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Pilot study of MindExpress™: An online risk factor-based tailored depression preventive program for young adults with a familial risk of major depressive disorder

Dr Alex Wilde,
School of Psychiatry
University of New South Wales
Sydney, New South Wales, Australia, 2025

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ABSTRACT:

**Background** Meta-analyses of targeted preventive psychological interventions show a reduction of around 25 percent in the incidence of depression. The use of e-technology tailored to individual risk factors in young people with a family history of major depressive disorder has not been explored as a preventive depression intervention.

**Methods** MindExpress™ *the skills to build resilience* is a new tailored preventive web program for depression consisting of a validated 100-item depression risk assessment across eight evidence-based risk factor domains, each with corresponding education and cognitive behavioural modules. The primary outcome measure was change in readiness to modify cognition and behaviours related to elevated depression-risk, based on the Transtheoretical Model of Behavioural Change. The secondary outcome measure was change in depression levels on *Patient Health Questionnaire (PHQ-9)*. Acceptability, impact and effectiveness of the program were measured using a validated structured survey.

**Results** Thirty participants with a family history of depression were recruited. The Coping Styles module yielded a significant mean change with large effect size (N=30, p=0.01, Cohen’s d=0.88) from Preparation (‘I am thinking about making this change, but not in the next fortnight’) to Action (‘I am trying to make this change at the moment’). Among completers (N=10), mean depression scores showed a decrease from 7.6 (mild) at baseline to 5.1 (minimal-mild) at endpoint (non-significant). Completers reported the highest levels of acceptability on a five-point scale from 0 to 4 (mean M, SD) for ‘ease of use’ M=3.2 (0.7), ‘convenience’ M=3.0 (0.9), ‘easy to understand’ M=3.3, (1.1), ‘being able to trust the information’ M=3.3, (0.7); and the highest impact and effectiveness level for the Thinking Styles M=3.1, (0.9) and the Coping Styles module M=2.9, (0.9).

**Conclusion** This tailored, risk factor-based, online preventive intervention holds promise as a model for reducing susceptibility to depression in young people with elevated familial risk. Further evaluation in a large randomised control trial with 12 months follow up will quantify the extent to which MindExpress™ may assist and sustain behavioural and cognitive change to reduce risk for depression.

**Keywords**

Young adult, Transtheoretical Model of Behaviour Change, major depressive disorder, Internet, prevention
Introduction

New depressive illness in young people is strongly associated with chronic and recurrent depression in adulthood, and has significant implications for emotional and brain development (Garber, Clarke & Weersing, 2009). The latest estimates suggest that one in four young people aged 16 to 24 years will have experienced at least one mental disorder in the preceding year (Australian Institute of Health and Welfare, 2011), with at least one depressive episode by 18 years of age (Lewinsohn, Gotlib & Seeley, 1995). Identifying individuals at greatest risk and working to change modifiable risk factors are important steps in reducing depression morbidity.

Preventive studies show that it may be possible to prevent new cases of major depressive disorder in high risk groups (Garber, Clarke & Weersing, 2009). Meta-analyses of targeted preventive psychological programs in adolescents and adults have shown a reduction of the incidence of depression of around 25 percent (Cuijpers, Van Straten & Smit, 2005; Cuijpers, Van Straten, Smit, Mihalopoulos & Beekman, 2008). A meta-analysis of 69 programs to reduce depression or depressive symptoms showed an 11% improvement in depressive symptoms with a reported weighted mean small effect size of 0.22 (Nicholas, Oliver, Lee & O’ Brien, 2004).

Meta-analyses also show that ‘selective’ prevention and ‘indicated’ prevention strategies were more effective at preventing depression than universal prevention programs (Cuijpers, 2003). Indicated prevention is also posited to be more effective than selective prevention at preventing new cases of major depressive disorder (Buntrock, Ebert, Lehr, Cuijpers, Riper, Smit et al., 2014). This is because indicated prevention focuses on individuals with sub-threshold depression and the risk and protective factors present in the their immediate environment (Buntrock et al., 2014). Selective and indicated depression prevention programs should be age-appropriate and focus on high-incidence, high-risk groups (e.g., with multiple risk factors including parental depression) (Horowitz & Garber, 2006).

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1 Selective prevention strategies for depression prevention target healthy sub-groups of the population with specific vulnerabilities to depression (e.g., family history of major depressive disorder).
2 Indicated prevention strategies target sub-groups at increased risk for depression who have sub-clinical symptoms but do not yet meet the diagnostic criteria for a major depressive disorder.
3 Universal prevention strategies are designed to reach a whole population without regard for risk factors (Gillham, Shatté & Freres, 2000).
Family history of depression is a well-documented risk factor for early onset depression in offspring (Lewinsohn, Allen, Seeley & Gotlib, 1999; Reinherz, Paradis, Giaconia, Stashwick & Fitzmaurice, 2003; Rice, Harold & Thapar, 2002; Sullivan, Neale & Kendler, 2000). Meta-analyses demonstrate that individuals with at least one or more first degree relatives (FDRs) with depression have a two-to-three fold increased relative risk for depression (Rice, Harold & Thapar, 2002; Sullivan, Neale & Kendler, 2000). A lifetime history of a malignant course of depression in the affected relative, (e.g., childhood-onset, recurrent, bipolar, or psychotic depression in a first or second degree relative) is associated with a greater than three-fold risk of a new episode of depression in adolescents and young adult offspring (Lieb, Isensee, Hofler, Pfister & Wittchen, 2002; Williamson, Birmaher, Axelson, Ryan & Dahl, 2004).

A systematic review of risk factors for depression in young people aged 12 to 25 years demonstrated clinically valid effect sizes for parental behaviour (e.g., rejecting, controlling, abusive or intrusive behaviour); family circumstances (e.g., the early loss of a parent, physical or sexual abuse, or family discord); a previous episode of depression, sub-syndromal symptoms of depression, social isolation, unhelpful thinking styles, poor coping styles, traumatic life events (e.g., abuse, trauma, bullying or bereavement), substance use disorders, contact with the criminal justice system, and the interaction of multiple risk factors (Adelaide Health Technology Assessment for Beyondblue Youth, 2010). Protective factors associated with reduced risk for a depressive illness included family support, social support, helpful thinking styles, improved self-esteem and effective coping strategies (Adelaide Health Technology Assessment for Beyondblue Youth, 2010).

High rates of internet use by young people (Australian Bureau of Statistics, 2007) makes the internet an ideal platform for preventive mental health interventions in this age group. Internet-based interventions are thought to be acceptable to young people because they offer a convenient, confidential and relatively anonymous environment in which to disclose personal information (Nicholas, Oliver, Lee & O’Brien, 2004).

Several secondary treatment e-initiatives are currently available online for young people experiencing mental health problems. These include MoodGym (http://moodgym.anu.edu.au) and its subsidiary program e-couch (with a general
cognitive behavioural therapy (CBT) component aimed at the broader population); Reach Out! (www.reachout.com.au), run by the Inspire Foundation (www.inspire.org.au) for people aged 14 to 25 years; and e-headspace (www.eheadspace.org.au), which offers online counselling and referrals to 12 to 25 year olds who have mild to moderate mental health issues. Such interventions are treatment oriented and are not targeted to high-incidence, high-risk groups nor designed specifically for the asymptomatic or sub-syndromal individual.

Internet-based depression prevention programs are gaining prominence as viable cost-effective alternatives to face-to-face multi-session CBT-based treatment programs (Ruby, Marko-Holguin, Fogel & Van Voorhees, 2013). Review studies indicate early support for the effectiveness of web-based prevention programs for depression in young people and call for more empirical data and additional programs to address gaps in this field (Calear & Christensen, 2010; Christensen & Petrie, 2013). Preliminary results from previous depression prevention interventions that target depression risk factors indicated favourable impact on depression risk factors (Van Voorhees, Ellis, Stuart, Fogel & Ford, 2005). A meta-analysis of 69 programs designed to reduce risk factors and depressive symptoms showed that predictors of program efficacy were: the inclusion of multiple components; competence techniques; more than eight sessions; a session length of 60–90 minutes; a high quality of research design; and delivery by a health care provider in a targeted program (Nicholas, Oliver, Lee & O’ Brien, 2004).

The present study aimed to pilot test a new indicated, web-based depression prevention program, known as MindExpress™, for young people with a family history of depression. The program was tailored to personal depression risk factors and aimed to i) assess for and monitor the presence of eight discrete depression risk factors ii) improve pre- and post- intervention readiness to change scores for each risk factor, based on the Transtheoretical Model of Behaviour Change (Prochaska & Diclemente, 2005), and iii) improve depression (PHQ-9) scores measured at baseline, midpoint (completion of three modules) and endpoint (completion of up to eight modules) (Kroenke, Spitzer & Williams, 2001).
Method

Development of the program
The web program was built within the framework of a University of New South Wales Drupal content management system (CMS). Custom functions and design relevant to youth culture were developed after consultation with the target demographic. A visually dynamic interactive personal progress graphic (‘Personal Progress Tree’) was developed as a centrepiece for the user dashboard to aid feedback and motivation. Content for MindExpress™ was derived from a comprehensive literature review. Focus group methodology was used to explore preferences for acceptability, relevance, length, level of detail, format, presentation, graphics, relevance, emotional impact, reading level, understanding and naming of the program and its components. Details about the development of the program are reported elsewhere. The domain name mindexpress.com.au was registered in 2013. A sample of the user dashboard is shown in Figure 1.
Figure 1. User dashboard demonstrating the Personal Progress Tree. Leaf clusters represent eight risk domains; individual leaves represent risk or protective factors within a risk domain. Red, risk factor; amber, change in either direction; green reduced risk/protective factor. Users are able to click on each leaf to see an explanation. The optional science tab appears on completion of matched module.

