until October 2010, ten participants from two high schools were identified as potential participants and were screened by the SGC or myself. Of the ten participants, two declined to participate after the initial screening stage. One participant changed schools before starting the programme.

```
┌─────────────────────────────┐
│  Young person (YP) (N=10) is │
│   referred to School Guidance│
│  Counselor (SGC), or YP contacts│
│          the SGC.            │
└─────────────────────────────┘
              ⇩
┌─────────────────────────────┐                    ┌─────────────────────────────┐
│ In some cases YP screened for eligibility│        │ Young person excluded if they have│
│ using PHQ-9 (mild-to-moderate depression,│  ⇨     │ severe depression or high suicide │
│ low suicidality). Study explained to all YP by│   │            risk.            │
│ SGC and consent obtained. Two YPs│                 └─────────────────────────────┘
│ declined, one YP moved schools.│
└─────────────────────────────┘
              ⇩                                      ┌─────────────────────────────┐
┌─────────────────────────────┐                      │ Young person excluded if they do│
│      SGC conducts baseline   │                      │ not meet all inclusion criteria or│
│    assessments and confirms  │         ⇨            │ meet any exclusion criterion. If │
│       eligibility (N=7).     │                      │ excluded, suggestions given about│
└─────────────────────────────┘                      │  alternative treatment options. │
              ⇩                                       └─────────────────────────────┘
┌─────────────────────────────┐
│    Seven depressed youth     │
│    complete CCBT resource.   │
└─────────────────────────────┘
              ⇩
┌─────────────────────────────┐
│  Month One: phone in or meet │
│   with SGC to monitor safety and│
│          progress.           │
└─────────────────────────────┘
              ⇩
┌─────────────────────────────┐
│ Month Two:  YP completes programme and SGC conducts│
│   post intervention assessment.  Participant invited to│
│ partake in post intervention semi-structured interview.│
└─────────────────────────────┘
              ⇩
┌─────────────────────────────┐
│   Month Five: SGC conducts   │
│    three month follow-up     │
│         assessment.          │
└─────────────────────────────┘
```

Figure 5. Overview of the study design

Seven participants went on to complete the SPARX programme. One participant

completed only four of the required seven levels and the other six completed all seven levels of

the programme. All seven participants completed the two month and five month follow-up assessments. One participant did not complete the two-month semi-structured interview.

Safety Assessments

Participants were asked if they experienced any adverse effects during the mid-intervention phone call (month one), post intervention (month two) and at follow-up (month five). All serious adverse events (SAE) (including increased suicide risk) were to be reported to a SGC by the participant at these times, or by their parent, guardian or GP within 24 hours of being aware of the SAE. In the event of this happening, notification was to be made by a phone call to myself. Further information was to be communicated as soon as it became available. I was to review all SAEs as soon as possible with my supervisors. Generally, an adverse event (AE) is defined as "any unintended, unfavourable clinical sign or symptom, any new illness or disease or deterioration of existing illness or disease, whether or not considered treatment related" (Merry & Stasiak, 2008). Throughout this study no reports were made of a SAE. A serious adverse event is an AE that:

- Results in death,

- Is life threatening, i.e., the patient was, in the opinion of the primary investigator, at immediate risk of death from the event as it occurred (it does not include an event that, had it occurred in a more severe form, might have caused death).

- Results in persistent or significant disability/incapacity.

- Requires in-patient hospitalisation or prolongs hospitalisation.

- Is another medically significant event that, based upon appropriate medical judgment, may jeopardise the patient and may require medical or surgical intervention to prevent one of the outcomes listed above (Merry & Stasiak, 2008).

Table 3 summarises the different time points within the study when information was gathered.

Table 3

Summary schedule of treatment and follow-up

Method of data collection at each point	Screening	Baseline	Month 1: telephone contact	Month 2: Post intervention	Month 5: Follow-up
Demographics		X			
CCBT			X	X	
Screening (PHQ-9)	X		X		
Risk/self harm assessment		X	X	X	X
CDRS-R		X		X	X
RADS-2		X		X	X
MFQ (long form)		X		X	X
PQ-LES-Q		X		X	X
Spence Anxiety Scale		X		X	X
Kazdin HPLS		X		X	X
CGI				X	X
Semi-structured interview				X	
AEs / SAEs				X	

Withdrawal Criteria

Participants could withdraw from the study at any time. If any participant had become high risk due to self-harm or their depressive symptoms had worsened during the study, I would have referred them for extra appropriate help. However this did not occur. The SPARX programme also contained a prompt advising participants to seek further help from their SGC if they met the risk criteria of the question being asked of them. Participants who were referred for extra help or withdrew from the study could continue to use SPARX, if they chose.

Ethics Committee Approval

The Northern Y Regional Ethics Committee granted ethics committee approval for this study. Reference number NTY/09/003.

Quality Control and Assurance

Assessments that were completed were checked periodically to ensure integrity of the data supplied. It was found that the SGCs who completed the assessments were keeping excellent records.

Statistical Analysis

Baseline data were summarised using standard descriptive statistics including means, medians, percentages, ranges and standard deviations as appropriate. The primary and secondary outcome measures were analysed with paired samples t-tests. Changes in depression ratings over time were statistically tested within the Māori youth group using paired t-tests. Post effect sizes (ES) were calculated using Cohen's formula, with 0.2 indicating a small ES, 0.5 indicating a medium ES and 0.8 indicative of a large effect size. The differences in the changes between the groups were summarised as means and 95% confidence intervals. All analyses were based on the intention-to-treat principle and a two-tailed p-value <0.05 was taken to indicate statistical significance.

<div align="center">

Results

</div>

The study period ran from March 2009 to January 2011 (recruitment, follow-up, data analysis and dissemination of results).

Baseline Demographic Characteristics

The mean age of the participants was 14.67 years and further demographic information is presented in Table 4. Five of the participants were female and two participants were male. All of the participants self-identified as being Māori.

Table 4

Demographic information of participants

	Male	Female	Mean	Standard deviation
Gender	2	5		
Age			14.57	0.72

Primary Outcome Measure: CDRS-R

A summary of scores at the three time points showed a reduction in depressive symptoms after completion of SPARX (see Table 5). This was significant t(6)=3.930, p=.008 and ES=1.49. The improvement was maintained at follow-up although the change from baseline was not as large as the change from post treatment t(6)=2.56, p=.043 and ES=0.97. The score dropped to a mean that was within the normal range. See Table 5 for the outcome scores at the three time points. Refer to Table 6 for the mean changes in mean scores at post intervention and at follow up.

Results for Secondary Outcome Measures

On the secondary measures there was a significant improvement in quality of life and anxiety but not on the self-ratings for depression or hopelessness. See Table 5 for the outcome scores at the three time points. Refer to Table 6 for the mean changes in mean scores at post intervention and at follow-up.

Table 5

Outcome scores at three study time points by intervention

	Baseline M (SD)	Post treatment M (SD)	Follow up M (SD)
CDRS-R	49.43 (9.86)	26.86 (10.56)	31.71 (20)
RADS-2	72.43 (8.344)	65.71 (15.617)	59.43 (13.819)
MFQ-LV	28.00 (9.56)	20.29 (16.13)	18.43 (13.14)
PQ-LES-Q	2.29 (0.951)	2.86 (0.900)	3.14 (0.690)
SAS-total	44.71 (20.56)	33.71 (20.459)	27.00 (22.642)
HPLS	5.00 (2.944)	3.00 (1.528)	4.00 (2.582)

M=Mean; SD=Standard Deviation

Table 6

Mean changes post intervention and at month five follow-up

	Baseline - Post treatment M	Baseline – Follow-up M
CDRS-R	22.57 CI=-8.52-36.63	17.71 CI=0.77-34.66
RADS-2	6.71 CI=-13.46-26.89	13.00 CI=¯4.91, 30.91
MFQ-LV	7.71 CI=2.31-17.74	9.57 CI=1.97-21.11
PQ-LES-Q	¯.57 CI=¯1.07-¯.77	¯.857 CI=¯1.50-¯.22
SAS-total	¯11.00 CI= .18-21.81	¯17.71 CI= 9.33-26.10
HPLS	2.00 CI= ¯.327-4.33	1.00 CI= ¯.19-2.19

M=Mean; CI=95% Confidence Interval

The RADS-2 showed no significant reduction in depressive symptoms after completion of SPARX t(6)=.814, p=.447, ES=0.3, nor at the follow-up change from baseline t(6)=1.776, p=.126, ES= 0.67. The MFQ-LV found no significant reduction in depressive symptoms after completion of SPARX t(6)=1.88, p=.109, ES=0.71 nor at the follow-up change from baseline t(6)=2.03, p=.089, ES= 0.77. The PQ-LES-Q showed a significant increase in quality of life

after completion of SPARX t(6)=-2.828, p=.030, ES=⁻1.07.   This improvement was maintained

at follow-up and appeared to be larger than the change from baseline to post treatment

t(6)=-3.286, p=.017, ES=⁻1.24. The SAS had a significant reduction in anxiety symptoms after

completion of SPARX t(6)=2.489, p=.047, ES=0.94. This improvement was maintained at

follow-up and appeared to be larger than the change from baseline to post treatment t(6)=5.168,

p=.002, ES=1.95. For the HPLS there was not a significant reduction in depressive symptoms

after completion of SPARX t(6)=2.103, p=.080, ES=0.79 nor at the five month follow-up

t(6)=2.049, p=.086, ES=0.77 .

Clinical Global Impression Improvement scale.

The results from the CGI scale show the degree of change compared to when the

clinician first assessed the participants.   Table 7 reports the changes of the participants at the two

month and five month follow-up time points.

Table 7

Overall scores on the CGI scale at two time points

	2 month follow up (N=7)	5 month follow up (N=7)
CGI		
Very much improved	3	1
Much improved	2	3
Minimally improved	2	2
No change	0	0
Minimally worse	0	1
Much worse	0	0
Very much worse	0	0

Satisfaction intervention questionnaire at month two.

At post intervention (month two time point) six of the seven participants completed the

satisfaction questionnaires. Table 8 reports the responses of the taitamariki.

Table 8

SPARX Satisfaction questionnaire - Month 2 (N=6)

Section 1	Number who found it useful*	Number who were not sure	Number who found it not useful**
How useful was SPARX	6	0	0
Learning about depression	5	1	0
Do it, doing more makes you feel better	6	0	0
Relax, slow breathing and muscle relaxation	6	0	0
Solve it, problem solving and using steps	5	1	0
Sort it, listening, being assertive and negotiation skills	5	1	0
Sort it, dealing with angry and hurt feelings	5	1	0
Spot it, spotting negative feelings and thoughts	5	1	0
Spot it, spotting positive or helpful thoughts	5	1	0
Swap it, changing negative thoughts	5	1	0

Ratings: 1='Not at all useful' to 5= 'Very useful'
* *'useful' consisted of 'very useful' and 'useful'*
** *'not useful' consisted of 'not useful at all' and 'not useful'*

There was also a section where taitamariki could write their comments. One participant commented, "*SPARX was fun*".

In the second section participants rated whether they liked the main features of SPARX from a scale of one to five (1 = what they didn't like, 5 = what they really liked). If any question was not applicable, participants were invited to check a box with the letters N/A. Overall, taitamariki were positive about SPARX (see Table 9).

Table 9

Second section of SPARX satisfaction questionnaire month 2

Questions	Mean rating (n=6) (Mean, SD)
It looks like a computer game	4.67 (0.52)
You can learn things from it by yourself at your own pace	4.5 (0.84)
It has video clips of celebrities giving advice	3.6 (0.89)
It is different from talking to a doctor or counsellor	3.33 (1.07)
It showed me things I didn't know	5 (0)
I could do it at school/GP clinic/youth centre	4.5 (0.84)
I could do it at home	5 (0)
It comes with a notebook I can keep	5 (0)
It is made especially for young people	4 (1.27)
It has a New Zealand look and feel	4.6 (0.89)

In the third section, participants were asked questions about their use of SPARX. This included where they completed SPARX and how long it took them to complete. Overall, taitamariki endorsed SPARX to others, including their friends and family (see Table 10).

Table 10

Third section of SPARX satisfaction questionnaire month 2 (N=6)

Questions	Options for answers	Number of participant responses
Where did you complete SPARX	School	6
Of the seven levels which ones did you complete	Seven	6
How long did it take you to complete each level	Less than 20 minutes	1
	20-30 minutes	2
	30-40 minutes	2
	More than 40 minutes	1
Do you think the levels should be shorter or longer or stay the same	Stay as they are	4
	Longer	2
Did you share what you learnt with any one else	Yes	5
	No	1
If yes, who did you talk to about SPARX	Friends	1
	Teachers	2
	Family	3
How many challenges in the levels did you finish	All of them	4
	Most of them	2
Do you think SPARX would appeal to other young people	Yes	6
Would you recommend this programme to friends	Yes	6

The last question asked participants how SPARX could be improved. The following comments were reported.

Participant 1: Changing the sound when the diamonds are placed.

Participant 2: No, because it's fine, SPARX is very helpful.

Brief satisfaction intervention questionnaire at month five.

At month five taitamariki were asked to fill in a brief satisfaction questionnaire. The participants could provide more than one answer to the questions about which SPARX skills they used and found useful. The majority of taitamariki thought SPARX was helpful. All had used skills they had learnt and found the relaxation skills particularly helpful (see Table 11).

Table 11

Brief satisfaction intervention questionnaire at month 5 (N=6)

Questions	Options for answers	Number of participant responses
How useful was SPARX for you	Very Useful	4
	Useful	1
	Fair	1
Since finishing SPARX, have you used any of the skills you have learnt	Yes	6
Which SPARX skills have you used	Do it	2
	Relax	4
	Sort it	2
	Solve it	3
	Spot it	2
	Swap it	1
	Ask for help	2
Which of the SPARX skills do you think have been useful to you	Do it	2
	Relax	4
	Sort it	2
	Solve it	1
	Ask for help	2

When asked how SPARX could be improved taitamariki made the following comments.

Participant 1: I enjoyed testing it and it was good.
Participant 2: Make levels harder, my mum is doing it.
Participant 3: No its good, need more.
Participant 4: It is really good, I liked it.

Discussion

Summary of Main Findings

In this small pilot study there was a significant reduction in depression scores rated on the CDRS-R. The mean scores dropped substantially to within the normal range at the two month follow-up and this decline was maintained at the five month follow-up. This resulted in the taitamariki group shifting two categories for depression symptoms from a category where a depressive disorder is likely to be confirmed in a comprehensive diagnostic evaluation to a depressive disorder being unlikely. For some of the secondary measures, these were statistically significant such as the PQ-LES-Q, and the Spence Anxiety Scale. The other secondary measures such as the RADS-2, the Kazdin Hopelessness scale and MFQ-LV were all showing a drop in scores although these were not significant, probably because of the small sample.

Strengths of the Study

This study is a first step towards investigating how effective CCBT can be for ethnic minority groups. After an extensive search of the literature regarding CCBT and ethnic minority groups, I could find no other study on this topic. Participants engaged with SPARX and most completed it, possibly because it incorporates Māori cultural designs, e-learning theory and strategies used in the gaming industry to engage participants.

Outcomes were measured using validated and reliable scales across a variety of relevant outcomes including depression, anxiety and quality of life. The School Guidance Counsellors and I were able to observe a clinical difference in taitamariki presentations over time. The majority of taitamariki were observed to have clinically improved. The self-report questionnaires at the two and five month follow up time points both reported high satisfaction

levels with the SPARX resource.   It was also important to understand that taitamariki were able to articulate which skills they liked and which skills they would continue to use.

Limitations of the Study

This current study contains a small sample size and lacks power to show a statistical change that can be generalised to the Māori adolescent population. However research of this nature is important as it is rare in New Zealand and in ethnic minority populations throughout the world (Bryant & Harder, 2008; Miranda et al., 2005). A recent example of the challenges involved in recruiting a Māori sample in New Zealand was discussed in Bennett's (2009) PhD study in which he investigated a culturally adapted CBT programme to address depression for Māori (N=16). One of the challenges is that large sample sizes are needed in order to power studies so that they can detect a medium effect size ($d = 0.5$) as this would require an N of 176 (Bennett, 2009).

There were two male participants and this further limits the ability to make inferences about the male taitamariki. The CDRS-R was rated by assessors who knew that taitamariki were getting the intervention. Therefore, there is some concern that the RADS and MFQ scales showed no significant reduction in depressive symptoms.

 Further Research

This current sample will also be compared with the mean scores from the Māori sample of the SPARX RCT.   The outcome from the SPARX RCT could add further support to the results from this current study. Fortunately, data from a larger randomised group of Māori taitamariki (assessed by research assistants blinded to the allocation of intervention) was available to analyse. The main SPARX RCT had 45 Māori participants complete the trial and the outcome of this study will be reported in chapter five.

Summary

The aim of study two was to conduct a pilot study to investigate the feasibility and acceptability of using CCBT (SPARX) to treat mild to moderate depressive disorder in Māori adolescents aged 12-19 years. I was able to show, despite a small sample size, a significant difference in the mean scores for the primary outcome measure (CDRS-R) at the both two and five month time points with a substantial reduction in depression scores. Also there was a significant reduction in anxiety, and improvement in quality of life. Self-rated depression scores dropped but this reduction was not statistically significant. Taitamariki were positive about SPARX and most completed all of the modules. These findings need to be interpreted in light of small sample size, the lack of blinded assessors and the lack of a comparison group. In the next chapter I will describe a study that completed follow-up interviews with taitamariki. The interview explored questions about whether SPARX was easy, moderate or difficult to use, whether SPARX was helpful, if taitamariki thought their mood had improved, what taitamariki thought about the Māori designs in SPARX, and whether taitamariki whānau were supportive or unsupportive of SPARX.

CHAPTER FOUR: STUDY THREE

An Investigation into the User Feedback of Taitamariki who Completed SPARX

Introduction

In this chapter I will describe the methods, results and discussion of the follow-up interviews with taitamariki pertaining to study two.

Aims

In this study my aims were to:

- Explore whether SPARX was helpful and whether taitamariki thought their mood had improved;

- Explore Māori adolescents' opinions about the content of the SPARX programme, including finding out their opinions about the main characters and the Māori designs in the SPARX programme;

- Explore taitamriki opinions about the main control mechanism of SPARX;

- And explore whether the taitamariki whānau supported them using the SPARX resource.

Epistemological and Methodological Considerations

I have explained the rationale for the chosen methodology, the epistemological orientation of the study, and how I incorporated a Kaupapa Māori research framework in chapter two, study one. These same procedures will be followed for study three.

Methods

Recruitment of Participants

Taitamariki were interviewed using a semi-structured interview (see Appendix J) once they had finished the SPARX resource. Six of the seven participants agreed to complete the interview. Table 12 indicates the gender and ages of the participants in the interview.

Table 12

Demographic information of participants

Participants	Gender	Age
Participant 1	Female	14
Participant 2	Female	16
Participant 3	Female	15
Participant 4	Male	14
Participant 5	Female	15
Participant 6	Female	14

Semi-Structured Interview Process

All participants had completed all levels of the SPARX programme. I conducted all the interviews, which lasted between 10 and 30 minutes. The topics of the questions included whether SPARX was helpful, if taitamariki thought their mood had improved, what taitamariki thought about the content of the CCBT programme and which skills they found helpful. Opinions were sought regarding the main characters and the Māori designs in the SPARX programme, and the computer control mechanism used to move the main character. Also, I explored whether taitamariki whānau supported them using the SPARX resource.

Qualitative Data Analysis

I have explained the qualitative data analysis in chapter two. These same procedures are followed in this current study. This study involved individual interviews analysed through Braun and Clarke's (2006) six-step process of thematic analysis. To ensure reliability, another researcher read one third of the transcripts and their themes were compared to the themes that I had found. We discussed differing opinions about themes and an agreement was made about what themes to include.

Results

A number of themes emerged from the data, I have organised these into five categories as shown in Table 13.

Table 13

Categories and themes from analysis (N=6)

Categories	Themes
SPARX is helpful (N=6).	SPARX was able to teach relaxation skills (N=4).
	SPARX was able to teach cognitive restructuring skills (N=3).
	SPARX helped improve mood and quality of life (N=3).
	SPARX was able to help whānau members (N=3).
	SPARX was able to increase participants' level of hope (N=2).
Māori designs (N=5).	Māori designs were appropriate and appreciated (N=5).
	The ability to customise the characters with Māori designs was beneficial (N=2).
	Having Māori designs increased cultural identity (N=2).
Characters in SPARX (N=4).	Characters were helpful (N=3).
	The Guide was easy to understand (N=4).
	The Bird of Hope character was helpful (N=2).
SPARX game design (N=3).	Character control mechanism worked well (N=3).
	Participants found the puzzles to be difficult (N=3).
SPARX booklet (N=2).	The booklet is a useful resource (N=2).

SPARX is Helpful

All of the participants (N=6) who were interviewed described SPARX as being helpful.

They stated that SPARX gave good advice and that it teaches real life techniques and skills. The

participants described skills such as relaxation and cognitive restructuring as being easy to use in

everyday life.

Taitamariki identified that the breathing techniques were especially beneficial for them.

They were surprised that the breathing techniques could be beneficial to them.

> *Female participant (P1): Well, I have been feeling down sometimes and I have used the breathing techniques and all that type of stuff and it was actually really helpful.*

> *Female participant (P2): It was really good and helpful. Like when I needed to calm down using the technique, it actually helped a lot. Yes, so overall it was pretty good, the breathing in out one. At first I thought it was a bit weird and I was like 'oh, my god, this is not going to work' but by just taking my time and working through it, it actually helped me.*

Three of the participants were able to give examples of how cognitive restructuring

helped them, while also reporting that this was one of the more difficult concepts to understand.

> *Female P1: Like when my Mum and Dad split up I thought it was my fault and I could have done something. And then after I did SPARX I did a lot of thinking and I couldn't have done anything because they weren't happy and it was out of my control. So it helps me understand.*

> *Female P2: Well, if I was thinking something negative, yes, I would go out for a walk and I would think about it until it became positive.*

> *Female P3: It was like fun because of the game and it helped me with problems and solving. It was very good, it taught me not to think violent, just talk. This girl one of my cousin's friends, went to my house with my cousin and they were rude to my Mum. My Mum said 'tell her to come and say sorry'. And I scooped her up and told her to say sorry. Oh no, I snapped down and told her I was going to smash her and then I thought about it and I said 'Naw, that no good'. Just go and say sorry to my Mum and it will be all good.*

Taitamariki were able to articulate how SPARX had helped to improve not just their

mood but also their life and significant relationships.

Female P1: It was actually really helpful. I had a lot of problems and it did help me a lot. I felt much more better and it taught me a lot of lessons. I am actually enjoying life now and I am still going through my up and downs but it is a bit better. I am more happier and I don't feel down as much as I used to.

Female P 2: But then I actually thought about it and I have actually come a long way from where I was. And SPARX had a big part of that, so that helped. When I first started it I was always sad, like practically every day, but now I am like happy and hang out with my friends and enjoy myself. Most days I am happy.

The taitamariki were able to reflect on how it had helped their whānau. Some spoke

about how they would talk to a sibling or a parental figure and suggest to them that they should

play SPARX. Participants reported that little persuasion was needed for other whānau members

to use SPARX.

Female P1: Well, like during the holidays me and my Mum are going to do it together because she is going through a lot of stress as well. We would both sit down and do it and sort it out. I told Mum about the thing (SPARX) and she said that she would like to try it. I am hoping it will actually help her out and take less off her shoulders.

Female P2: I think my Mum. She has noticed the change as well and we have actually both put in the effort and things have been improving a lot more. We always used to fight and it used to be like if you are not going to change, why should I bother. So I just decided to make a change and ever since then my Mum has noticed and she has been nicer and she is actually putting in a good effort. I think SPARX has helped a lot in a way and really it was just up to me and my Mum, but applying those skills actually helped. So that is a big part.

Some taitamariki responded well to the psychoeducation component in SPARX about

having 'hope'. They reported that their mood had improved by being able to receive

encouragement and adopt the new idea that life can be better if you have hope.

Female P1: Like how they (characters in SPARX) always give you advice. Like for the hope one, that was really good. Like there is always hope and stuff.

Female P2: When I first started SPARX I was still feeling low and that but now that I have finished SPARX it has made me a bit happier and feeling all right. That my future is not going to be a negative future. It is going to be a positive future.

Māori Designs

The majority of taitamariki found the designs to be appropriate and felt the designs assisted them to engage with SPARX.   The ability to customise their character helped to ensure this. Some taitamariki stated openly that the Māori designs helped to increase their Māori identity.

> *Female P1: That is cool. It is different from other games, it can be fun but it also has stuff from your culture and things you can relate to. So that was better.*
>
> *Female P2: Yes, I think it does help because it is different from other games, they don't have anything like Māori culture. It is like unusual to see that kind of stuff in games. But having that makes it easier to relate to.*

Some taitamariki appreciated the ability to personalise their SPARX character with Māori designs on the clothing.

> *Female P1: That was pretty cool (customisation process), but I think there should be more stuff because it is only like a couple of haircuts and skin tones and all that type of stuff.*
>
> *Female P2: I got to make her look however I wanted and I was able to choose the clothing and the hair style and that is really fun.*

Some taitamariki clearly had their identity affirmed by the inclusion of Māori designs within SPARX.

> *Female P1: I liked them. They made me feel like I was neat. It opened my Māori in me. It makes me feel like I've got Māori in me and that everyone knows who I am.*
>
> *Female P2: It is really cool. It is good to do something that has part of your heritage in it.*

Characters in SPARX

Taitamariki were able to describe how characters like the Guide, Mentor and Bird of Hope were all able to provide support and psychological education that was both helpful and hopeful.