**Design**

The program was based upon eight risk domains, selected for relevance to young people and containing evidence-based risk factors for major depressive disorder with large reported effect sizes (Adelaide Health Technology Assessment for Beyondblue Youth, 2010). One 20-minute interactive evidence-based education and CBT module was written for each risk domain: These were (associated risk factor(s) in parentheses): 1) Genes, Family and Environment module (family history of depression, self-reported prior depressive episode, family disharmony and genetic factors); 2) Thinking Styles (unhelpful thinking); 3) Coping Styles (unhelpful coping; and up to five tailored modules: 4) Social Connections (social isolation); 5) Alcohol
Use (daily drinking); 6) Cannabis Use (daily use); 7) Tough Times (traumatic life events) and 8) Family Dynamics (abusive, controlling or indifferent parenting styles). Participants completed approximately one module per week. Direction to complete modules 4) to 8) was determined by individual outcomes of the risk assessment measure (tailoring) based on published cut-off scores (see Table 3). Participants were directed to complete CBT-based ‘homework’ tasks inbetween modules and report back on a ‘landing page’. Original illustrations of scenes from well-known movies provided a basis for interactive CBT scenarios throughout the program. Examples are presented in Figure 2.

**Figure 2:** 1) Genes, Family and Environment module: Jerome and Vincent from *Gattaca* discover that their destinies are shaped by more than their DNA; 2) Thinking Styles module: Bridget Jones mistakes her feelings for facts; 3) Coping Styles module: Hermione and Harry use coping styles that best match the situation; 4) Amélie reaches out to reduce social isolation 5) Cannabis Use module: Brad Pitt’s substance-using character in *True Romance* realises he is “missing out, not blissing out”. 6) Alcohol Use module: Jesse in *Diary of Binge Drinker* abstains to avoid ruining her life. 7) Tough Times (Life events) module: Rose from the Titanic modifies her risk for depression after her traumatic loss; 8) Family Dynamics module: Will Hunting with Robin Williams’
character from *Good Will Hunting* re-writes his feelings about his traumatic childhood experiences. Illustrations ©Netherwood, 2012.

**Participants and recruitment**

Participants were recruited through advertisements on the Black Dog Institute (Sydney) website, the Black Dog Institute Volunteer Research Register and social media channels. Inclusion criteria were i) aged 18 to 25 years and ii) self-reported family history of major depressive disorder. Actual family history was measured by the *Family History Screen* (*FHS*; Weissman, Wickramaratne, Kendler, Gardner, Prescott (2000)).

**Measures**

A 100-item risk assessment instrument was specifically developed for the program to assess depression risk status at baseline. Named by youth community consultants as the ‘Personal Profile’, it comprised validated measures across the eight evidence-based risk domains as shown in Table 1:

**Table 1: Measures**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Purpose</th>
<th>Items and cut-off score</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Socio-demographic measure</td>
<td>Commonly-asked demographic questions</td>
<td>8 items</td>
<td></td>
</tr>
<tr>
<td><em>Genes, Family and Environment domain</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>FHS (modified)</em></td>
<td>Identify relatives who meet criteria for a depressive disorder</td>
<td>7 items; no cut-off score. Answer ‘yes’ to specific questions. See Appendix A</td>
<td>Weissman, Wickramaratne, Kendler, Gardner, Prescott (2000)</td>
</tr>
<tr>
<td><em>PHQ-9</em></td>
<td>Current depressive symptoms in participants</td>
<td>10 items; PHQ-9 score ≥10.4</td>
<td>Kroenke, Spitzer, Williams (2001)</td>
</tr>
<tr>
<td>Self-reported previous depression</td>
<td>Identify presence of previous depressive episode</td>
<td>One 3-point item; ‘yes’, ‘no’, ‘don’t know’</td>
<td></td>
</tr>
<tr>
<td>Self-reported risk of depression</td>
<td>Measure perceived relative risk of depression</td>
<td>3-point item: lower’, ‘about the same’ or ‘higher’ than the average person’</td>
<td></td>
</tr>
<tr>
<td><em>Thinking Styles domain</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Neuroticism-Extroversion-Openness (NEO) personality inventory,</em></td>
<td>Measure unhelpful thinking styles</td>
<td>Neuroticism items only, 12 items; <em>NEO score</em>&gt;15</td>
<td>Costa, McCrae (1992)</td>
</tr>
<tr>
<td><em>Coping Styles domain</em></td>
<td>Measure unhelpful coping styles</td>
<td>14 items; <em>COPE score</em>&lt;43</td>
<td>Carver, Scheier, Weintraub (1989)</td>
</tr>
<tr>
<td><em>Social Connections domain</em></td>
<td>Measure self-reported social</td>
<td>Social connections items only 10 items (<em>HILDA score</em>&lt;36);</td>
<td>Wooden, Watson (2007)</td>
</tr>
</tbody>
</table>
Australia (HILDA) isolation

**Alcohol Use domain**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Items</th>
<th>Author/Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Adolescent Alcohol and Drug Involvement Scale (AADIS)</td>
<td>Measure risky drinking levels</td>
<td>10 items (check boxes); &gt;3-4 drinks per session, ‘daily’/’weekly’</td>
</tr>
</tbody>
</table>

**Cannabis Use domain**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Items</th>
<th>Author/Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Adolescent Alcohol and Drug Involvement Scale (AADIS)</td>
<td>Measure heavy cannabis use</td>
<td>10 items (check boxes); ‘daily use’</td>
</tr>
</tbody>
</table>

**Tough times (life events) domain:**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Items</th>
<th>Author/Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>List of Threatening Life Experiences measure (LTE-Q)</td>
<td>Measure exposure to at least one traumatic life event during the previous six months</td>
<td>12 items (check boxes)</td>
</tr>
</tbody>
</table>

**Family Dynamics domain:**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Description</th>
<th>Items</th>
<th>Author/Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measure of Parenting Styles (MOPS)</td>
<td>Measure perceived exposure to abusive, controlling, indifferent parenting styles prior to 16 years of age</td>
<td>Abusive (5 items), controlling (4 items) and indifferent (6 items) parenting styles; four-point Likert scale from ‘not true at all’ to ‘extremely true’. No cut-off score</td>
<td>Parker, Roussos, Hadzi-Pavlovic, Mitchell, Wilhelm, Austin (1997)</td>
</tr>
<tr>
<td>Measure of Parenting Styles (MOPS)</td>
<td>Measure of two protective factors</td>
<td>Two two-point items (‘yes’/’no’) based on family support before age 16:</td>
<td>Parker, Roussos, Hadzi-Pavlovic, Mitchell, Wilhelm, Austin (1997)</td>
</tr>
</tbody>
</table>

**Readiness to change**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Description</th>
<th>Items</th>
<th>Author/Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Stages of Change measure</td>
<td>Measure of readiness to change cognition and behaviours related to risk factors for depression</td>
<td>Five-point Likert-type scale from Pre-contemplation: ‘I am not thinking of making this change’ to Maintenance: ‘I have already made changes to this, and have done so for longer than two weeks’.</td>
<td>Ritterband, Thorndike, Cox, Kovatchev, Gonder-Frederick (2009)</td>
</tr>
</tbody>
</table>

**Evaluation**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Description</th>
<th>Items</th>
<th>Author/Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet Evaluation and Utility Questionnaire</td>
<td>Measure perceived acceptability of the intervention</td>
<td>13 of 15 items</td>
<td>Thorndike, Saylor, Bailey, Gonder-Frederick, Morin, Ritterband (2008)</td>
</tr>
<tr>
<td>Internet Impact and Effectiveness Questionnaire</td>
<td>Measure perceived impact and effectiveness of the intervention</td>
<td>18 of 19 items</td>
<td>Thorndike et al. (2008)</td>
</tr>
</tbody>
</table>

Custom programming provided all participants with immediate feedback following each module in the form of graphic with a scale (for measures that enabled algorithms) or descriptive text (for qualitative measures).

Participants were stratified into three family history groups according to Scheuner, Wang, Raffel, Larabell, Rotter (1997): i) ‘Average’ (no affected relatives or only one affected SDR or unknown affected relatives); ii) ‘Moderate’ family history
(one affected FDR or two affected SDRs) and iii) ‘Strong’ family history (two affected FDRs or three or more affected SDRs) (Scheuner, Wang, Raffel, Larabell & Rotter, 1997; Yoon, Scheuner, Peterson-Oehlke, Gwinn, Faucett & Khoury, 2002).

**Outcome measures**

Three outcomes were evaluated: 1) Readiness to change using pre-post comparisons of Stages-of-Change measures for risk domains two to eight (Ritterband, Thorndike, Cox , Kovatchev & Gonder-Frederick, 2009) adapted from the Transtheoretical Model of Behaviour Change (Prochaska & Diclemente, 2005); 2) Changes in depression symptomatology measured by the PHQ-9 (Kroenke, Spitzer & Williams, 2001) at baseline (T0), after three modules (T1) and at the end of the tailored program (up to five modules) (T2); 3) Acceptability (evaluation, usefulness, impact and effectiveness). Acceptability ratings and pre/post measures were available only for those who completed the study (completers).