Some taitamariki identified that it was beneficial to have non-playing characters (NPCs) in SPARX. This provided an opportunity for taitamariki to practice the skills that they had been learning within SPARX.

> *Female P1: It was pretty cool that you got to practice skills on them (NPCs). Like how do you make a win win conversation and stuff, so that was pretty good.*

> *Female P2: The lady (Mentor), those people that helped me out when I got stuck.*

Taitamariki identified strongly with the Guide, particularly because of the way he looked and sounded. This was clearly important for the Māori participants and enhanced their ability to relate to the Guide. Taitamariki reported that they felt the Guide was communicating personally to them. The Guide was also able to reinforce the learning that took place within SPARX.

> *Female P1: He (Guide) actually looked like a Māori and it was easier for me to relate to because he had the New Zealand accent and the Māori accent and stuff. Sometimes he would say a few things in Māori so that was really good. He would explain it and then afterwards he would break it down and make it easier for me to understand. That helped a lot.*

> *Female P2: That was good. It helped me out because if I didn't get what I was doing while I was actually doing it, it (Guide) told me the proper meaning at the end.*

Some taitamariki benefited from having a character (Bird of Hope) that embodied the concept of hope. Some taitamariki were encouraged by the function that the Bird of Hope provided.

> *Female P1: It gave you information about what you are actually meant to do and how to handle these types of things, like thoughts.*

> *Female P2: Oh, the bird is cute, hope. Yes, that was my little favourite thing on SPARKS is hope. Because she said 'I am always here to help you'. It was so cute and just the colour of her. She looks so beautiful. I wish she was my pet.*

SPARX Game Design

Taitamariki reported that while SPARX seemed like a game that was fun, it was able to be helpful by giving advice, as well. Taitamariki thought that SPARX could have been longer

and one male participant thought that the puzzles could have been a lot harder, in contrast to the majority of female participants.

There was some mixed opinion about whether the character control mechanism in SPARX was the easy to use. Some taitamariki felt that the current way to control the character could have been improved by using the keyboard arrows to move the character instead of the mouse.

> *Female P1: It was actually really good, yes. It was really easy, you just had to click and it would move to where you clicked. That was pretty good.*

> *Female P2: I was thinking instead of using the mouse you could use the keyboard thing. Yes, keyboard arrows, yes. The general control, it was just when I had to make her run I had to double click it and then she would run then she would stop. Yes. It was medium.*

Some taitamariki found the puzzles difficult, though no taitamariki stated that it put them off completing SPARX as only one taitamariki completed less than all seven levels. Taitamariki were also provided with the answers to the puzzles (in the booklet that accompanied SPARX) so that they could continue with SPARX if they got stuck.

> *Female P1: The puzzles was kind of hard. The challenges was good, yes. When the pieces got burnt and I had to sort them out, I found that hard.*

> *Male P1: SPARX could have been longer and harder, as I only found one of the challenges to be difficult.*

SPARX Booklet

The SPARX booklet was designed as a learning aid so taitamariki could record their thoughts and feelings while they were progressing through the seven levels of SPARX.

> *Female P1: It was easier to write it down than to keep it inside. I would probably write more about my feelings down on a piece of paper than keep it inside me.*

Discussion

Summary of Main Findings

The follow-up interviews from study two provided important information from taitamariki concerning the initial design and applicability of SPARX for taitamariki experiencing mild to moderate depression. Taitamariki found SPARX to be helpful because it was able to teach relaxation and cognitive restructuring skills. It helped improve participants' mood and increased their level of hope, and in some instances was used by whānau members to good effect. The Māori designs were appropriate and useful, and the ability to customise the characters with Māori designs was beneficial, as they seemed to enhance cultural identity. The characters in SPARX were helpful as they provided support and psychological education.

The Guide was easy to understand and the Bird of Hope encouraged taitamariki to be hopeful. In terms of the game design, the character control mechanism worked well. In general participants found the puzzles to be difficult. The booklet that accompanied the resource was useful as it provided a place to write one's thoughts and feelings.

Many themes that emerged from study three have reinforced the themes from study one. This includes feedback that SPARX could teach CBT skills and that SPARX was like a computer game that could help with depression. A dominant skill that was highlighted again was the breathing relaxation exercise. Once taitamariki had the chance to complete all seven levels, the other CBT skill they described the most was cognitive restructuring. These current findings also suggest that participants were able to learn CBT skills without the aid of a therapist. This fits with the literature (Christensen et al., 2004), which purports that CCBT programmes without direct therapist input can teach skills. Therefore SPARX could be an intervention that is made

available to the general public so that the high mental health needs of taitamariki (Adolescent Health Research Group, 2003a) can be meet.

The findings from study one in regards to the Māori designs enhancing the engagement and gaming experience for taitamariki were confirmed with study three. This was important because culturally adapted mental health interventions targeted to a specific cultural group are four times more effective than interventions provided to groups from a variety of cultural backgrounds (Griner & Smith, 2006). These findings suggest that for Māori females (as the majority of the participants were female), SPARX did meet the aim of being culturally applicable to them.

The finding from study one that some taitamariki participants appreciated the ability to customise their own playing character within SPARX was confirmed. Some taitamariki reported that Māori designs affirmed their Māori identity and this appeared to enhance well-being of taitamariki.

Study one raised the idea that a whānau perspective could be incorporated into SPARX. Although we were unable to do this because of funding and time constraints, it is apparent from this study that taitamariki included some whānau members, who were interested in completing SPARX. Taitamariki reported that once whānau members became engaged in SPARX this was helpful with one example cited being an increase in the quality of whānau relationships.

Strengths of this Study

This study conducted interviews with taitamariki who provided important information about their experiences of completing SPARX. This study was able to capture the majority of taitamariki who completed study two. There were also clear opinions expressed about the effectiveness of SPARX and issues such as personal identity, which demonstrated that

taitamariki felt safe enough to talk about their personal issues. The findings from this group were similar to themes identified by the 19 taitamariki who participated in study one.

Limitations of the Study

This study is exploratory in nature and contains a small sample size. This means that these results cannot be generalised to the general taitamariki population. Participants were mostly female, therefore I was not able to explore whether we had responded adequately to comments made by male participants in study one who reported that they wanted more physical activities, such as fighting, shooting creatures or other characters, or activities such as fishing and skate boarding. The one male participant who did complete the follow-up interview reported that the puzzles and challenges within SPARX were too easy. It would have been beneficial to capture more data in relation to how male taitamariki experience SPARX.

Further Research

In terms of capturing more data in relation to how male taitamariki experience SPARX, one possibility is to analyse the completion rates of male taitamariki from the SPARX RCT and to analyse the data for males from the satisfaction questionnaires.

An important area that warrants further research is how the resource could be used for whānau. The findings from this study suggest that some whānau may have gained psychological support serendipitously from SPARX, and SPARX could play a role in strengthening whānau ora. The concept of whānau ora is a current government strategy and *He Korowai Oranga: the Māori Health Strategy* (Ministry of Health, 2002a), articulates that for the concept of whānau ora to be achieved, Māori will need to improve their mental health and well-being.

Practice Implications

Taitamariki reported that they were able to learn CBT skills from SPARX and improve their mental health through this form of pedagogy. The Māori designs were appropriate and useful, and the ability to customise the characters with Māori designs was beneficial as this enhanced cultural identity. These opinions were expressed within study one and hold particular significance for clinicians, namely that a great deal of effort must go into ensuring that any therapeutic intervention directed towards taitamariki is culturally appropriate and relevant to them.

Summary

The follow-up interviews from study three were important because they showed the changes made as a result of study one were mostly successful. Taitamariki found that SPARX helped improve mood and increased their level of hope. Relaxation techniques were particularly helpful. SPARX was also able to help whānau members. The Māori designs were appropriate and useful and the ability to customise the characters with Māori designs was beneficial as having Māori designs increased cultural identity. The characters in SPARX were helpful as the Guide was easy to understand and the Bird of Hope was able to encourage taitamariki to be hopeful. The aim of study four, found in the next chapter, is to analyse the Māori participant (taitamariki) data that was collected from the SPARX randomised controlled trial (RCT).

CHAPTER FIVE: STUDY FOUR

Analysis of Māori Participant Data from a Randomised Controlled Trial of a

Computerised Cognitive Behavioural Programme-SPARX

Introduction

I have described the positive qualitative feedback and the positive findings from an open

trial of SPARX. As part of a larger non-inferiority randomised controlled trial (RCT) of

SPARX, attempts were made to oversample for taitamariki. We were successful in recruiting

sufficient taitamariki to the main study to undertake a subgroup analysis. The aim of study four

was to analyse the taitamariki data that was collected from the SPARX RCT. The main aim of

the SPARX RCT was to investigate the efficacy of using CCBT (SPARX) to treat mild to

moderate depressive disorder in adolescents aged 12-19 years. The results along with a

discussion section will be presented in this chapter.

Study Aims and Hypotheses

The primary aim of this study was to test whether SPARX was as effective as treatment

as usual (TAU) for taitamariki with mild to moderate depression. The primary hypothesis was

that SPARX would decrease depressive symptoms for taitamariki as much or more than TAU as

measured using the Child Depression Rating Scale-Revised (CDRS-R) (Poznanski & Mokros,

1996) in this population immediately post treatment (four to eight weeks after completion of

treatment), and that any gains will be maintained at month five follow-up (three months post

intervention).

The secondary hypothesis was that SPARX would improve functioning on the self rating

measures such as; RADS-2, MFQ, PQ-LES-Q, Spence Anxiety Scale and the Kazdin HPLS, as

much as or more than TAU at month two post treatment when compared with baseline, and that

any gains would be maintained at the month five follow-up. Further that the Clinical Global

Impression Scale (CGI) would be improved with SPARX as much or more when compared with

TAU immediately post treatment and that this would be maintained at the month five follow-up.

Methods

Trial Design

The study was an assessor-blinded RCT that examined the equivalence of SPARX with

TAU. The nature of the interventions meant that it was not possible to blind the participants or

treatment providers. The rating scales that were utilised were administered by research assistants

(blind assessors) who did not have any access to data that may have un-blinded them. Eligible

participants were randomised to receive SPARX or TAU in a 1:1 ratio. The main criteria for

inclusion and exclusion in this study were the same as study two, described in chapter three.

Participants were assessed at four time points, baseline (pre-intervention), mid-

intervention (approximately one month post randomisation), post intervention (approximately

two months post baseline) and at month three follow-up (approximately five months post

baseline).   The primary and secondary outcome measures were assessed at baseline, post

intervention and at the month three follow-up. One month after participants began using SPARX

a brief assessment was conducted which assessed the safety of the participants. Satisfaction

surveys were conducted at post intervention and at month three follow up.

The control group for the RCT received treatment as usual (TAU). This was defined as

the usual management of adolescents with mild to moderate depression at the study site.

Clinicians were asked to describe the treatment they had provided to TAU-assigned participants. They were also asked about the duration, number and frequency of the sessions.

Recruitment of Participants

Participants were invited by School Guidance Counsellors (SGCs) and primary health providers to take part in the study. The duration of treatment was four to seven weeks (seven modules completed sequentially). Taitamariki were recruited from two youth health clinics and six schools.

Screening Eligibility Check and Consent Process

All participants under the age of 16 were given an information sheet and consent form for parents or guardians. Written consent was collected from all participants and from parents or guardians of those under 16 years of age. Participants were then screened for depression using the PHQ-9. Those in the mild to moderate range with scores of 10 to 19 inclusive and at low risk of self-harm were invited to complete baseline assessments. Suggestions about alternative treatment options were provided to those young people with severe depression and those at moderate or high risk of suicide. The safety assessment protocol has been described in chapter three.

Screening and Baseline Assessments

Once eligibility was confirmed, the baseline data was collected at pre-intervention beginning with demographic information (including any treatment to date for current episode of depression). The CDRS-R was administered by trained research assistants.

Statistical Analysis

Baseline data was summarised using standard descriptive statistics including means, medians, percentages, ranges and standard deviations as appropriate. The demographic information includes age, gender and ethnicity.

Adherence to treatment was measured by the number of SPARX levels completed. Four or more levels completed was deemed as being a good level of completion. Changes in the primary measure, CDRS-R, were compared between SPARX and TAU using a general linear mixed-model analysis. The differences in the changes between the groups were summarised as means and 95% confidence intervals. All analyses were based on the intention-to-treat principle and a two-tailed p-value <0.05 was taken to indicate statistical significance. This analysis incorporated the site/stratum as a between subjects factor and the baseline level as a covariate. The differences between the mean scores of the secondary measures were also compared between SPARX and TAU using a general linear mixed-model analysis.