**Statistical analyses**

Paired two-tailed t-tests were calculated for depression scores at T0, T1 and T2. Mean differences in pre- and post-intervention Stages of Change scores were analysed using related samples Wilcoxon Signed Rank Tests. All statistical analyses were performed using SPSS 22 (SPSS, Inc., Chicago IL).

The study was approved by the University of New South Wales Human Research Ethics Committee No: HC12653.
Results

Sample
A total of 43 people registered for the MindExpress™ pilot program between 3 July 2013 and 13 October 2013. Thirteen individuals did not proceed beyond registration. Demographic characteristics of non-participants and reasons for not continuing could not be captured as registrants could leave before completing the demographic survey. Thirty participants were recruited to the MindExpress™ program, resulting in a participation rate of 70 per cent. Mean age (SD) was 22.5 (4.7) years (range 18-25 years) and 25/30 were female. All 30 participants completed the Personal Profile and the first module: Genes, Family and Environment module. Half of the participants (15/30) completed the core CBT program (three modules) and one third (10/30) completed the full program (up to eight modules) resulting in a completion rate of 33% percent. The mean (SD) time elapsed from registration to follow-up interview (completers) was 8.6 (3.3) weeks (range 4.4 weeks to 15 weeks).

Family history of major depressive disorder
Twenty-four participants met the FHS (Weissman, Wickramaratne, Kendler, Gardner & Prescott, 2000) criteria for a ‘moderate’ (18 participants) or ‘strong’ (6 participants) family history of depression. Six participants met criteria for an ‘average’ family history of depression (including five who self-reported a family history but did not meet FHS criteria for having an affected relative (Weissman, Wickramaratne, Kendler, Gardner & Prescott, 2000)). Demographic characteristics of participants are shown in Table 2.
## Table 2. Characteristics of participants

<table>
<thead>
<tr>
<th>Participant characteristics</th>
<th>Familial depression history**</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average(^a)</td>
</tr>
<tr>
<td>Age</td>
<td>n=6</td>
</tr>
<tr>
<td>Mean age (SD) 22.5 (4.7) years (range 18 to 25 years)</td>
<td>6</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>4</td>
</tr>
<tr>
<td>Male</td>
<td>2</td>
</tr>
<tr>
<td>Self-reported previous depressive episode*</td>
<td></td>
</tr>
<tr>
<td>‘No’</td>
<td>2</td>
</tr>
<tr>
<td>‘Yes’</td>
<td>5</td>
</tr>
<tr>
<td>Self-estimated risk for depression*</td>
<td></td>
</tr>
<tr>
<td>‘Lower than the average person’</td>
<td>0</td>
</tr>
<tr>
<td>‘About the same as the average person’</td>
<td>2</td>
</tr>
<tr>
<td>‘Higher than the average person’</td>
<td>5</td>
</tr>
<tr>
<td>PHQ depression score</td>
<td></td>
</tr>
<tr>
<td>Minimal (0 to 4)</td>
<td>1</td>
</tr>
<tr>
<td>Mild (5 to 9)</td>
<td>2</td>
</tr>
<tr>
<td>Moderate (10 to 14)</td>
<td>3</td>
</tr>
<tr>
<td>Moderately severe (15 to 19)</td>
<td>1</td>
</tr>
<tr>
<td>Severe (≥20)</td>
<td>2</td>
</tr>
<tr>
<td>Work status</td>
<td></td>
</tr>
<tr>
<td>Work full time or part time</td>
<td>2</td>
</tr>
<tr>
<td>Full-time student</td>
<td>1</td>
</tr>
<tr>
<td>Student and work part-time</td>
<td>1</td>
</tr>
<tr>
<td>Homemaker</td>
<td>1</td>
</tr>
<tr>
<td>Unemployed</td>
<td>1</td>
</tr>
<tr>
<td>Highest level of completed education</td>
<td></td>
</tr>
<tr>
<td>Year 10 or below</td>
<td>0</td>
</tr>
<tr>
<td>Year 12</td>
<td>1</td>
</tr>
<tr>
<td>TAFE or College certificate or diploma</td>
<td>0</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>5</td>
</tr>
<tr>
<td>Postgraduate qualification</td>
<td>0</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
</tr>
<tr>
<td>Single or never married</td>
<td>4</td>
</tr>
<tr>
<td>Married, de facto, or serious relationship</td>
<td>2</td>
</tr>
<tr>
<td>Widowed, separated or divorced</td>
<td>0</td>
</tr>
<tr>
<td>Main language spoken at home</td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>5</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
</tr>
<tr>
<td>Country of birth</td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>4</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
</tr>
<tr>
<td>Geographic location</td>
<td></td>
</tr>
<tr>
<td>Town/city</td>
<td>6</td>
</tr>
<tr>
<td>Rural/remote</td>
<td>0</td>
</tr>
</tbody>
</table>

***(Scheuner, Wang, Raffel, Larabell & Rotter, 1997; Yoon et al., 2002)***
Average family history: No affected relatives/one affected SDR/no known family history/adopted person with unknown family history
Moderate family history: One affected FDR and/or two affected SDRs
Strong family history: Two affected FDRs and/or three or more SDRs
*Missing data are ‘don’t know’

Depression symptomatology
Among completers, mean (SD) PHQ-9 scores at T0 (baseline, n=30), T1 (mid program, n=15) and T2 (end program, n=10) decreased from PHQ-9=7.6 (4.6), mild symptoms, at T0 to PHQ-9=5.1 (4.7), minimal symptoms, at T2, (t=0.43, df=9, p=0.673). Differences between mean PHQ-9 scores between T0 and T1 (n=15) and T1 and T2 (n=10) were also not significant. At T0, mean (SD) PHQ-9 score of non-completers (n=20) was significantly higher (PHQ-9=8.5 (7.3), moderate symptoms) compared to completers (PHQ-9=7.6 (4.6), n=10, t=2.08, df=28, p=0.046). PHQ-9 scores are shown in Table 3.

Table 3. Mean (SD) PHQ-9 scores by family history at baseline (T0), midpoint (T1) and endpoint (T2)

<table>
<thead>
<tr>
<th>Family history category (Scheuner, Wang, Raffel, Larabell &amp; Rotter, 1997; Yoon et al., 2002)</th>
<th>T0</th>
<th>T1</th>
<th>T2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-completers</td>
<td>Completers</td>
<td>Non-completers</td>
</tr>
<tr>
<td>Average*a</td>
<td>Mean (SD) depression score</td>
<td>n</td>
<td>Mean (SD) depression score</td>
</tr>
<tr>
<td>Mean(SD) depression score</td>
<td>14.8 (10.7)</td>
<td>5</td>
<td>19.0</td>
</tr>
<tr>
<td>Moderate*b</td>
<td>7.3 (5.6)</td>
<td>11</td>
<td>3.0 (4.2)</td>
</tr>
<tr>
<td>Strong*c</td>
<td>8.3 (5.1)</td>
<td>4</td>
<td>2.0 (2.8)</td>
</tr>
<tr>
<td>Total mean (SD) depression scores</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean(SD) depression score</td>
<td>8.5 (7.3)</td>
<td>20</td>
<td>7.6 (4.6)</td>
</tr>
</tbody>
</table>

*aAverage family history: No affected relatives/one affected SDR/no known family history/adopted person with unknown family history
*bModerate family history: One affected FDR and/or two affected SDRs
*cStrong family history: Two affected FDRs and/or three or more SDRs
Risk factors of sample conferring increased risk for major depressive disorder measured by the Personal Profile (risk assessment) at baseline were: i) moderate to strong family history of depression (24/30) ii) previous depressive episode (20/30); iii) unhelpful thinking styles (18/30); iv) unhelpful coping styles (15/30); v) lower perceived social support and friendship (9/30); drinking above the NHMRC guidelines (Australian National Health and Medical Research Council, 2009) (13/30); heavy cannabis use (0/30); vi) at least one stressful life event experienced during the previous six months (24/30), vii) three or more life events during the previous six months (15/30); three or more life events ever (more than six months previously, 24/30). The two top stressful life events experienced in the past six months or ever were ‘unemployment for more than one month’ and ‘a serious problem with a close friend, relative or neighbour’; viii) perception of experiencing ‘indifferent’, ‘controlling’ or ‘abusive’ parenting before the age of 16 years at the level of ‘moderately true’ or ‘extremely true’ (12/30). Protective factors were: i) higher perceived social support and friendship (21/30); ii) growing up with both biological parents (23/30) and ii) having emotional support from at least one parent (26/30). Mean risk factor scores for thinking styles, coping styles, social connections, alcohol use and cannabis are shown in Table 4 with interpretation.
<table>
<thead>
<tr>
<th>Risk domain</th>
<th>Mean score (SD)</th>
<th>Score range of sample</th>
<th>Cut-off for recommending the module</th>
<th>Score range of measure</th>
<th>Interpretation of mean score (Participants received feedback about their individual situation and module recommendations based on individual score for each risk domain)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thinking Styles</td>
<td>23.8 (5.1)</td>
<td>17-25</td>
<td>&gt;15</td>
<td>0-32+</td>
<td>Your score suggests your thinking styles are ‘moderately unhelpful’ – the Thinking Styles module could help.</td>
</tr>
<tr>
<td>Coping Styles</td>
<td>36.3 (10.5)</td>
<td>22-42</td>
<td>&lt;43</td>
<td>0-84</td>
<td>Your score suggests your coping styles are ‘mostly unhelpful’ – the Coping Styles module could help.</td>
</tr>
<tr>
<td>Social Connections</td>
<td>36.6 (4.8)</td>
<td>31-49</td>
<td>&lt;36</td>
<td>0-70</td>
<td>Your score suggests you have ‘Quite good social support’.</td>
</tr>
<tr>
<td>Alcohol Use</td>
<td>1.5± (1.2)</td>
<td>0-4</td>
<td>&gt;1</td>
<td>Likert scale 0 to 5</td>
<td>Your score suggests you are drinking ‘within or just above the recommended guidelines’ (Australian National Health and Medical Research Council, 2009) – try the Alcohol Use module.</td>
</tr>
<tr>
<td>Cannabis Use</td>
<td>1± (1.2)</td>
<td>0-2</td>
<td>&gt;1</td>
<td>Likert scale 0 to 3</td>
<td>Your score suggests your cannabis use is light.</td>
</tr>
</tbody>
</table>

The Genes, Family and Environment module was a compulsory education-only module and did not contain measures. The Thinking Styles and Coping Styles modules were compulsory. The other 5 modules were recommended on the basis of Personal Profile scores and responses (tailoring).