Withdrawal Criteria

Participants could withdraw from the study at any time. If any participant became high risk due to self-harm or their depressive symptoms worsened during the study, they were referred for specialist support. The SPARX programme also contained a prompt advising participants to seek further help from their SGC or health professional if they met the risk criteria of the question being asked of them. Participants who were referred for extra help or withdrew from the study could continue to use SPARX, if they chose. Table 14 summarises the different time points within the study when information was gathered.

Table 14

Summary schedule of treatment and follow-up

Method of data collection at each point	Screening	Baseline	Month 1: telephone contact	Month 2: Post intervention	Month 5: Follow-up
Demographics		X			
CCBT			X	X	
Screening (PHQ-9)	X		X		
Risk/self harm assessment		X	X	X	X
CDRS-R		X		X	X
RADS-2		X		X	X
MFQ (long form)		X		X	X
PQ-LES-Q		X		X	X
Spence Anxiety Scale		X		X	X
Kazdin HPLS		X		X	X
CGI				X	X
Semi-structured interview				X	
AEs / SAEs		X			

Results

This next section contains the analyses and results of taitamariki from the SPARX RCT. This includes a description of the preliminary analyses of the dataset and a report on the primary and secondary outcome measures.

Baseline Demographic Characteristics

The ages of the participants are grouped into three age levels and are represented in Table 15 and further demographic information is presented in Table 16. All of the participants self-identified as being Māori.

Table 15

Age group information of participants

Age groups	SPARX	Treatment as usual	Total
14	4	4	8
15-16	19	14	33
17	1	3	4
Total	24	21	45

Table 16

Demographic information of participants

Gender	SPARX	Treatment as usual	Total
Female	17	16	33
%	70.8%	76.2%	73.3%
Male	7	5	12
%	29.2%	23.8%	26.7%
Total	24	21	45

Recruitment was conducted throughout New Zealand from May 2009 until July 2010. The follow up interviews were completed by December 2010. Primary outcome data were collected for all 45 taitamariki (SPARX N=24, TAU N=21) at the post intervention assessment and at five month follow-up. The data for TAU were provided for 21 taitamariki. These interventions included one on one counselling (N=13), and waiting list (N=8).

Of those that received SPARX, two taitamariki did not complete any levels, one completed four levels, two completed five levels and 14 completed all seven levels. Those taitamariki who received counselling as part of TAU, one received one session, two received three sessions, one received four sessions, one received five sessions and one received seven sessions (data not obtained for other TAU taitamariki N=7). All participants improved with a mean reduction on the primary outcome measure CDRS-R of -5.13 for SPARX and -6.87 for TAU, with reduction in depression scores maintained at three month follow-up (see Table 17 and Table 18). The secondary outcome measures had a reduction in their mean scores with SPARX achieving results comparable to TAU on all measures as indicated by Table 18. This did not reach statistical significance.

Table 17

Outcome scores at three study time points by intervention

Measure	SPARX Mean (SD)			TAU Mean (SD)		
	Baseline	Post intervention	Month 5 follow-up	Baseline	Post intervention	Month 5 follow-up
Primary outcome						
CDRS-R	42.42 (11.61)	37.29 (12.66)	31.79 (9.31)	42.48 (10.42)	35.59 (11.05)	35.60 (11.05)
Secondary outcomes						
RADS-2	72.45 (13.95)	65.74 (13.98)	63.50 (15.40)	75.28 (17.09)	64.14 (14.75)	60.57 (14.96)
MFQ	26.25 (11.18)	20.33 (13.50)	17.00 (11.57)	28.65 (14.69)	20.57 (14.04)	13.52 (9.48)
PQ-LES-Q	29.54 (10.69)	32.58 (11.22)	34.92 (10.68)	29.48 (10.56)	34.90 (11.00)	36.59 (9.75)
Kazdin HPLS-Scale	5.75 (3.61)	5.06 (3.25)	3.61 (3.58)	5.54 (4.35)	4.14 (3.68)	2.99 (3.26)
Spence Anxiety Scale (Total)	38.81 (15.88)	33.15 (16.63)	30.23 (14.98)	31.03 (20.15)	24.40 (14.00)	25.80 (13.38)

Table 18

Mean changes post intervention and at month 5 follow up

Measure	Mean change (95% CI) post intervention		F	p-value	Mean change (95%) from post to month 5 follow-up		F	p-value
	SPARX	TAU			SPARX	TAU		
Primary measures								
CDRS-R	⁻5.13 (⁻9.73-⁻1.78)	⁻6.87 (⁻11.25-⁻2.82)	0.173	0.680	⁻5.50 (⁻9.04-⁻1.96)	⁻5.40 (⁻8.89-⁻1.91)	0.002	0.969
Secondary measures								
RADS-2	⁻6.71 (⁻11.53-⁻2.45)	⁻11.14 (⁻15.10-⁻5.45)	0.917	0.344	⁻2.24 (⁻7.32-2.85)	⁻6.92 (⁻15.17-1.33)	1.066	0.308
MFQ	⁻5.92 (⁻10.56-⁻1.77)	⁻8.07 (⁻12.19-⁻2.84)	0.153	0.697	⁻3.33 (⁻7.20-.532)	⁻7.05 (⁻13.36-⁻731)	1.150	0.290
PQ-LES-Q	⁻3.04 (⁻.347-6.27)	⁻5.43 (1.88-8.90)	0.89	0.350	⁻2.34 (⁻.556-5.24)	⁻3.38 (⁻1.06-7.82)	0.177	0.676
Kazdin HPLS-Scale	⁻.692 (⁻1.74-⁻.624)	⁻1.39 (⁻2.69-⁻.18)	0.92	0.344	⁻1.45 (⁻2.38-⁻.511)	⁻1.86 (⁻3.30-⁻.422)	0.262	0.611
Spence Anxiety Scale (Total)	⁻5.66 (⁻7.98-⁻.253)	⁻6.66 (⁻12.07-⁻3.87)	1.61	0.212	⁻2.93 (⁻7.10-1.25)	⁻3.66 (⁻8.50-1.18)	0.057	0.812

Remission was defined as a CDRS-R score <28. Remission occurred in 33.3% (N=8) of those on SPARX and 28.6% (N=6) on TAU at month two post intervention and 45.8% (N=11) of those on SPARX and 47.6% (N=10) on TAU at the five month follow-up point.

Response rates were defined as a 30% reduction in symptoms on the CDRS-R and occurred in 50% (N=12) of those on SPARX and 57.1% (N=12) on TAU at month two post intervention. Seventy five percent (N=18) of those on SPARX and 71.4% (N=15) on TAU responded to treatment at the five month follow-up point.

In total, 12 adverse events were recorded for 10 taitamariki who participated in the study. Seven adverse events occurred in the SPARX group and five in the TAU group (see Table 19). There were four unrelated events, which included physical illness, injuries, reactions to situations such as loss of a loved one, and family stresses. Worsening in mood or self-harm was coded as possible (possibly related to the study) (8) on the grounds that the intervention may not have been effective (we classified the AEs while blinded to treatment allocation). A 'probable' event was related to a family disagreement about the young person's involvement in the study (0). When events were classified as 'possibly' or 'probably' related to the study, they were rated by severity. Out of the eight 'possibly' related event's one was deemed a least severe event, (defined as increase in anxiety, disengagement from school or a family disagreement about treatment). There were seven events, which were moderately severe events, which included worsening of mood, increase in suicidal thinking or deliberate self-harm (cutting) and referral for specialist care.

Table 19

Number of adverse events recorded during the study

		SPARX	TAU
Number of adverse events		7	5
Relationship to study participation	Unrelated	3	1
	Possible	4	4
	Probable	0	0
Outcome	Continue with study	6	4
	Withdrawn from study	0	0

Clinical Global Impression Improvement Scale

The results from the CGI scale show the degree of change compared to when the clinician first assessed the participants. Table 20 and Table 21 report the changes of the participants at the two month and five month follow-up time points.

Table 20

Overall scores on the CGI at 2 month post intervention

CGI categories	SPARX	Treatment as usual	Total
Very much improved	1	1	2
	4.8%	5.6%	5.1%
Much improved	7	7	14
	33.3%	38.9%	35.9%
Minimally improved	6	8	14
	28.6%	44.4%	35.9%
No change	2	0	2
	9.5%	0%	5.1%
Minimally worse	5	1	6
	23.8%	5.6%	15.4%
Much worse	0	1	1
	0%	5.6%	2.6%
Total	21	18	39

Table 21

Overall scores on the CGI at 5 month follow up

CGI categories	SPARX	Treatment as usual	Total
Very much improved	5	5	10
	22.7%	26.3%	24.4%
Much improved	5	7	12
	22.7%	36.8%	29.3%
Minimally improved	5	6	11
	22.7%	31.6%	26.8%
No change	5	1	6
	22.7%	5.3%	14.6%
Minimally worse	2	0	2
	9.1%	0%	4.9%
Total	22	19	41
	100%	100%	100%

SPARX Satisfaction Intervention Questionnaire at Month Two

Overall, 18 taitamariki completed the month two post treatment satisfaction questionnaires. Many taitamariki (72%) found SPARX was very useful or useful. A small number (28%) found it not very useful or not at all useful. In the questionnaire there were three sections to complete. Thirteen of the taitamariki reported SPARX was very useful or useful in teaching them about depression. Five taitamariki stated they were not sure if SPARX had taught them about depression. Of the 21 taitamariki completing TAU, 15 responded to the month two satisfaction questionnaire, ten reported that they had learnt about depression and of those, seven found TAU to be useful or very useful. Table 22 and Table 23 report taitamariki responses to the first section of the satisfaction questionnaire.

Table 22

Mean post intervention usefulness ratings SPARX

Section 1	Mean (SD)	N (%) who found it useful*	N (%) who found it not useful**
Do it, doing more makes you feel better	3.88 (.83)	15 (83.33%)	3 (16.66%)
Relax, slow breathing and muscle relaxation	4.06 (.94)	15 (83.33%)	3 (16.66%)
Solve it, problem solving and using steps	3.88 (.83)	13 (72.22%)	5 (27.77%)
Sort it, listening, assertive and negotiation skills	3.67 (.91)	13 (72.22%)	5 (27.77%)
Sort it, dealing with angry and hurt feelings	3.95 (.80)	14 (77.77%)	4 (22.22%)
Spot it, spotting negative feelings and thoughts	4.22 (.65)	16 (88.88%)	2 (11.11%)
Spot it, spotting positive or helpful thoughts	3.89 (.68)	13 (72.22%)	5 (27.77%)
Swap it, changing negative thoughts	3.73 (.89)	10 (55.55%)	8 (44.44%)

Ratings: 1='Not at all useful' to 5= 'Very useful'
* *'useful' consisted of 'very useful' and 'useful'*
** *'not useful' consisted of 'not useful at all', 'not useful' and not sure*

Table 23

Mean post intervention usefulness ratings for TAU

	Mean (SD)	N (%) who found it useful*	N (%) who found it not useful**
Being able to talk about my worries	4.45 (.68)	10 (66.66%)	1 (10%)
Dealing with stress	4.44 (.53)	9 (60%)	0
Doing things to improve my mood	4.22 (.44)	9 (60%)	0
Learning how to look after myself	4.00 (.53)	7 (46.66%)	1 (10%)
Dealing with school	4.70 (.48)	10 (66.66%)	0
Learning how to relax		9 (60%)	0
How I can change my unhelpful thinking	3.83 (1.17)	4 (26.66%)	2 (13.33%)
Dealing with family hassles	3.55 (1.30)	6 (26.66%)	5 (33.33%)
Learning about problem solving	3.71 (.95)	5 (33.33%)	2 (13.33%)
How thinking leads to feelings & actions	4 (.81)	7 (46.66%)	3 (20%)
Spotting unhelpful thinking	3.67 (.52)	4 (26.66%)	2 (13.33%)
Communicating & negotiating	3.57 (1.27)	5 (33.33%)	2 (13.33%)

Ratings: 1='Not at all useful' to 5= 'Very useful'
* 'useful' consisted of 'very useful' and 'useful'
** 'not useful' consisted of 'not useful at all' and 'not useful'

The second section asked participants to rate the main features of SPARX (see Table 24) from what they really liked (rating of 5) to what they didn't like (rating of 1). If any question was not applicable, participants were invited to check a box with the letters N/A. Table 25 sought opinions from taitamariki concerning what they liked about TAU.

Table 24

Mean post intervention SPARX satisfaction ratings

Questions	Numbers (N) (%)	Mean rating (SD)
It looks like a computer game	18 (100%)	3.89 (1.23)
You can learn things from it by yourself at your own pace	17 (94.44%)	4.53 (.51)
It has video clips of celebrities giving advice	8 (44.44%)	3.38 (1.40)
It is different from talking to a doctor or counsellor	18 (100%)	4.11 (1.02)
It showed me things I didn't know	18 (100%)	4.33 (.84)
I could do it at school/GP clinic/youth centre	17 (94.44%)	4.41 (1.02)
I could do it at home	10 (55.55%)	4.40 (.70)
It comes with a notebook I can keep	16 (88.88%)	3.69 (1.35)
It is made especially for young people	17 (94.44%)	4.24 (1.09)
It has a New Zealand look and feel	18 (100%)	4.39 (.78)

Ratings: "really liked"=5 to "didn't like"=1

Table 25

What taitamariki liked most about TAU

	Numbers (N) (%)	TAU Mean (SD)
Someone is there to support me	14 (93.33%)	4.71 (.61)
Someone listens to me	14 (93.33%)	4.43 (.94)
Learn by yourself at your own pace	13 (86.66%)	4.15 (.80)
Its different from talking to a friend	13 (86.66%)	4.00 (1.0)
Showed me things I don't know	12 (80%)	3.75 (1.0)
Talking about how to look after my emotional health	13 (86.66%)	3.77 (1.1)

The third section asked participants to circle an answer or write answers in the spaces

provided about the time it took to complete a level and the ideal length of a session (see

Table 26). For those that were in the TAU group information was gathered about attendance and length of sessions (see Table 27).

Table 26

Feedback on SPARX level completion time and length

		Percentages of SPARX participants
Length of time taken to complete a level N=18	< 20 minutes	16.7%
	20-30 minutes	50%
	30-40 minutes	27.8%
	> 40 minutes	5.6%
Ideal length of a level N=18	Longer	50%
	Stay as they are	50%
Challenges completed N=18	All of them	16.7%
	Most of them	38.9%
	Some of them	38.9%
	None of them	5.6%

Table 27

TAU completion rate and session length

	Rating	TAU sessions %
Were all sessions attended?	Yes	42.9%
	No	57.1%
How long did sessions last? N=14	< 20 minutes	7.1%
	20-30 minutes	7.1%
	30-40 minutes	21.4%
	>40 minutes	64.3%
Ideal length of sessions N=14	Longer	14.3%
	Stay as they are	85.7%
Tasks completed N=14	All of them	21.4%
	Most of them	14.3%
	None of them	7.1%
	I didn't have any set tasks to complete	57.1%

Additional information from the questionnaire indicated that SPARX appealed to all 18 taitamariki. For taitamariki (15) who received TAU, seven found it very useful while eight found it useful. Sixteen of 18 taitamariki reported that they would recommend SPARX to friends. Eleven out of eighteen taitamariki reported that they would share what they learnt with others. This included family (3), friends (5), and other (3).

Brief Satisfaction Intervention Questionnaire at Month Five

At month five taitamariki were asked to fill in a brief satisfaction questionnaire. The participants could give more than one answer to the questions about which SPARX or TAU skills they used and which ones have been useful. Sixteen taitamariki completed the SPARX month five follow-up questionnaire. Of these, 13 (81%) taitamariki reported that SPARX was very useful or useful and one reported SPARX was fairly useful. Only two (12%) taitamariki found it not very useful. All 15 TAU taitamariki who responded to the month five follow-up found TAU to be very useful or useful. Of the SPARX taitamariki, 14 (87%) reported that they used some of the skills learnt from SPARX. The most popular skill learnt was relaxation with 13 (81%) taitamariki endorsing this. Ten (66%) of the TAU taitamariki reported that they had used some of the skills learnt in TAU. With eight (50%) taitamariki reporting that problem solving skills were the most popular.

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Discussion

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Statement of Main Findings

SPARX was no worse that TAU in reducing depressive symptoms on the primary outcome measure CDRS-R. The mean scores dropped to within normal range at the follow up time point. This resulted in the taitamariki group shifting one category on the primary depression measure (CDRS-R) where a possible depressive disorder is likely to be confirmed in a comprehensive diagnostic evaluation to a depressive disorder being unlikely. SPARX also

led to an improvement on all secondary outcome measures with SPARX achieving results comparable to TAU on all measures.

Studies two and four demonstrated efficacy for taitamariki. The mean score on the CDRS-R (study two) in comparison to the mean score from the SPARX RCT was larger. This could be due to a number of factors such as the assessors being unblinded in study two (perhaps evidenced by non-significant results on the RADS-2 and the MFQ). Further, the taitamariki from study two had higher initial CDRS-R mean scores thus having more severe depression symptoms when compared to the taitamariki from the SPARX RCT.

It was a concern that on the month two (post treatment) CGI measure, five of the 21 taitamariki appeared to be minimally worse. However, at the five month follow-up this changed to just two of 22 taitamariki appearing to be minimally worse. This measure assisted in providing an observational measure that was an added safety measure for taitamariki.

In total there were 12 adverse events. While this is a concern it should be noted that four of these were coded as being unrelated events, such as physical illness, injuries, reactions to situations such as loss of a loved one, and family stresses. There were seven events that were moderately severe events, which included worsening of mood, increase in suicidal thinking or deliberate self-harm (cutting). It was important that the risk protocols that were in place were able to assess and manage taitamariki who needed acute support, by referral to specialist help when needed.

This study demonstrated that converting CBT into a fantasy based computerised game format is an intervention for taitamariki that is as effective as receiving TAU for mild to moderate depression. The gains that were made at post intervention time were also maintained at the five month follow-up point. This is in contrast to other computerised interventions such as Reach Out Central where a decrease in scores for females was not

maintained at follow-up, and the males' scores for support, avoidance behaviour and resilience, indicated a non-significant worsening effect (Shandley, Austin, Klein, & Kyrios, 2010).

Strengths of the Study

To my knowledge, research pertaining to CCBT and ethnic minority groups is non-existent and this current study is a step towards investigating how effective CCBT can be for ethnic minority groups. Further, this study has been able to gather a Māori sample size that is much larger than previous studies that have addressed CBT for Māori (Bennett, 2009) and CCBT that was conducted with a NZ population (Stasiak, 2008).

Strengths include the use of stringent inclusion and exclusion criteria and clinician and self-rating psychometric scales. There were secondary data collected also with the use of validated scales that provided a broader understanding about anxiety, quality of life and hopelessness. The assessors were blinded to whether participants were receiving SPARX or TAU. Treatment effects persisted to three months after completion of SPARX. The satisfaction questionnaires provided a range of data that indicated what specific therapeutic techniques worked well for taitamariki.

With the CGI, the clinicians who were assessing these taitamariki were able to notice a clinical difference in their presentations over time. The majority of taitamariki were observed to have improved. The self-report questionnaires at the two and five month follow up time points both reported high satisfaction levels with the SPARX resource. It was important to understand taitamariki thoughts about the skills they liked and which skills they would continue to use. Adherence was good compared to ROC.

Limitations of the Study

I could not be certain that the improvements gained were not due to natural improvement in both of the groups. However this is unlikely due to the fact that the mean

length of a depressive disorder in this population group is six to nine months (Kovacs, Feinberg, Crouse-Novak, Paulauskas, & Finkelstein, 1984). There are also a number of studies that have limited decrease in depressive symptoms with no intervention (Shochet et al., 2001). Even though SPARX was not compared to a placebo, placebo effect is relatively short-lived (Stasiak, 2008) and the improvement from SPARX did continue in the taitamariki population until the three month follow up period.

This study contained a small sample size, and hence lacked the power to show significant change, therefore making the results difficult to generalise to the Māori population. Research of this nature is important, as it is rare in New Zealand and in ethnic minority populations throughout the world (Bryant & Harder, 2008; Miranda et al., 2005).

Summary

The results of study four support the results of study two. Taitamariki with depression have an improvement in symptoms that is as good as TAU, both in an open trial and in an RCT. Although underpowered to show a significant difference, the findings are similar to those from the main SPARX RCT. Satisfaction rates were also high for the use of SPARX.

CHAPTER SIX: REVIEW and CONCLUSIONS

In this chapter I begin by outlining the main research question of this body of work, followed by a review of the major aims and the key findings from the four studies. The strengths, limitations and directions of future research, will also be discussed. The main focus of this body of work was an investigation into the design, applicability and effectiveness of a CCBT resource (SPARX) for taitamariki presenting for help for mild to moderate depression.

Overview of Studies

This body of work is the first step towards developing CCBT resources for taitamariki who are experiencing mild to moderate depression. In this thesis I have described how the views of taitamariki and their whānau concerning CCBT were used to refine and develop a CCBT resource, SPARX, to ensure its applicability for young people in New Zealand, and particularly for Māori. I have tested its acceptability and completed a study of its use in a group of taitamariki and shown that its completion was associated with improved mood, anxiety and hopelessness. User feedback from taitamariki about their experience of SPARX was also positive. I also conducted a sub-group analysis of the Māori young people recruited for the main RCT of SPARX. This showed that SPARX was no worse than TAU for treating depression in taitamariki. The small sample sizes, particularly with studies one, two and three, and the small number of males in study two, mean that the results are not necessarily generalisable, and should be confirmed in larger studies.

Key Findings of Studies

Putting all of these studies together I have shown the following results.

Study One: An investigation into the Design Features of SPARX

Study one was vital as it assisted in providing clarity and direction for the development of SPARX to ensure applicability and acceptability for Māori. The feedback gained from the focus groups was given to the project management team. Several changes were adopted for the main programme. This included having audio files for most of the text, supporting the use of Māori words and addressing the difficulty level for puzzles and challenges within SPARX. Participants appeared able to learn CBT skills (such as relaxation) without the aid of a therapist. These findings provide evidence and build on previous work (Richardson et al., 2010; Stasiak, 2008), that young people can learn skills via e-learning strategies. The focus group feedback indicated SPARX had the look and feel of a commercially produced game.

Most of the participants were aware of the Māori designs within the SPARX environment and thought the designs enhanced the engagement and gaming experience of SPARX. This study was able to show that the design features were applicable to taitamariki and their whānau.

Study Two: Quantitative Pilot Study

In study two, testing SPARX in an open trial showed there was a significant reduction in depression scores rated on the CDRS-R. The mean scores dropped substantially to within the normal range at the two-month follow-up time point and this decline was maintained at the five-month follow-up time point. This resulted in the taitamariki group shifting two categories for depression symptoms on the CDRS-R, from a category where a depressive disorder is likely, to a depressive disorder being unlikely. There was also a significant improvement in quality of life shown on the PQ-LES-Q, and a reduction of anxiety measured on the Spence Anxiety Scale. The other secondary measures such as the RADS-2 and MFQ-

LV measuring depression and the Kazdin Hopelessness Scale showed a drop in scores although these were not significant, probably because of the small sample size.

The clinicians assessing the taitamariki noticed a clinical difference in their presentations over time using the CGI. The majority of taitamariki were observed to have improved. The self-report questionnaires at the two and five month follow up time points both reported high satisfaction levels with the SPARX resource. Taitamariki articulated which skills they liked and which skills they would continue to use. This study was able to demonstrate that SPARX can reduce depression symptoms and improve quality of life.

Study Three: Qualitative User Feedback Study

Study three provided information concerning the design and applicability of SPARX for taitamariki. Taitamariki found SPARX to be helpful because it taught relaxation and cognitive restructuring skills. It helped improve participants' mood, increased their level of hope, and in some instances was used by whānau members to good effect. The Māori designs were appropriate and the ability to customise the characters with Māori designs enhanced cultural identity. The Guide was easy to understand and the Bird of Hope encouraged taitamariki to be hopeful. In terms of the game design, the character control mechanism worked well. In general, participants found the puzzles to be difficult. The booklet that accompanied the resource was useful as it provided a place to write one's thoughts and feelings.

Many themes that emerged from follow-up interviews in study three reinforced the themes from study one. These themes showed SPARX was able to teach CBT skills (relaxation and cognitive restructuring) and that SPARX is like a computer game that can help with depression. The findings confirmed that participants were able to learn CBT skills without the aid of a therapist, Māori designs enhanced the engagement and gaming

experience, and taitamariki appreciated the ability to customise their own playing character. The findings also indicate that for Māori participants in the study, SPARX did meet the aim of being culturally appropriate for them. For some taitamariki the inclusion of Māori designs affirmed their Māori identity, which appeared to enhance well-being.

Taitamariki reported that some whānau members demonstrated an interest in participating in SPARX. Taitamariki reported that once whānau members became engaged in SPARX they could be helped, with one example cited being an improvement in the quality of whānau relationships.

Overall, whānau clearly indicated that they would benefit from support whilst their young person was receiving a therapeutic intervention. This contributes to research findings that clearly articulate that whānau need to be engaged and supported when their young person is receiving support (Durie, 2001). The practice implications for the child and adolescent mental health field are that when intervening in a taitamariki life, the whānau should be actively resourced to ensure they are able to support their taitamariki.

Study three therefore reinforced the findings from study one, which were that the design features were applicable to taitamariki. Further, study three provided feedback about what taitamariki found positive about the SPARX resource.

Study Four: Analysis of Māori Data from RCT

This study demonstrated that converting CBT into a fantasy based computerised game format is an intervention for taitamariki that is as effective as TAU in reducing depressive symptoms on the primary outcome measure CDRS-R for mild to moderate depression. The gains that were made at post intervention were also maintained at the five-month follow-up point. This is in contrast to other computerised interventions such as Reach Out Central where a decrease in scores for females was not maintained at follow-up (Shandley et al.,

2010). At the five-month follow-up the mean scores dropped to within normal range on the CDRS-R. The secondary outcome measures had a reduction in their mean scores, with SPARX achieving results comparable to TAU on all measures.