±1=1 to 2 drinks; 2=3 to 4 drinks

*=1= use once a year
Tough Times (Life Events)

Participants were recommended the Tough Times module if they had experienced at least one stressful life event during the previous six months. Rank order of reported life events are shown in Table 5.

Table 5. Ranking of most frequently reported life events experienced during the previous 6 months and ever experienced (more than 6 months previously) (Maximum N=30).

<table>
<thead>
<tr>
<th>Life event</th>
<th>Life events experienced during previous 6 months (n=24)</th>
<th>Rank</th>
<th>Life events experienced more than 6 months ago (n=26)</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Being unemployed/seeking work/ for more than one month</td>
<td>16</td>
<td>1</td>
<td>19</td>
<td>2</td>
</tr>
<tr>
<td>A serious problem with a close friend, relative or neighbour</td>
<td>13</td>
<td>2</td>
<td>23</td>
<td>1</td>
</tr>
<tr>
<td>A serious illness or injury to a close relative requiring hospitalisation</td>
<td>11</td>
<td>3</td>
<td>18</td>
<td>3</td>
</tr>
<tr>
<td>Loss of an important relationship (girlfriend, boyfriend, partner)</td>
<td>8</td>
<td>4</td>
<td>18</td>
<td>3</td>
</tr>
<tr>
<td>Being bullied at work, school or on the Internet</td>
<td>6</td>
<td>5</td>
<td>14</td>
<td>6</td>
</tr>
<tr>
<td>Being sacked from your job, suspended from school, college or university</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>The death of a close relative (e.g., grandparent, sibling, child, aunt, uncle)</td>
<td>3</td>
<td>7</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>A serious illness or injury to yourself requiring hospitalisation</td>
<td>2</td>
<td>8</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>The divorce of your parents</td>
<td>1</td>
<td>9</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>The death of a parent or the person who brought you up</td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>The death of a close friend</td>
<td>0</td>
<td>11</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Total life events (all participants)</td>
<td>65</td>
<td></td>
<td>134</td>
<td></td>
</tr>
<tr>
<td>Mean (SD) n of events per person</td>
<td>2 (1.5) events</td>
<td></td>
<td>4 (2.5) events</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>0 to 5 events</td>
<td></td>
<td>0 to 9 events</td>
<td></td>
</tr>
</tbody>
</table>
**Family Dynamics (Parenting styles)**

Participants were recommended the Family Dynamics module if they had experienced at least ‘indifferent’ (*MOPS* score $\geq 8$) or ‘controlling’ (*MOPS* score $\geq 10$) or ‘abusive’ (*MOPS* score $\geq 12$) parenting styles (Parker et al., 1997). The range of participant experience of the three parenting styles is shown in Figure 3.

![Parenting style distribution](image)

*Participants could answer ‘yes’ for more than one parenting style

**Figure 3. Participant-reported experience of three negative parenting styles before the age of 16 years* (Maximum N=30)*

**Stages of change**

Mean difference in Stages of Change score for Coping Styles (Ritterband, Thorndike, Cox, Kovatchev & Gonder-Frederick, 2009) significantly increased after completion of the module ($p=0.001$) with a large effect size (Cohen’s $d=0.88$). This represented a mean change from Preparation: ‘I am thinking about making this change, but not in the next fortnight’ to Action ‘I am trying to make this change at the moment’. Mean difference in Stages of Change for Tough Times (Life events) was not significant with a moderate negative effect size ($d=-0.70$). There was a marginal non-significant mean
change yielded by the Family Dynamics module with a negligible effect size. The Thinking Styles, Social Connections and Alcohol Use modules showed zero change. No participants were recommended the Cannabis Use module as AADIS scores Moberg, Hahn (1991) indicated negligible or light use. Stages of Change scores are presented in Table 6.
Table 6. Mean Stages of change scores (Ritterband, Thorndike, Cox, Kovatchev & Gonder-Frederick, 2009) associated with the completing the education and CBT modules

<table>
<thead>
<tr>
<th>Module</th>
<th>N (%) completed module/N recommended module</th>
<th>Pre-module mean (SD) score</th>
<th>Post-module mean (SD) score</th>
<th>Mean change</th>
<th>Effect size (Cohen’s d)</th>
<th>95% CI</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genes, Family and Environment</td>
<td>30/30 (100%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thinking Styles</td>
<td>18/30 (60%)</td>
<td>2.5 (1.0)</td>
<td>2.5 (1.4)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>n/a</td>
</tr>
<tr>
<td>Coping Styles</td>
<td>15/30 (50%)</td>
<td>2.2 (1.3)</td>
<td>3.3 (1.5)</td>
<td>1.1</td>
<td>0.88</td>
<td>0.13 to 1.54</td>
<td>0.001*</td>
</tr>
<tr>
<td>Social Connections</td>
<td>4/10 (40%)</td>
<td>3.8 (1.3)</td>
<td>3.8 (0.4)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>n/a</td>
</tr>
<tr>
<td>Alcohol Use</td>
<td>3/13 (23%)</td>
<td>2.3 (1.6)</td>
<td>2.3 (1.9)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>n/a</td>
</tr>
<tr>
<td>Cannabis Use</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Tough Times a</td>
<td>6/25 (24%)</td>
<td>3.8 (2.2)</td>
<td>2.6 (1.5)</td>
<td>-1.2</td>
<td>-0.70</td>
<td>-1.9 to 1.06</td>
<td>ns</td>
</tr>
<tr>
<td>Family Dynamics</td>
<td>8/12 (67%)</td>
<td>2.4 (1.8)</td>
<td>2.5 (1.3)</td>
<td>0.1</td>
<td>0.07</td>
<td>-0.9 to 1.51</td>
<td>ns</td>
</tr>
</tbody>
</table>

Total mean change 2.9 3.1 0.2

*Single outlier influenced the mean score

Stages of change scale (Ritterband, Thorndike, Cox, Kovatchev & Gonder-Frederick, 2009)
1= I am not thinking of making this change
2= I am thinking about making this change, but not in the next fortnight
3= I am thinking about making this change in the next fortnight or so
4= I am trying to make this change at the moment
5= I have already made changes to this, and have done so for longer than 2 weeks
Acceptability

Mean scores (SD) are reported below with ratings on a 0–4 scale, (‘not at all’ to
‘very’). Completers reported high levels of ease of use (M=3.2, SD=0.7), convenience
(M=3.0, SD=0.9), liking the way the web program looked (M=2.8, SD=1.1,
satisfaction (M=2.7, SD=0.9), suitability for the age range 18-24 years (M= 2.5,
SD=1.2), usefulness (M=2.8, SD=1.2), easy to understand (M=3.3, SD = 1.1), being
able to trust the information (M=3.3, SD=0.7), suitability for delivery via the internet
(M=3.2, SD=0.6). Lower levels of acceptability were reported for engagement
(M=2.3, SD=1.3) and likelihood of returning to review one’s responses (M=1.9,
SD=1.4).

Impact and effectiveness

Completers reported average endorsement of increase in knowledge about personal
risk factors for depression (M=2.2, SD=0.8), ‘how well did the web program work for
you?’ (M=2.4, SD =1.0), ‘how much did the web program help improve your overall
well-being?’ (M=2.1, SD=1.1), and ‘how well were you able to follow through with
the program’s recommendations?’ (M=2.3, SD=0.8).

Impact and effectiveness of custom components

Completers reported high levels of perceived effectiveness for the 'Personal Profile'
survey as a depression risk and protective factor assessment (M=2.9, SD=0.6),
helpfulness of the Personal Progress Tree as a visual guide to understanding ‘how you
can change your circumstances’ (M=2.9, SD=1.3) and the illustrated movie scenarios
‘to help your understanding of situations that may increase or reduce risk for
depression’ (M=2.8, SD= 1.2).

Impact and effectiveness of modules

Completers reported high levels of perceived effectiveness (improved understanding
and helped change risk factors) for the Genes, Family and Environment module
(M=2.4, SD=1.1), Thinking Styles module: (M=3.1, SD=0.9), Coping Styles module
(M=2.9, SD=0.9), Social Connections module (M=2.8, SD=1.7), Alcohol Use module
(M= 2.3, SD=1.3). Lower levels of perceived effectiveness were reported for the
Tough Times module (M=1.8, 0.4) and the Family Dynamics module (M=1.8,
Completers reported strong endorsement of recommending the MindExpress™ program to others (M=2.9, SD=1.1).

Discussion

MindExpress™ is the first online depression prevention program for young adults with elevated familial risk of major depressive disorder, tailored to personal risk factors. Preliminary findings demonstrated a mean reduction of depressive symptoms from 7.6 (mild) to 5.1 (minimal to mild) (PHQ-9 (Kroenke, Spitzer & Williams, 2001) over the duration of the program (eight to 15 weeks). The study showed a significant mean positive change in cognition and behaviour related to coping styles with a large effect size of 0.88, higher than the weighted mean small effect size of 0.22 reported by meta-analysis of 69 preventive programs (Nicholas, Oliver, Lee & O’Brien, 2004).

The statistical analysis is limited by the small sample in this pilot study, thus implications drawn are preliminary and cautious. The focus of the Coping Styles module was on three common coping strategies; problem-focused coping, emotional-focused coping and avoidant coping strategies; identifying one’s own coping strategies and matching them appropriately to difficult everyday situations. Significant mean change occurred from Preparation (pre-intervention) to Action (post-intervention). A previous web-based CBT prevention program in people with a family history of depression found that approach-oriented (problem-focused or emotion-focused) coping strategies predicted improvements to depression scores at 12-month follow-up, compared to patients receiving ‘treatment as usual’ (De Graaf, Hollon & Huibers, 2010). This suggests that the Coping Style modules may help to prevent depression by encouraging participants to choose more adaptive coping styles. It will be necessary to conduct a larger study of MindExpress™ to meaningfully analyse associations between behavioural change scores and depression symptoms.

A risk-factor based approach has also shown efficacy in a pilot study of a depression prevention program targeting dysfunctional thinking, low social support and depressive symptoms in 14 late adolescents. Completers experienced favorable changes in effect sizes for all risk factors measured: depressive symptoms,
dysfunctional thinking and social isolation (Van Voorhees, Ellis, Stuart, Fogel & Ford, 2005).

Nil or marginal non-significant mean change in cognition and behaviours shown by other modules could be because nonlinear progression and regression to earlier stages is common within the framework of Transtheoretical Models of Behavioural Change. Change occurs at the individuals own pace and individuals may spend a long time at one stage, e.g., Contemplation then progress rapidly to Action (Prochaska & Diclemente, 2005). It is also noted that it takes three to six months to complete the Action stage of behavioural change before moving to a Maintenance stage (Prochaska & Diclemente, 2005). Thus, longer-term follow up will be an essential part of the design of an RCT of MindExpress™ to detect meaningful sustained change in depression-risk behaviours and depression levels 12-months post-intervention.

A recent online depression prevention program for adolescents with elevated risk for depression, CATCH-IT (Competent Adulthood Transition with Cognitive-behavioral, Humanistic and Interpersonal Training) (Saulsberry, Marko-Holguin, Blomeke, Hinkle, Fogel, Gladstone et al., 2013) showed sustained reduction in depressed mood at one year follow-up. The intervention was delivered via primary care and included motivational interviewing, which was associated with reduction in the likelihood of being diagnosed with a depressive episode. Several web-based depression prevention programs have reported that involvement of a general practitioner in primary care facilitates engagement and therefore completion of the program (Saulsberry et al., 2013; Van Voorhees, Ellis, Stuart, Fogel & Ford, 2005). This should be considered when designing a larger trial of the MindExpress program.

Limitations of the present study included low completion rates, small sample size and gender bias. While the proportion of female participation was greater than expected in the present study (83% at baseline) this is within the range found in studies of depression prevention programs (47 studies including both genders, mean (SD)=57.9 (20.4), range 3–95; Nicholas, Oliver, Lee, O’ Brien (2004). Family history sub-groups were too small to perform meaningful statistical analysis on the effects of differences in the strength of family history of depression but could be explored in a larger trial.
It could not be determined whether differences in time lapses between module completion affected the results. A future study could overcome this potential limitation by delivering the intervention in supervised settings. This would be feasible when delivering the program in schools, supervised youth community settings, or primary care, but difficult to implement in the web community setting. Automated email reminders assisted participants to complete MindExpress™ but these could be tailored to personal circumstances to improve adherence.

Conclusions

The present pilot study of MindExpress™ provides preliminary evidence for the value of an online risk factor-based tailored depression prevention intervention for community-based young adults at elevated risk due to family history. The results suggest that MindExpress™ was highly acceptable to the target group and the majority of the modules and custom features were perceived as effective. Changing modifiable risk factors, such as unhelpful coping styles, in a supported online program has potential to help reduce risk for depression in vulnerable populations. Future research should include validated strategies to minimise attrition, such as the inclusion of motivational interviews and greater frequency of automated email reminders. Engagement with a supervisory figure such as teachers for delivery in schools, general practitioners for delivery in primary care, youth leaders for delivery in the community or youth probation officers for delivery in the custodial release setting may improve adherence. The program now requires further evaluation in a larger RCT involving broader socio-demographic groups. This will be integral to quantify the extent to which tailored risk-factor based prevention programs facilitate behavioural and cognitive change, and protect against the development of depressive symptoms.

Conflict of Interest

None declared
Reference panel

Wilde A.,¹ Whitton A.E.,¹ Lenroot, R.,²,³ Trevena, L.,⁴ Schofield, PR.,³,⁵,⁶ Mitchell P.B.,¹,⁶,⁷

¹School of Psychiatry, University of New South Wales, Sydney, Australia
² Neuroscience Research Australia, Sydney, Australia
³ South East Sydney and Illawarra Area Health Service
⁴ School of Public Health, University of Sydney, Sydney, Australia
⁵ School of Medicine, University of New South Wales, Sydney, Australia
⁶ Brain Sciences UNSW, Sydney, Australia
⁷ Black Dog Institute, Sydney, Australia

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Appendix A

Family history screen (Modified from Weissman et al., 2000)

Q1) Has anyone in your family ever see a psychiatrist, psychologist, social worker or other health professional for a psychological or emotional problem?

Q2) Has anyone in your family ever stayed overnight or longer in a hospital or treatment facility because of any psychological or emotional problem?

Q3) Has a doctor ever given you or anyone in your family medication for a psychological or emotional problem?

Q4) Has anyone in your family been diagnosed with depression?

Then

For each FDR and SDR or adopted relative, participants were asked the following key questions. For this family member, which of the following symptoms did you notice they had that lasted for TWO WEEKS or more (excluding a time of physical illness or bereavement)?

Q5) They felt sad, blue or depressed nearly every day for TWO WEEKS or more?

Q6) They had difficulty carrying out their usual responsibilities such as working, going to school, taking care of the family or household for TWO WEEKS or more?

Q7) They felt VERY tired most of the time, have no energy, not care about their usual activities almost every days for TWO WEEKS or more?

Q8) They had disruption to sleep as much as an hour a night for TWO WEEKS or more, if known?

Criteria for relative to meet criteria for past or present major depressive disorder:

Q5=‘yes’ and at least one of Q6, Q7 or Q8=‘yes’

Measure of Parenting Style (MOPS)

The total score for each category (indifferent, controlling and abusive) provided a dimensional measure showing the degree to which that parental style was experienced by an individual (Parker et al., 1997).
The relationship between social media, depression prevention and support for women postnatally

Associate Professor Karen-leigh EDWARD PhD
Faculty of Health Sciences
Australian Catholic University
Director/Chair, Nursing Research Unit St Vincent’s Private Hospital Melbourne
Locked Bag 4115
MDC Fitzroy 3065 Vic Australia
T: +61 3 94117338

Kenneth SMITH PhD
Associate Professor
School of Education
Australian Catholic University
115 Victoria Parade, Fitzroy, Victoria, Australia, 3065

Judelle MCFARLAND RN, RM
Nurse Unit Manager Postnatal Ward
St Vincent’s Private Hospital Melbourne
59-61 Victoria Parade, Fitzroy, VIC 3065

Jody OLORENSHAW RN, RM
Nurse Unit Manager Birth Suite
St Vincent’s Private Hospital Melbourne
59-61 Victoria Parade, Fitzroy, VIC 3065

Liz TURNER RN, RM
Director of Nursing, Fitzroy Campus
St Vincent’s Private Hospital Melbourne
59-61 Victoria Parade, Fitzroy, VIC 3065

Claire HEWITT
Social Media Manager
St Vincent’s Private Hospital Melbourne
59-61 Victoria Parade, Fitzroy, VIC 3065

Jo-Ann GIANDINOTO RN, BN, BBSc
Research Assistant
Faculty of Health Sciences
Australian Catholic University
St Vincent’s Private Melbourne, Nursing Research Unit
Locked bag 4115
Fitzroy MDC, VIC 3065

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The relationship between social media, depression prevention and support for women postnatally

ABSTRACT: With the internet expansion there is an increase use of the internet by health services and for health information. It has been suggested that online social activity can provide the opportunity to develop and maintain social associations that can be psychologically beneficial. Few studies have explored the relationship between social support and online social interactions in the online environment in the postnatal period. The aim of this study was to extend knowledge of the role of individual difference predictors (such as emotional, and psychosocial variables) in how mothers engage with each other online, and the mechanisms by which they obtain social support in the online environment; specifically, Facebook. The study used a cross sectional design using survey. In this study the nursing and midwifery team at the participating hospital established a Facebook page for mothers in 2011 to facilitate exchange of information and access to the maternal healthcare staff of the hospital. Recruitment occurred between June and December 2013 through a posting on the Facebook page inviting participants to undertake the online survey. There was a statistically significant positive correlation between time spent on Facebook and having Facebook as part of the daily schedule. Importantly, feeling part of the Facebook community was negatively correlated to scores indicating depression potential using the Edinburgh Post Natal Depression Scale and positively correlated to social connectedness scores. These findings show promise for the engagement of mothers in this type of forum for healthcare purposes.