With the CGI, the clinicians assessing the taitamariki were able to notice a clinical difference in their presentations over time. The majority of taitamariki were observed to have improved. The self-report questionnaires at the two and five month follow-up time points both reported high satisfaction levels with the SPARX resource. It was important to understand taitamariki thoughts about the skills they liked and which skills they would continue to use (behavioural activation, relaxation, problem solving, negotiation and anger management). This study was able to demonstrate that SPARX was as effective as TAU and provided important support for the initial findings from study two.

Both studies (two and four) demonstrated efficacy for taitamariki. The mean reduction scores on the CDRS-R (study two) in comparison to the mean reduction scores from the SPARX RCT were larger. This could be due to a number of factors such as the assessors being unblinded in study two (perhaps evidenced by non significant results on the RADS-2 and the MFQ). Further, the taitamariki had higher initial scores, thus having more severe depression symptoms when compared to the taitamariki from the SPARX RCT.

Strengths of this Body of Work

There are few studies that have reported the use of CCBT for the treatment of adolescent depression (Richardson et al., 2010). Therefore this body of work is unique as I have been able to ensure the input of the views of indigenous people into the development of a computerised resource for depression and test its acceptability and effectiveness for taitamariki. In the development of SPARX e-learning theories and relevant media design features resulted in good engagement and motivation of the taitamariki. There is a high

degree of interactivity with SPARX, and participants were able to experience CBT skills via the medium of an avatar. This finding is important as previous research states that the absence of therapist contact during CCBT was associated with poorer outcomes (Gellatly, Hennessy, Richards, Gilbody, & Lovell, 2007; Spek et al., 2007). These studies perhaps challenge this notion and begin to open the way for wider therapeutic application of CCBT interventions. Statistics show that there is a dearth of adolescent mental health clinicians available to treat mild to moderate depression for adolescents (Richardson et al., 2010). The programme SPARX could be made available to taitamariki and whānau who have difficulty accessing a mental health clinician, because they either live in a rural area or perhaps do not meet the service criteria of their local government subsidised service.

In designing SPARX, we wanted to use proven e-learning strategies (Dede, 2009) that would maximise interactivity. This approach resulted in high adherence rates and satisfaction levels for taitamariki. This is a major strength of SPARX. A systematic review showed that on average only 56% of participants completed all sessions of a CCBT resource (Waller & Gilbody, 2009), a further systematic review for internet interventions for depression showed that adherence rates ranged from 50-70% (Christensen, Griffiths, & Farrer, 2009). The response and remission rates (75%, 45.8%) of SPARX for taitamariki were comparable to rates of effective monotherapies such as antidepressants and CBT (March & Vitiello, 2009).

There are several strengths of the methodological approaches that I used. I used a mixed methods approach where the qualitative information collected was complemented by the quantitative results. The use of stringent inclusion and exclusion criteria, and clinician and self-rating psychometric scales assisted in the strong research design of this study. Secondary data collected provided a broader understanding about anxiety, quality of life and hopelessness. For study four, participants were randomised to treatment and independent assessors were blinded to intervention received by the participants.

The satisfaction questionnaires provided a range of data that indicated that this method of delivery of intervention worked well for taitamariki. The self-report questionnaires at the two and five-month follow-up time points both reported high satisfaction levels with the SPARX resource.

This body of work utilised kaupapa Māori methodology, which involved employing methods that aided in the process of building relationships with Māori. Additional time was allocated for consultation with Māori and the implementation of Māori protocols. Cultural guidelines (tikanga) were followed, which enabled a sensitive approach to working with taitamariki, whānau and their wider communities. The use of te reo was included in the research process as it helped connect taitamariki and whānau to SPARX and possibly gave them some ownership of the SPARX programme.

A whānau perspective is a strength of the current study as whānau were actively sought and interviewed about their opinions of the CCBT prototype. Whānau were able to provide important information about what would be beneficial for them to achieve well being (whānau ora). This approach aligns with the New Zealand government's response to whānau well-being which is to develop a social policy about whānau ora (healthy whānau) (Ministry of Health, 2002a). For the concept of whānau ora to be achieved, Māori will need to improve their mental health and wellbeing. The SPARX resource may be one particular way to help achieve whānau ora.

A self report survey was conducted of parent's (N=37) attitudes to CCBT and found that parents were concerned about the lack of face to face contact with users of CCBT (Stallard, Velleman, & Richardson, 2010). However studies one and three have demonstrated that a whānau approach to the use of CCBT for their young person may help to negate these attitudes about a lack of human contact for users of CCBT.

A unique quality of SPARX is that it incorporates Māori cultural designs, which further aimed to increase the engagement and motivation of participants. The ability to customise the characters with Māori designs was beneficial as this enhanced cultural identity. This current research demonstrated that CCBT presented in a culturally relevant way, is acceptable and possibly efficacious for taitamariki. This is important as a recent systematic review concerning CCBT for the prevention and treatment of depression and anxiety in children and adolescents (Richardson et al., 2010) showed that ethnicity is seldom reported, which makes it unclear whether CCBT programmes need to be culturally adapted. This body of work, particularly the qualitative information, suggests that culturally tailored programmes can enhance the learning experience for indigenous groups. As discussed previously culturally adapted mental health interventions can be more effective (Griner & Smith, 2006).

Limitations of this Current Research

This body of work was exploratory in nature and contained small sample sizes, particularly the first three studies. Study two lacked the power to detect anything but large changes. This limits the generalisability to the Māori population. However, study two still managed to demonstrate that SPARX was effective, which is unusual for small studies. Research of this nature is important however as it is rare in New Zealand and in ethnic minority populations throughout the world (Bryant & Harder, 2008; Miranda et al., 2005). A recent example of the challenges involved in recruiting a Māori sample in New Zealand was discussed in Bennett's (2009) PhD study in which he investigated a culturally adapted CBT programme to address depression for Māori (N=16). One of the challenges is that large sample sizes (N=176) are needed in order to power studies so that they can detect a medium effect size (d = 0.5) (Bennett, 2009).

The difference between SPARX and TAU on the main outcome measure the CDRS-R was not statistically significant. However, the main SPARX trial was a randomised controlled non-inferiority trial to compare SPARX with TAU. Non-inferiority trials are intended to show that the effect of a new treatment is not worse than that of an active control by more than a specified margin (Snapinn, 2000). A limitation with study four is that non-inferiority trials have to be powered to ensure that they are not significantly worse than the comparison treatment. A further limitation of Study four was that it was not powered to detect small differences.

I could not be certain that the improvements gained in studies two and four were not due to natural improvement in all of the groups. The design of the studies did not allow me to rule out spontaneous improvement in both groups. However this is unlikely due to the fact that the mean length of a depressive disorder in this population group is six to nine months (Kovacs et al., 1984). Furthermore, in a comparable population over 50% of young people with similar levels of depression symptoms failed to recover (Gledhill & Garralda, 2010). Even though SPARX was not compared to a placebo, placebo effect is relatively short lived (Stasiak, 2008). A pilot study of a CCBT intervention (Stasiak, 2008), The Journey, which informed the development of SPARX showed that it was more effective than a placebo computerised intervention. The improvement from SPARX did continue in the taitamariki population until the three-month follow-up period.

Some taitamariki appeared worse at the follow-up points from study four. This was a concern that on the month-two (post-treatment) CGI measure, five of the 21 taitamariki appeared to be minimally worse. However, at the five-month follow-up this changed to just two of 22 taitamariki appearing to be minimally worse. As outlined above the study was not powered to detect small changes, and future studies should be designed to take into account the possibility that some young people may get worse on treatment.

There were a number of adverse events that occurred in the SPARX treatment arm. The control group TAU also contained 4 possible events which highlights that this is an at risk population that does make self harming attempts. The SPARX research had safety protocols in place and regular checks of safety were carried out, at 1 month and 2 and 5 month follow-up time points.

This body of work did not explore the criticism that SPARX and computer games limit the opportunity for the development of social skills (which are helpful to manage depression). Research suggests that computer use can be a solitary exercise and hinder the development of social relationships, that approximately one-fifth of children aged from eight to 18 have a computer in their bedrooms, and 60% of this use occurs in isolation (Subrahmanyam, Greenfield, Kraut, & Gross, 2001). However, further research has shown that regular game players do meet friends out of school hours more frequently than less regular game players and no differences were identified in social skills of young people who played computer games compared to non-players (Subrahmanyam et al., 2001).

Limitations of SPARX Design and Customisation

A potential limitation for taitamariki who used SPARX is that some may have felt pressure to identify with traditional identity markers when using the customisation process to construct a Māori looking character (Borell, 2005). Borell (2005) emphasises that some taitamariki may not adhere to traditional identity markers and this should not be a barrier to developing psychological well-being. Therefore, it would be important as a research team not to draw inferences about taitamariki identity based on whether or not they are constructing a character within SPARX that is Māori looking.

Some participants wanted to know more information about the characters' backgrounds or whakapapa in SPARX. A potential strength for SPARX would be the

inclusion of whakawhanaungatanga, (Māori concept about interrelationships) which is paramount for Māori mental health, as this can be used to increase taitamariki connectedness with their whānau and wider support networks (Durie, 1994).

The male participants in the focus groups wanted more physical activities, such as fighting, shooting creatures or other characters, or activities such as fishing and skate boarding. This was important feedback as research shows that males are less likely to complete CCBT programmes (Richardson et al., 2010). One of the challenges was that we did not want to include violent content within SPARX, although we did include shooting GNATS as a result of the feedback received. We had to ensure that SPARX could be used by people who were inexperienced gamers as depression is more of a concern for adolescent females than for adolescent males (Adolescent Health Research Group, 2003a). As a result of trying to balance the level of difficulty we received criticism that the puzzles and challenges within SPARX were too easy. The design team took this feedback and developed more difficult challenges and puzzles but the intervention would not compete well with commercial games. As this is explicitly an intervention for depression, and would be offered instead of counselling or may be provided when no care is available, this issue is probably not a major problem.

Comparison with other Research Conducted in this Area

As discussed in the literature review there is little published literature regarding psychological interventions for Māori (Glover & Hirini, 2005) and no published literature in peer reviewed journals regarding RCTs of CBT for Māori. A strategy for working effectively with ethnic minorities has been to adapt interventions for indigenous groups but there are many contrasting thoughts and opinions about what constitutes an effective cultural adaptation (Griner & Smith, 2006).

A recent example of indigenous research in NZ is Simon Bennett's PhD, which culturally adapted a CBT treatment programme for Māori Adults. Although Bennett's (2009) research was conducted with an adult population he has demonstrated the merit of culturally adapting a CBT intervention. Bennett's research accompanied with this body of work demonstrates the value of culturally adapting CBT interventions as it has the potential to save on resources such as clinician input. However this should not negate the development of indigenous interventions that are solely based on for example, Māori beliefs, values and practices.

If the net is widened an examination of the literature regarding indigenous people such as the Native American (NA) people reveals that there is very little empirical data about CBT and its effectiveness (Jackson et al., 2006). Ethnic minorities are largely missing from efficacy studies that make up the evidence base for treatments (Bryant & Harder, 2008; Horrel, 2008; Miranda et al., 2005). This has been largely because major studies have not collected data related to ethnic identity, or they have lacked the statistical power to make the necessary comparisons as the sample groups containing ethnic minorities have been too small (Miranda et al., 2005). A review by Horrell (2008) examined the effectiveness of CBT with adult ethnic minority clients and demonstrated that CBT was effective at reducing a whole range of symptoms such as depression, PTSD, GAD and Panic Disorder (Horrel, 2008). Although the research from the review was conducted with adults and it was not a computerised intervention, the comparison is important as it highlights the dearth of research pertaining to Māori and indigenous people and their use of CBT. The data gained from this current body of work (even though it is a small contribution) will add much needed information about the effectiveness of CBT for Māori and indigenous people groups. Further the results from the SPARX research projects can be seen as being even more impressive

when one considers that there was minimal input from a clinician to monitor progress. Hence the potential use of SPARX as a universal intervention for depression could be considerable.

There have been three RCT's of a computerised intervention for depression conducted by the research group that developed SPARX (Merry et al., 2011). A small pilot study (Stasiak, 2008) demonstrated a significant reduction in depressive symptoms when compared to a placebo (computerised programme). The second small study (Fleming, Dixon, & Merry, 2011) demonstrated SPARX to be more effective than waitlist for young people that were no longer receiving mainstream education because they had been excluded. The results of the third, the main RCT study described in this thesis, of which study four is a sub-group analysis, have been submitted for publication. A recent systematic review (Richardson et al., 2010) identified six studies pertaining to four interventions for children and adolescents. Apart from the research conducted with the SPARX intervention, the above studies contained little information regarding the efficacy of CCBT for ethnic minorities in terms of treatment for depression. SPARX has led to high levels of satisfaction and high completion rates unlike other recent research (Calear, Christensen, Mackinnon, Griffiths, & O'Kearney, 2009; Shandley et al., 2010).