Keywords: depression, Facebook, motherhood, online interactions, nursing and midwifery, postnatal, post-partum, social media, social support, social connection

Introduction

The perinatal period is an expected life milestone that occurs within a social perspective; including the supports available to mothers in birth and the postnatal period (Buulttiens et al., 2012). However, in the context of globalisation conceptual shifts in relation to structural supports available from family and friends mean that the supports are diverse and at times increasingly distant for women. Individuals are increasingly using the online environment (such as social networking sites) to engage and associate with others (Boyd and Ellison, 2007). A number of encouraging and positive outcomes are related with the use of the online environment. These include improving mental health, social support derived from online environments (Longman et al., 2009) and the use of Facebook to share personal clinical information, request disease-specific guidance and feedback, and to receive emotional support in an impersonal forum (Greene et al., 2011). Moreover Online social activity can
provide the opportunity to develop and maintain social associations that can be psychologically beneficial (Steinfield et al., 2008). However, inconsistent conclusions regarding the relationship between social support and online social interactions in the online environment may be an area of investigation that may warrant further exploration (Kim et al., 2009; Campbell et al., 2006).

There is an increased use of the internet by health services and increasing amount of health information available with the internet expansion (Buultiens et al., 2012). The culture of online support can create meaningful links to others when geography is a barrier to such support (Capitulo, 2004; Cowie et al., 2011) particularly for new mothers (Evans et al., 2012; Drentea and Moren-Cross, 2005). Electronic communication can be particularly important for mothers living in rural and remote areas (Hall and Irvine, 2009; O'Connor and Madge, 2004). Of the little research examining new parents who use Facebook, results suggest Facebook interaction assists in personal transition into parenting (Bartholomew et al., 2012). Further evidence put forward the online environment provides women who experience postpartum depression a safe place to connect with others, to receive information, encouragement and even hope (Drentea and Moren-Cross, 2005; Porter and Ispa, 2013). Additionally, mothers can gain a sense of support through increased connectedness with others (Hudson et al., 2009; McDaniel et al., 2012; Thoren et al., 2013; Zaslow, 2012). Due to limited information in an expanding social networking environment, research into the underlying motivations, expectations and use or non-use of social media is advocated especially for health purposes (Antheunis et al., 2013). The aim of this study was to extend the knowledge related to the role of Facebook (i.e. Online interactions) and the individual difference predictors (i.e. Emotional and psychosocial variables) and how they relate to new mother’s perceptions of social connectedness, support and mental well-being.

Methods

Participants

The sample comprised mothers who were users of the hospital led Facebook page aged over 18 years of age.

Participating site
The participating site was a large private hospital located in Melbourne. The hospital has a large obstetric service with approximately 3000 deliveries per year. In 2011 nursing and midwifery staff established and led a Facebook page aimed at mothers to facilitate the exchange of information and increase access to maternal healthcare staff. Doctors, nurses, midwives and allied health professionals worked collaboratively on the social media strategy enabling the hospital to share health information with the general public. In 2013 the Facebook page had 3500 followers.

**Procedure**

The research used a cross-sectional correlational design, which was statistically tested. Participants were recruited directly through a posting on the Facebook page which invited the users to participate in an anonymous online survey regarding their Facebook use practices and social interactions. Recruitment occurred between June and December 2013.

**Ethics Statement**

Ethics approval was received from two human research ethics committees (the hospital [protocol number LRR 058/13] and the associated university).

**Measures Used**

The measures used in the survey included collection of demographic data, Facebook usage using 16 items from Ross, et al. (2009), regarding the quantity, quality, and bi-directionality of interactions on Facebook and Facebook connectedness using a modified 20 item social connectedness scale (Lee et al., 2001), depression was measured using the Edinburgh Post Natal Depression Scale (EPDS) which is a 10-item scale (Cox et al., 1987), social anxiety measured using the three item Mini-SPIN (Connor et al., 2001); social support measured using the Maternity Social Support Scale (MSSS) which is a 6-item, 5-point Likert-type rating scale that measures social factors associated with postnatal depression (i.e. low friendship network, lack of family support, lack of help from spouse/partner, conflict with spouse/partner, and feeling unloved by spouse/partner) (Webster et al., 2000) and subjective wellbeing measured using the five item Satisfaction with Life Scale (Diener et al., 1985). These are all standard psychological measures, and the reliability and validity of these scales have been used extensively in published research.
Data Analysis

Data was downloaded from Survey Monkey into SPSS for analysis. The variables examined were Facebook usage (quality, quantity, and reciprocity analysed using a modified version of the social connectedness scale), Facebook connectedness, depression, social support, and subjective wellbeing. Data was first summarised descriptively and an independent samples $t$ tests were used to compare the average scale scores in relation to depression scores. Spearman’s correlation coefficient was used to determine relationships between each scale and Facebook usage on this maternal health hospital page. Between groups analyses of variance (ANOVA) were used to investigate the effects of Facebook usage and the scales used in the survey. A $p$ value of $< 0.05$ was used to ascertain statistical significance for all analyses undertaken.

Results

Demographics

A sample of $n=186$ (a response rate of 5% possible followers of the Facebook page). Of the $n=186$ female participants 88.1% were aged between 25 – 44 years. The majority of respondents (80.1%) had achieved a qualification beyond their high school certificate with many having an undergraduate degree qualification. A large proportion of respondents were either married (80.6%) or in a defacto relationship (7.5%) (Table 1).

Table 1: Participants’ Socio-demographic Characteristics

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 – 24</td>
<td>6</td>
<td>3.2</td>
</tr>
<tr>
<td>25 – 34</td>
<td>83</td>
<td>44.6</td>
</tr>
<tr>
<td>35 – 44</td>
<td>81</td>
<td>43.5</td>
</tr>
<tr>
<td>45 – 54</td>
<td>6</td>
<td>3.2</td>
</tr>
<tr>
<td>55 – 64</td>
<td>3</td>
<td>1.6</td>
</tr>
<tr>
<td>Total</td>
<td>179</td>
<td>96.2</td>
</tr>
<tr>
<td>Missing</td>
<td>7</td>
<td>3.8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Highest Level of Education</th>
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<tbody>
<tr>
<td>Primary School</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>High School</td>
<td>27</td>
<td>14.5</td>
</tr>
<tr>
<td>TAFE</td>
<td>40</td>
<td>21.5</td>
</tr>
<tr>
<td>Degree</td>
<td>64</td>
<td>34.4</td>
</tr>
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</table>
**PG Degree**

<table>
<thead>
<tr>
<th>Degree</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Masters</td>
<td>14</td>
<td>7.5</td>
</tr>
<tr>
<td>Phd</td>
<td>3</td>
<td>1.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>177</strong></td>
<td><strong>95.2</strong></td>
</tr>
<tr>
<td><strong>Missing</strong></td>
<td><strong>9</strong></td>
<td><strong>4.8</strong></td>
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</table>

**Employment Status**

<table>
<thead>
<tr>
<th>Status</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed</td>
<td>62</td>
<td>33.3</td>
</tr>
<tr>
<td>Self-Employed</td>
<td>19</td>
<td>10.2</td>
</tr>
<tr>
<td>On Maternity Leave</td>
<td>48</td>
<td>25.8</td>
</tr>
<tr>
<td>Out of Work &gt; 1 year</td>
<td>2</td>
<td>1.1</td>
</tr>
<tr>
<td>Out of Work &lt; 1 year</td>
<td>2</td>
<td>1.1</td>
</tr>
<tr>
<td>Homemaker</td>
<td>35</td>
<td>18.8</td>
</tr>
<tr>
<td>Student</td>
<td>4</td>
<td>2.2</td>
</tr>
<tr>
<td>Retired</td>
<td>2</td>
<td>1.1</td>
</tr>
<tr>
<td>Unable to Work</td>
<td>2</td>
<td>1.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>176</strong></td>
<td><strong>94.6</strong></td>
</tr>
<tr>
<td><strong>Missing</strong></td>
<td><strong>10</strong></td>
<td><strong>5.4</strong></td>
</tr>
</tbody>
</table>

**Marital Status**

<table>
<thead>
<tr>
<th>Status</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>6</td>
<td>3.2</td>
</tr>
<tr>
<td>Married</td>
<td>150</td>
<td>80.6</td>
</tr>
<tr>
<td>Defacto</td>
<td>14</td>
<td>7.5</td>
</tr>
<tr>
<td>Divorced</td>
<td>4</td>
<td>2.2</td>
</tr>
<tr>
<td>Widowed</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>Separated</td>
<td>4</td>
<td>2.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>179</strong></td>
<td><strong>96.2</strong></td>
</tr>
<tr>
<td><strong>Missing</strong></td>
<td><strong>7</strong></td>
<td><strong>3.8</strong></td>
</tr>
</tbody>
</table>