Further Research-What is Needed Next?

The feedback that taitamariki were personally identifying with the characters in SPARX and viewed them as teaching useful skills was an important finding. The area of computerised therapy would benefit from more research, in particular to what extent taitamariki become involved with computer characters, and whether this connection or role modelling can be used for therapeutic gain. SPARX also appears to be an effective way to teach psychological education to young people. This form of pedagogy can be further researched to investigate other mental health issues such as anxiety and trauma that should be

addressed in order to rectify the high mental health needs of taitamariki (Adolescent Health Research Group, 2003a).

An area for further research is the application of SPARX to whānau ora. Participants reported that the well-being of whānau is as vitally important as the well-being of the individual. This point was clearly made when whānau stated that they would like resources to support them while their taitamariki were completing the SPARX programme. The findings from this body of work suggest that some whānau have gained psychological support from SPARX and that SPARX could play a role in strengthening whānau ora. Further research could focus on SPARX being used either in its current format or an adapted format to meet the mental health needs of whānau. Resources could include an extra module within SPARX or a booklet providing psychological education to whānau about depression.

Some parents and caregivers were adamant that whānau need to be involved before their taitamariki used SPARX, while other parents or caregivers were interested to find out at some point in the process that their taitamariki were using SPARX. As discussed in the literature review, the over promotion of independence may be a less relevant indicator of a healthy functioning person for some Māori and taitamariki. However, this raises an important issue about confidentially for taitamariki in that some may want to use SPARX without their parent's or caregiver's consent. This area needs further consideration and research.

This programme was trialled with young people and Māori who had mild to moderate depression and where there was a low risk of self-harm. SPARX may be just as effective for those with more severe symptoms of depression, however this research would need to be conducted in an environment where there was support from a clinician. There is an evaluation currently under way, which is investigating SPARX in an inpatient child psychiatric unit.

A replication of the results from this body of work with a focus on taitamariki and how whānau can be supported while their young person is completing SPARX is warranted. This would include an RCT with a larger sample size (i.e., N=200), as this would give sufficient power to the study to detect a significant difference.

The initial results concerning taitamariki from the SPARX RCT provide just cause to begin collaborations with other researchers involved with indigenous populations around the world. Additionally, since there is a dearth of research about CCBT and indigenous peoples, this would be a vital step to provide supports for indigenous young people who experience depression.

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Appendix A: Participant Information Sheet

Kia ora, you are invited to take part in a focus group to discuss a computer game to help young people deal with low mood.

Background

People are worried about teenagers who become depressed. By the age of eighteen up to a quarter of young people will have suffered from some form of depression. Some studies overseas have shown that fairly simple and sensible strategies may help teenagers deal with feeling down before it develops into a more serious problem. Those skills can be taught using interactive computer programmes. Two years ago we developed and piloted a computer game with encouraging results and positive feedback.

This project

The Ministry of Health has given us funds to improve the game (e.g. improve graphics, include new characters, music etc). Based on the previous feedback we are also looking at new scenarios and the inclusion of stories from various celebrities.

We would like to hear your views and feedback on our ideas so that we can make the programme attractive and useful. We are running a series of focus groups in a number of schools and youth organisations.

What would be involved?

If you're 16 or older, we would like to invite you to a focus group at your school/organisation. The group will take approximately 1.5 hours and it will be run by two researchers. We will bring a laptop to show our design ideas and ask everyone for their feedback on our design/characters/ scenarios and suggestions for improvements. We would like to come back to your school/organisation about 6-8 weeks later and bring our refined ideas and discuss them further. As a thank you for your time and contribution to this project you will get a gift voucher for $20.00.

What about confidentiality?

Given the nature of the focus group, confidentiality cannot be guaranteed. You can withdraw from the discussion at any time but the information provided up to that point has to remain in the group. The interviews will be audiotaped and the recordings will be transcribed by someone who has signed a confidentiality agreement. You will not be able to be identified when we write up the results. All the identifying information about you will be kept under lock and key at the Department of Psychological Medicine at the University of Auckland for six years and only the research team will have access to it.

What if the discussion makes me feel worried about my health?

We hope that you will find the discussion enjoyable and fun. However, if during or after the discussion you feel worried about your health, we would like you to let us know. You could tell your school guidance counsellor or contact any one of us and we will help you find appropriate support.

More questions?

We are happy to give you more information and answer questions. You can contact us directly - just give us a ring on the numbers below. We can arrange to see you at school if you'd like.

Dr Sally Merry	*Karolina Stasiak*	*Matt Shepherd*	*Prof Rob Kydd*
Principal investigator	Study Manager	*Ngati Tama*	Head
Office: 3737599 ext 86981	Office: 3737599 ext 83890	Research Fellow	Dept of Psychological
Email: s.merry@auckland.ac.nz	Mob: 021 385677	Office 3737999	Medicine
	Email:		Office 3737999
	k.stasiak@auckland.ac.nz		

Any ethical concerns?

Contact: The Chair, The University of Auckland Human Participants Ethics Committee, The University of Auckland, Room 005 Alfred Nathan House, 24 Princes Street, Private Bag 92019, Auckland. Tel: 3737599 extn. 83711

Appendix B: Consent Form
This form will be held for a period of six years

I have read the Information Sheet. I have had the opportunity to discuss this study with the researcher. I am satisfied with the answers I have been given. I have had time to consider whether I will take part. I know who to contact if I or have questions about this study.

I understand that taking part in this study is voluntary (up to the participants) and that I may withdraw from the study or the discussion at any time. **However the information provided up to that point has to remain in the hui.**

I understand that participation in this study is confidential and that no material which could identify me will be used in any reports on this study.

I wish to receive a copy of the results (please circle)   *YES   NO*

I _____ (full name of participant) hereby consent to take part in this study

Signature of participant

_____
Date _____

Project explained by **Matthew Shepherd** (full name of researcher)

Signature of researcher _____

Date _____

APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE ON 09/08 FOR 3 YEARS REFERENCE NUMBER 2007 / 078

Appendix C: Youth E-Therapy Focus Groups – Interview Guidelines for Taitamariki and Whānau

1) Mihi whakatau / Karakia and introductions
   a. Introduce ourselves, get participants to introduce themselves (break the ice!), introduce what the project is all about.
   b. Outline what we want in terms of their feedback, any ground rules, how we will structure this section.
   c. Get their signed consents if not already done.

2) Let them see the programme (using one laptop and data projector).

3) Seeking feedback re game look - specifically the cultural content
   a. Give reminder – any opinions are OK, feedback will help us make this a useful tool.
   b. 1st impressions – ask for a word or comment from each person.

   c. First of all thinking about the style or look of the game, what did you think about how 'The Journey' looked?
   What did you think about the Māori designs and the Māori costume on the character?
   Did these help you to engage with the game, If not what would help?
   Did it look fun/ like a game/boring/ too young?
   What did you like about it? What did you not like about it?

   Drilling down for specifics:
   What did you think about the character that you could be?
   What about the other characters – guide/ mentor/ NPC's?
   What did you think about the fantasy setting / story?
   What about how the island/ scene looked?
   How was it moving through the island as a game – i.e. was it too fast/ slow/ did you know?

4) Seeking feedback re content.
   Now thinking about the content or the information in the programme – remember this is for young people who are feeling down/ low and want some help with feeling better.
   - What did you think about the content?(prompts if needed – helpful/ too complicated/ enough explanation/ didn't know what it was on about/ easy to understand…).
   - Could use continuum 'would you be likely to use it if you had difficulties with feeling down' – stand across room from 'no way' to 'definitely'.
   - What would be good about using this programme/ what would be not so good?
   - What did you like about the content?
   - What did you not like about the content?

   Drilling down for specifics
   - Did it seem relevant for teenagers who are feeling down?
   - Do you think people like you could learn from it?
   - Was there enough information?
   - Was the information helpful?
   - Were the words and language used appropriate – easy to understand but not babyish?
   - Any other comments.

5) Seeking feedback re breadth of appeal & content.
   - Who do you think might use this programme – all young people? – males/ females/older or younger teenagers ?

6) Seeking written feedback – give each person a written sheet and pencil and ask them to fill it in now (see next page).

7) Thanks, any questions? Poroporoaki-Karakia.

Appendix D: Focus Group Questionnaire

<u>Your Opinions Count!   Focus Groups – Written Feedback</u>

Thank you for participating in the group!

1)   How much were you able to express your opinions in the focus group? (Circle one answer)

1	2	3	4	5
Not at all	a little	half the time	a lot	totally

Comment (a chance to explain why you picked the answer you chose)

2)   Overall what did you think about the look and style of the game? (circle one answer)

1	2	3	4	5
Didn't like it at all	liked it a little	it was neither good nor bad	liked it	liked it a lot

Is there anything you would like to say about the style or look of the game that wasn't said already in the group?

3)   Overall what did you think about the content (messages and information to help people) in the game? (circle one answer)

1	2	3	4	5
Didn't like it at all	liked it a little	it was neither good nor bad	liked it	liked it a lot

Is there anything you would like to say about the content (messages and information to help people) that wasn't said already in the group?

4)   Overall what did you think about the cultural content (Māori costume design and building/environment designs) in the game? (circle one answer)

1	2	3	4	5
Didn't like it at all	liked it a little	it was neither good nor bad	liked it	liked it a lot

5)   Any other comments you would like to make?

6)   To help us understand how well the game suits different types of people please tell us a little about yourself.
         Your age_____   Your gender _____   Your Ethnic Group_____
         Have you ever suffered from feeling down or low for more than a few days in a row? Yes/No.
         If you were feeling down, would you like to be able to use a resource like this?   Yes/No.

Thank you for you feedback ☺

APPENDIX E: PARTICIPANT INFORMATION SHEET

Kia ora, we would like to invite you to a study to see if using a computer programme can help young people with depression.

Background

Lots of young people get depressed and most don't get help. Two years ago we ran a small study in which we trialled a computer programme to help young people when they were feeling low. This worked well and young people gave us ideas on how to improve the programme further. Our new programme, called SPARX, is designed as a 3D game with challenges and puzzles, as well as information about ways of managing feelings. We would like to see how it compares with the help young people normally get from a school guidance counsellor (SGC), or health professional.
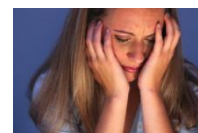
How did we choose you?

Your school has agreed to ask young people with depression if they would like to take part in the study. We will be inviting 25-30 young people to take part. **Taking part in this study is entirely voluntary. You do not have to take part.** Your SGC will not mind if you decide not to take part. You can also opt out of the study at any time without explanation.

What would be involved?

You will be asked to complete questionnaires about your mood and feelings, which will take about half an hour. You will also be seen by a trained researcher for an interview that will take 30-40 minutes. You will then complete the SPARX programme.

SPARX contains seven modules and is completed over a period of four to eight weeks (in total about four hours). You can complete the programme at school or in a health clinic.

One month after you start the study, the trained researcher will phone you to check how you are doing. If you are doing the computer programme and you need more help, the researcher will help you. After you complete SPARX or finish the treatment with your SGC/health professional we will ask you to fill out some questionnaires and see our researcher. We would then like to see you 3 months later, to see how you are getting on. The whole study will take up to 5 months from consent to completion of follow-up.

If you decide to join in, you will be free to change your mind and withdraw from the study at any time without giving reasons. You will also be able to remove the information you provide us, up to 2 weeks after the completion of each questionnaire.

Are there any risks to being in the study?

We don't think that there will be any risks to those taking part in the study and we hope that everyone who takes part will feel much better at the end. You will be provided with contact details of people you can call, if you need support through the study. If you feel worse or want more help during the study, we ask that you contact your SGC/GP as soon as possible.

Are there any benefits to being in the study?

In general, people taking part in studies benefit from them, probably because of the extra help they get and the questions they are asked.

What about confidentiality?

All the information you give us will be confidential and you will not be able to be identified when we write up the results. All information about you will be stored securely at the University and only the research team will have access to it. However, if we are worried about you because we think you are very depressed or suicidal, we will suggest that you seek help. We will tell your parents/caregivers about our concerns, if you are under 16. If we are very worried about your safety we will call your parents/caregivers and/or health professional who can provide help. If you give consent, your GP will be informed about your participation in this study and be given progress reports if appropriate.

What about the Treaty of Waitangi and cultural issues?

SPARX has been designed in consultation with Pakeha, Māori, Pacific and Asian groups and we hope that the programme will be acceptable to all.

Will we hear about the results?

Yes. We will let you know what we have found. We will also publish the results in scientific journals and present the results at meetings and conferences. If the programme is successful we will be talking to the media, policy makers, and community groups about it.