**Religious Preference**

<table>
<thead>
<tr>
<th>Preference</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agnostic</td>
<td>23</td>
<td>12.4</td>
</tr>
<tr>
<td>Atheist</td>
<td>33</td>
<td>17.7</td>
</tr>
<tr>
<td>Buddhist</td>
<td>2</td>
<td>1.1</td>
</tr>
<tr>
<td>Christian</td>
<td>94</td>
<td>50.5</td>
</tr>
<tr>
<td>Hindu</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>Jewish</td>
<td>2</td>
<td>1.1</td>
</tr>
<tr>
<td>Muslim</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>Other Religion</td>
<td>18</td>
<td>9.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>174</strong></td>
<td><strong>93.5</strong></td>
</tr>
<tr>
<td><strong>Missing</strong></td>
<td><strong>12</strong></td>
<td><strong>6.5</strong></td>
</tr>
</tbody>
</table>

---

Note: TAFE- Training and Further Education

**Facebook usage (quality, quantity and reciprocity)**

Interestingly, 3 respondents did not have a current Facebook account. Those who did have a Facebook account were on Facebook on average 1-2 hours per day and most (90%) either agreed or strongly agreed that Facebook was part of their everyday activity.
Respondents agreed or strongly agreed (67%) that they felt out of touch when they hadn’t logged onto Facebook for a while and indicated they felt a part of the Facebook community. There were 3 participants in the 55-64 year old age groups which was surprising. This may be attributed to older mothers (some new mothers located at the participating hospital who hosted the Facebook page have been 55 and 56 years old).

Most respondents preferred the Facebook wall (68%) rather than Facebook messages. Most respondents liked Facebook for communicating with friends (71%) and 58% liked Facebook due to it providing information (e.g. Groups).

**Anxiety, depression and social connection via Facebook**

Independent samples $t$ tests were used to compare the average scale scores of the social connectedness scale (SCS), maternal social support scale (MSSS), social anxiety scale (SPIN), and satisfaction with life scale (SWLS) by participants in the post natal depression (EPDS) “high score group [i.e.: a score 10 or greater] to the average scale scores reported by those in EPDS “low score group [i.e.: a score 9 or less]. As shown in Table 2 the $t$ tests were statistically significant ($p < .01$) and according to Cohen (1988), the effect sizes ($d$) are considered to be in the range of medium to large.

<table>
<thead>
<tr>
<th>Scale</th>
<th>EPDS High Group</th>
<th>EPDS Low Group</th>
<th>Cohen’s $d$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>N</td>
</tr>
<tr>
<td>SCS</td>
<td>71.57</td>
<td>11.84</td>
<td>42</td>
</tr>
<tr>
<td>MSSS</td>
<td>23.95</td>
<td>3.77</td>
<td>43</td>
</tr>
<tr>
<td>SPIN</td>
<td>4.89</td>
<td>3.38</td>
<td>44</td>
</tr>
<tr>
<td>SWLS</td>
<td>21.93</td>
<td>5.88</td>
<td>45</td>
</tr>
</tbody>
</table>

*Equal variances not assumed; significance at $p < .05$

Table 2 results revealed those who recorded a higher depression score in order of effect (higher effect to lower) were less satisfied with life, less socially connected, experienced less support and reported social anxiety. A subsequent Spearman’s correlation
analysis (Table 3) revealed that all five scale measures are significantly related to each other at $p < .01$ (correlations ranged from .29 to .62) and the direction of the relationships were consistent with previous research. The effect sizes, according to Cohen (1988), were ‘moderate’.

Table 3: Spearman Correlations for Three Facebook (FB) Usage Questions and Five Scales

<table>
<thead>
<tr>
<th>Measure</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWLS</td>
<td>-----</td>
<td>.40**</td>
<td>.44**</td>
<td>-.38**</td>
<td>-.52**</td>
<td>-.12</td>
<td>.05</td>
<td>.06</td>
</tr>
<tr>
<td>SCS</td>
<td>-----</td>
<td>.37**</td>
<td>-.62**</td>
<td>-.44**</td>
<td>-.09</td>
<td>-.06</td>
<td>.18*</td>
<td></td>
</tr>
<tr>
<td>MSSS</td>
<td>-----</td>
<td>-.29**</td>
<td>-.46**</td>
<td>-.06</td>
<td>-.02</td>
<td>-.03</td>
<td>.02</td>
<td></td>
</tr>
<tr>
<td>SPIN</td>
<td>-----</td>
<td>.34**</td>
<td>.07</td>
<td>-.03</td>
<td>-.02</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPDS</td>
<td>-----</td>
<td>.01</td>
<td>.06</td>
<td>-.17*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time on FB</td>
<td>-----</td>
<td>.32**</td>
<td>.28**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FB Daily Schedule</td>
<td>-----</td>
<td>.48**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Part of FB Community</td>
<td>-----</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* $p < .05$. ** $p < .01$.

As depicted in Table 3 the Spearman correlation analyses revealed the following including effect size according to Cohen (1988). There was a statistically significant positive relationship, $p < .01$, between time spent on Facebook and Facebook in their daily schedule ($r_s [164] = .32, p < .01$). The effect size of this relationship was ‘moderate’. A statistically significant positive relationship, $p < .05$, existed between being part of the Facebook community and the SCS ($r_s [150] = .17, p < .05$). The effect size of this relationship was ‘weak’. Additionally a statistically significant negative relationship, $p > .05$, between being part of the Facebook community and the EPDS ($r_s [142] = .18, p < .05$). The effect size of this relationship was ‘weak’. A statistically significant positive relationship, $p > .01$, between being part of the Facebook community and Facebook in their daily schedule ($r_s [164] = .28, p < .01$). The effect size of this relationship was ‘weak’. And finally a, statistically significant positive relationship, $p > .01$, between being part of the Facebook community and time spent on Facebook ($r_s [164] = .48, p < .01$). The effect size of this relationship was ‘moderate’.
These correlation results demonstrate the question related to dedicating a part of the daily schedule to Facebook was positively related to time spent on Facebook \((p < .01)\). Additionally, the question related to feeling a part of the Facebook community was positively correlated to social connectedness scores (SCS) \((p < .05)\) and time spent on Facebook \((p < .01)\) and having Facebook as part of the daily schedule \((p < .01)\). The question related to feeling part of the Facebook community was negatively correlated to scores indicating depression potential using the EPDS \((p < .05)\).

**Being a part of the Facebook community**

One-way between groups analyses of variance (ANOVA) were used to investigate the effects of the question related to ‘Feeling part of the Facebook community’ groups mean scores (Disagree, Neutral, and Agree) on five scales (SCS, EPDS, MSSS, SPIN, and SWL). The ANOVAs were statistically significant \((p < .05)\) on three of the five scales (SCS, EPDS, MSSS; refer to Table 4 for details). Medium effect sizes \((\eta^2)\) ranged from .04 (EPDS, MSSS) to .09 (SCS). Post hoc analyses with Hochberg’s (1988) GT2 (using \(\alpha\) of .05) revealed significant group differences on the SCS and MSSS scales (refer to Table 4). All other scale group mean differences were not statistically significant \((p > .05)\).

Table 4: Means, Standard Deviations, and One-Way Analyses of Variance for the Effects of the question related to ‘Feeling part of the Facebook community’ Groups (Disagree, Neutral, and Agree) on Five Scales (SCS, EPDS, MSSS, SPIN, and SWL)

<table>
<thead>
<tr>
<th>Scale</th>
<th>Feeling Part of the Facebook Community</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>M</th>
<th>SD</th>
<th>M</th>
<th>SD</th>
<th>M</th>
<th>SD</th>
<th>F</th>
<th>df</th>
<th>(p)</th>
<th>(\eta^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCS</td>
<td></td>
<td>83.17a</td>
<td>12.06</td>
<td></td>
<td>71.20ab</td>
<td>11.96</td>
<td>79.20b</td>
<td>11.92</td>
<td>6.48</td>
<td>2,139</td>
<td>.002</td>
<td>.09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPDS</td>
<td></td>
<td>8.79</td>
<td>5.25</td>
<td></td>
<td>9.26</td>
<td>3.53</td>
<td>7.89</td>
<td>3.95</td>
<td>3.26</td>
<td>2,147</td>
<td>.041</td>
<td>.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MSSS</td>
<td></td>
<td>27.36c</td>
<td>3.05</td>
<td></td>
<td>24.34c</td>
<td>4.30</td>
<td>25.86</td>
<td>3.74</td>
<td>3.27</td>
<td>2,143</td>
<td>.041</td>
<td>.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPIN</td>
<td></td>
<td>2.57</td>
<td>1.60</td>
<td></td>
<td>4.33</td>
<td>3.07</td>
<td>3.52</td>
<td>3.08</td>
<td>1.79</td>
<td>2,145</td>
<td>.170</td>
<td>.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SWLS</td>
<td></td>
<td>26.07</td>
<td>7.10</td>
<td></td>
<td>24.20</td>
<td>6.17</td>
<td>26.60</td>
<td>5.38</td>
<td>2.05</td>
<td>2,144</td>
<td>.132</td>
<td>.03</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. Means in a row sharing subscripts are significantly different \((p < 0.05)\) from each other. Hochberg’s GT2 post hoc test was utilised.
Discussion

These results are encouraging for understanding social support and social connection for mothers using the internet as a means of bringing mothers together. Family and friend support networks for mothers, in some cases, can be geographically or emotionally unavailable, meaning that close support and assistance for caring for their infant is not an option. In addition, some mothers have often been working and may not have had the opportunity to develop social networks, potentially isolating them. These results demonstrate that for these women feeling a part of the Facebook group community was related to potentially improving their feelings of social connectedness and support. Importantly the results also revealed a relationship between increased feeling of being part of the Facebook community and decrease in depression scores.