More questions?

We are happy to give you more information and answer your questions. You can contact us directly on the numbers below. We can also arrange to see you if you'd like.

Matt Shepherd	*Dr Sally Merry*	*Prof Rob Kydd*
Research Fellow	Principal investigator	Head
DDI: 09 373 7599	DDI: 923 6981	Dept of
Mob: 027 218 0912	Email:	Psychological
Email:	s.merry@auckland.ac.nz	Medicine
m.shepherd@auckland.ac.nz		Office 3737999

If you have any questions or concerns about your rights as a participant in this study, you can contact an independent health and disability advocate. This is a free service provided under the Health and Disability Commissioner Act.

Telephone: (NZ wide) 0800 555 050
Free Fax (NZ wide): 0800 2787 7678 (0800 2 SUPPORT)
Email (NZ wide): advocacy@hdc.org.nz

Statement of Approval

This study has received ethical approval from the Northern Y Regional Ethics Committee which reviews regional studies.

Appendix F: Consent Form for Participant Under 16 Years of Age

Project Title: **Māori Youth E-Therapy Project**

Principal Investigator: **Matt Shepherd, University of Auckland**

I have read and I understand the information sheet dated 14/11/2008 for volunteers taking part in the study designed to compare the computer programme with usual treatment for adolescents with symptoms of depression. I have had the opportunity to discuss this study. I am satisfied with the answers I have been given.

I have had the opportunity to use whānau/family support or a friend to help me ask questions and understand the study.

I understand that taking part in this study is voluntary (my choice) and that I may withdraw from the study at any time and this will in no way affect my future health care.

I had had this project explained to me by research assistant/ GP/ school counsellor.

I understand that my participation in this study is confidential and that no material which could identify me will be used in any reports on this study.

I understand that the treatment will be stopped if it should appear harmful to me.

I have had time to consider whether to take part.

I know who to contact if I have any side effects or problems with the study.

Please circle one

I would like the researcher to discuss the outcomes of the study with me   *YES   NO*

I agree to my GP or other current provider being informed of my participation in this study   *YES   NO*

For parent:	For young person:
I _____ (full name) hereby give my consent for my child _____ (full name) to take part in this study _____ Signature _____ Date	I _____ (full name) hereby give my consent to take part in this study _____ Signature _____ Date

_____   _____
Printed name of Person Obtaining Informed Consent   Date

_____   _____
Signature of Person Obtaining Informed Consent   Date

Appendix G: Consent Form for Participant 16 Years of Age or Above

Project Title: **Māori Youth E-Therapy Project**

Principal Investigator: **Matt Shepherd, University of Auckland**

I have read and I understand the information sheet dated 14/11/2008 for volunteers taking part in the study designed to compare the computer programme with usual treatment for adolescents with symptoms of depression. I have had the opportunity to discuss this study. I am satisfied with the answers I have been given.

I have had the opportunity to use whānau/family support or a friend to help me ask questions and understand the study.

I understand that taking part in this study is voluntary (my choice) and that I may withdraw from the study at any time and this will in no way affect my future health care.

I had had this project explained to me by research assistant/ GP/ school counsellor.

I understand that my participation in this study is confidential and that no material which could identify me will be used in any reports on this study.

I understand that the treatment will be stopped if it should appear harmful to me.

I have had time to consider whether to take part.

I know who to contact if I have any side effects or problems with the study.

Please circle one

I would like the researcher to discuss the outcomes of the study with me   *YES   NO*

I agree to my GP or other current provider being informed of my participation in this study   *YES   NO*

I _____ (full name) hereby give my consent to take part in this study

_____ Signature

_____ Date

_____
Printed name of Person Obtaining Informed Consent

_____   _____
Signature of Person Obtaining Informed Consent   Date

Appendix H: SPARX Satisfaction Questionnaire-Month 2

ID#: ☐☐-☐☐☐ Initials: ☐☐☐ Date: _____ / _____ / _____
                                                                    DD   MM   YY

We are interested to know if you liked SPARX and what worked well for you.

Can you rate the programme according to whether the following topics were useful to you? (Circle one response for each question/statement)

1. Overall, how useful was SPARX for you?	Very useful	Useful	Not sure	Not very useful	Not at all useful
2. Learning about depression	Very useful	Useful	Not sure	Not very useful	Not at all useful
3. DO IT - Doing more makes you feel better	Very useful	Useful	Not sure	Not very useful	Not at all useful
4. RELAX – slow breathing and muscle relaxation	Very useful	Useful	Not sure	Not very useful	Not at all useful
5. SOLVE IT – problem solving & using STEPS	Very useful	Useful	Not sure	Not very useful	Not at all useful
6. SORT IT – listening, being assertive and negotiation skills	Very useful	Useful	Not sure	Not very useful	Not at all useful
7. SORT IT– dealing with angry and hurt feelings	Very useful	Useful	Not sure	Not very useful	Not at all useful
8. SPOT IT – spotting negative feelings and thoughts (Gnats)	Very useful	Useful	Not sure	Not very useful	Not at all useful
9. SPOT IT- spotting positive or helpful thoughts (Sparks)	Very useful	Useful	Not sure	Not very useful	Not at all useful
10. SWAP IT – changing negative thoughts (using RAPA)	Very useful	Useful	Not sure	Not very useful	Not at all useful

11. Anything else - please specify: _____

Can you rate the main features of SPARX – from what you really liked (rating of 5) to what you didn't like (rating of 1). If any question isn't applicable to you, please put a tick in the N/A column.

		☹	☺	☺	N/A

12.	It looks like a computer game	1.........2.........3.........4.........5	☐
13.	You can learn things from it by yourself at your own pace	1.........2.........3.........4.........5	☐
14.	It has video clips of celebrities giving advice	1.........2.........3.........4.........5	☐
15.	It is different from talking to a doctor/counsellor	1.........2.........3.........4.........5	☐
16.	It showed me things I didn't know	1.........2.........3.........4.........5	☐
17.	I could do it at school/GP clinic/youth centre	1.........2.........3.........4.........5	☐

ID#: ☐☐-☐☐☐   Initials: ☐☐☐   Date: ____/____/____
                                              DD   MM   YY

		☹	☺	☺	N/A

N/A

18.	I could do it at home	1.........2.........3.........4.........5	☐
19.	It comes with a Notebook that I can keep	1.........2.........3.........4.........5	☐
20.	It is made especially for young people	1.........2.........3.........4.........5	☐
21.	It has a New Zealand look and feel	1.........2.........3.........4.........5	☐

Finally, please could you answer the following questions by either circling an answer or writing answers in the spaces provided.

22.	Where did you complete SPARX?	Home	School	GP clinic	Youth centre	Somewhere else

23.	Of the seven levels which levels did you complete?	_____	If you didn't complete all 7 levels, can you let us know why? _____ _

24.	How long did it take you to complete each level?	Less than 20 mins	20-30 mins	30-40 mins	More than 40 mins

25.	Do you think the levels should be	Longer	Shorter	Stay as they are

26.	Did you share any of the messages (what you learnt/discovered) with any other people?	Yes	No			

27.	If Yes, who did you talk to about SPARX?	Family	Teachers	Friends	The person who gave it to me	Other, please specify: _____

28.	How many challenges set at the end of each level did you complete? (e.g. using STEPS to solve a problem)	All of them	Most of them	Some of them	None of them

29.	Do you think SPARX would appeal to other young people?	Yes	No	If no, why not_____

30.	Would you recommend this programme to your friends?	Yes	No	If no, why not_____

31. Any ideas for making it better?

_____

32. Any other comments?   _____

_____

Appendix I: Satisfaction Questionnaire-Month 5

Māori Youth E-therapy

Participant full name: School: Year:

We are interested to know how you liked SPARX and what worked well for you.

1. **Assessment Details**

Q #	Label	Field format
1.01	Today's Date	(dd/mm/20yy)

2. **Satisfaction**

Can you rate the following parts of the programme according to whether the following topics are useful to you?

		Very useful	Useful	Not sure	Not very useful	Not at all useful
2.01	Learning about depression	☐	☐	☐	☐	☐
2.02	Learning about how thinking leads to feeling and acting	☐	☐	☐	☐	☐
2.03	Learning about doing fun things	☐	☐	☐	☐	☐
2.04	Learning about figuring things out	☐	☐	☐	☐	☐
2.05	Learning about negotiating with others	☐	☐	☐	☐	☐
2.06	Learning how I can spot my unhelpful thinking	☐	☐	☐	☐	☐
2.07	Learning how I can swap my unhelpful thinking	☐	☐	☐	☐	☐
2.08	Learning how to relax (chill)	☐	☐	☐	☐	☐
2.09	Learning how to look after myself in the future	☐	☐	☐	☐	☐
2.10	Something else-please specify	☐	☐	☐	☐	☐
2.11	Overall, how useful was SPARX for you?	☐	☐	☐	☐	☐

Can you rate what you liked best (rating of 10) and disliked most (rating of 1) about the main

features of SPARX?

Q #	Label	👎	😐	👍	N/A
2.12	It is a computer programme	1....2.....3....4.....5....6....7....8....9....10			
2.13	You can learning things from it by yourself at your own pace	1....2.....3....4.....5....6....7....8....9....10			
2.14	It has video clips of celebrities giving advice	1....2.....3....4.....5....6....7....8....9....10			
2.15	It has interactive quizzes	1....2.....3....4.....5....6....7....8....9....10			
2.16	It is different than talking to a counsellor	1....2.....3....4.....5....6....7....8....9....10			
2.17	It showed me things I didn't know about	1....2.....3....4.....5....6....7....8....9....10			
2.18	It's like a computer game	1....2.....3....4.....5....6....7....8....9....10			
2.19	I could do it at school	1....2.....3....4.....5....6....7....8....9....10			
2.20	I could do it at my GP/health clinic	1....2.....3....4.....5....6....7....8....9....10			
2.21	I could do it at home	1....2.....3....4.....5....6....7....8....9....10			
2.22	It comes with a Guidebook to keep	1....2.....3....4.....5....6....7....8....9....10			
2.23	It is made especially for teenagers	1....2.....3....4.....5....6....7....8....9....10			
2.24	It talks about how to look after my emotional health	1....2.....3....4.....5....6....7....8....9....10			

Q #	Label	Field format
2.25	Where did you complete SPARX	Home / school/ GP clinic / youth centre/somewhere else
2.26	Did you complete all seven levels Why did not you complete the whole game?	Yes / No. If No, how many levels did you complete? _____
2.27	How long did it take you to complete the single level ?	Less than 20mins/ 20-30mins/ 30-40mins/ more than 40 mins
2.28	Do you think the levels should be	Longer/shorter/stay as they are
2.29	Did you share any of the messages with others?	Yes/No
2.30	If Yes, who did you talk to about SPARX?	
2.31	Do you think SPARX would appeal to other teenagers?	Yes/No
2.32	Would you recommend this programme to your friends?	Yes/No
2.33	Any ideas for making it better?	
2.34	Any other comments?	

Appendix J: Youth E-Therapy Follow Up Interviews – Interview Guidelines for Taitamariki

1)Mihi whakatau / Karakia and introductions.
   a. Introduce myself.
   b. Outline the process of the interview.
   c. Get their signed consents if not already done.

2)Seeking feedback re-game look – specifically the cultural content.
   d. Give reminder – any opinions are OK, feedback will help us make this a useful tool.
   e. What were your 1st impressions – ask for a word or comment.

   f. First of all thinking about the style or look of the game, what did you think about how SPARX looked?
      - What did you think about the Māori designs?
      - What did you think about the Māori costume on the character?
      - Did these help you to engage with the game?
      - If not, what would help?
      - Prompts if needed – did it look fun/ like a game/boring/ too young/
      - Could use continuum – stand across room from 'thought it was great' through to 'really didn't like it'

   What did you like about it?
   What did you not like about it?
   Drilling down for specifics:
   What did you think about the character that you could be?
   What about the other characters – guide/ mentor/ NPC's?
   What did you think about the fantasy setting / story?
   What about how the island/ scene looked?

   How was it moving through the island as a game – i.e. was it too fast/ slow/ did you know how to get around the island?
   If tried the mini game – ask for feedback.

3)Seeking feedback re content.
   Now thinking about the content or the information in the programme – What did you think about the content?(prompts if needed – helpful/ too complicated/ enough explanation/ didn't know what it was on about/ easy to understand…)
   - What would be good about using this programme/ what would be not so good?
   - What did you like about the content?
   - What did you not like about the content?
   Drilling down for specifics
      - Did it seem relevant to you?
      - Do you think people like you could learn from it?
      - Was there enough information?
      - Did it seem like it was helpful information?
      - Were the words and language used appropriate – easy to understand but not babyish?
      - Any other comments.

4)Seeking feedback re breadth of appeal & content.
   - Who do you think might use this programme – all young people? – males/ females/older or younger teenagers ?

5)Thanks, any questions? Poroporoaki-Karakia.