For many mothers having a baby is exciting and a time that is usually shared with loved ones and friends however for some the post-partum period can be daunting and for others isolating (Buultiens et al., 2012). Some mothers experience anxiety and others develop depression. Depression in the postnatal period is well recognised and negatively impacts the woman, her partner and the family unit. Social media (such as Facebook) is highly accessible and offers a means by which mothers can engage with others in a group who have experienced a similar life event (Boyd and Ellison, 2007) and may positively impact such areas of life as social connection and anxiety and overall satisfaction with life, as shown by the findings of this study. This finding supports the findings of a few other studies such as Longman and Obst (2009) who investigated the effects of online environments on mental health and wellbeing and Greene et al (2011) who found people used Facebook for many purposes including to participate in online groups. Online group activity can give the opportunity to expand and preserve social contacts (Steinfield et al., 2008) proving to be an excellent resource that could be psychologically helpful for individuals. This point is particularly important when considering depression development. More specifically, the interpersonal theory of depression relates to interpersonal relations that are altered in the depressive state such that depressed people have limited social support networks, elicit rejection from others, and are low in social skills across a wide variety of situations (Haefelf et al., 2007). The theory suggests the presence of a relationship or being cared for can facilitate re-connection towards well-being. Phillips (2007) argues that care is the glue that binds individual relationships and extends on this by saying that it “involves giving the
understanding and practical help required to maintain the status quo in people’s circumstances” (p20). This implies that (re)acquiring skills can be a catalyst for change, and fundamental to resisting depressive symptomatology (Edward, 2005).

For those living in rural (or remote) areas with limited access to support groups and potentially limited access to health information the use of online media is often their experience. In these cases electronic communication can create a virtual support group experience (Hall and Irvine, 2009; O’Connor and Madge, 2004). Additionally, maximising the use of online engagement can offer links to similar others when geography proves to be a barrier to such connections (Capitulo, 2004; Cowie et al., 2011) such as for new mothers (Evans et al., 2012; Drentea and Moren-Cross, 2005).

The results of this study also revealed the more connected people felt using Facebook the more satisfaction with life they experienced. While most people used Facebook to connect with existing and past friends, this study revealed that a large proportion of people used Facebook for information and to enable them to be a part of a group. Interestingly, there were some individuals (only 3 respondents) who did not have a current Facebook account; however this did not preclude them from engaging in the Facebook page dedicated to mothers and motherhood. While people may choose not to take part in Facebook (i.e. having their own profile), they may still engage in social media in many other ways. The information about the survey was hosted on the hospitals blog, it was Tweeted and retweeted in Twitter and there are also people who like to subscribe to the blog via email, suggesting that while people may not specifically choose Facebook as a social media tool, they may have other platforms which they regularly use, and most often, Twitter or Instagram. Further examination of these social media forum has the potential to inform healthcare organisations of other means to provide a virtual support forum or an interactive chat forum for women who may not otherwise be able to access such support post partum.

Limitations

The correlational analysis indicated that all scales were significantly related to aspects of Facebook usage (quality, quantity, and reciprocity) and while correlational analyses can suggest that there is a relationship between two variables, they do not prove that one variable causes a change in another variable. The design of the study creates major limitations related to generating inferences about the findings, for example the sample was not randomised, the
response rate was small of the population of interest (mothers who followed this Facebook page) and variables were not controlled for. However, correlational designs allow for simple observations and are valuable when it may be difficult to manipulate a variable. Additionally, the design allows for an analysis of the relationships of a number of variables rather than casual relationships.

Conclusions

This nurse and midwife led initiative has potential to support new mothers beyond the confines of the hospital admission. Adoption of the online environment as a ‘virtual support group’ for these women appears to have merit and should be considered by organisations that provide services for mothers (i.e. Obstetrics, community groups, breast feeding care). The fast expansion of social media is altering the way people connect particularly for healthcare purposes and given the current paucity of evidence on the topic of the underlying motivations, expectations and use of social media for mothers the findings of this study makes a good contribution to that growing evidence base. Further research related to use and benefits for mothers examining types of media other than Facebook is warranted.

Healthcare information and support is necessary in the post partum period. For some accessing the required community supports may be difficult, even elusive. More specifically, some mothers may be isolated geographically, time pressed with other competing issues, returning to work shortly after the birth of their baby, or hesitant to ask personal questions in a face-to-face forum related to post natal experiences. In this study the quality, quantity and reciprocity of Facebook usage was related to social connectedness and lower depression scores, showing promise for the engagement of mothers in this type of forum for health purposes.
References


An evaluation of the Black Dog Institute REACH Program:

A Psycho-educational Support Group for People with Depression and Bipolar

Kathleen Thompson
Department of Psychology
Macquarie University
Sydney, Australia, 2152

Paper Presented at the
15th International Mental Health Conference
Surfers Paradise, Gold Coast (QLD), 25-27 August, 2014
ABSTRACT:

Rising levels of affective disorders present a major public health problem and group psycho-educational programs are increasingly favoured as a cost-effective intervention strategy. The REACH program, developed by the Black Dog Institute, is a psycho-educational support group for people with these disorders. It consists of nine 2-hour weekly sessions for 6 - 10 participants, organised around educational material such as information on sleep, diet and exercise, strategies for effective problem solving, managing stress, and developing a Wellbeing Plan. Sessions also include mindful breathing and expressive writing as well as opportunities for open discussions around participants’ experiences and feelings. The efficacy of the REACH program was evaluated through 52 participants’ pre-program surveys and 49 participants’ post-program surveys. Ninety-eight percent of participants who submitted the post-program survey stated that the REACH program had met their expectations and addressed their motivation for attending, with 100% adopting some new wellbeing strategies. On commencement of the program, participants’ rating of control over their disorder averaged 5/10 which increased to 7/10 on completion. Additionally, the high rates of attendance (minimum 81%) for a non-compulsory program indicated that the program was successful in meeting participants’ needs.

Keywords:
Depression, bipolar, psycho-education, support group

Introduction

Rising levels of affective disorders present a major public health problem (Murray & Lopez, 1996) and group psycho-educational programs are increasingly favoured as a cost-effective intervention strategy (Houghton & Saxon, 2007). The REACH program was developed in 2009 by the Black Dog Institute, a world leader in the research, diagnosis, treatment, and prevention of bipolar and depression, and is a psycho-educational support group for individuals with these disorders. It is run as a closed group of 6-10 participants and one facilitator over nine weeks with two-hour weekly sessions. As found in other psycho-educational programs, The REACH program incorporates an educational, psychological and group process component (Lara et al., 2004). The educational component seeks to provide an understanding of precipitants to depressive or manic episodes...
and ways of managing their impact. It addresses biological factors, life events and interpersonal factors. The psychological component features activities aimed at the reduction of depressive symptoms by encouraging a positive view of the participants and their environment, developing participants’ behavioural repertoire, facilitating the expression of ‘negative’ feelings and encouraging the analysis of problems. The group component involves the creation of a safe and supportive environment that facilitates the expression of emotions and cognitive and behavioural changes.

The REACH program echoes Yalom’s (1995) conceptualisation of the significant therapeutic mechanisms that operate in group therapy: installation of hope, universality, imparting of information, development of socialising techniques, imitative behaviour, catharsis, group cohesiveness and interpersonal learning. Hope is instilled when participants have high expectations of the program, assisted by a facilitator who also believes in the value of the program. Universality occurs when participants listen to other participants and realise they are not alone in their experiences, e.g., around community stigma, frustration and isolation. The facilitator and other group members play a role in imparting information about psychological or physical functioning and workshopping solutions to problematic situations. Yalom identifies that group cohesiveness occurs when group members accept one another, give support and form meaningful relationships within the group. A cohesive group promotes the expression of profound emotions, which in turn promotes catharsis by interpreting the meaning of the event. When group members observe the process of another person with similar problems, they benefit from that through imitative behaviour. Since the group exists as a microcosm of the ‘real world’, participants can witness the development of social skills, which Yalom calls social learning (Vinogradov & Yalom, 1989). The role of the facilitator has been identified as central to participants’ positive experience of the group by providing a safe environment in which participants can feel secure enough to share, modelling functional interpersonal behaviour, e.g., dealing calmly with conflict, fostering trust, and being encouraging and understanding (Lara et al., 2003).

REACH is delivered through a service partnership model whereby a facilitator enlists a partner organisation to supply a venue and cover the cost of refreshments and participant workbooks. The partner organisation may also assist in sourcing participants through their existing client base and networks. REACH facilitators must have tertiary qualifications in the fields of Social Work, Psychology, Counselling, etc. and undertake a two day training course at the Black Dog Institute. In 2012, 17 REACH programs were delivered in Sydney metropolitan and regional areas.
Participants
The prerequisites of participating in the REACH group were: being over 18 years old; having a diagnosis of depression or bipolar disorder for more than one year prior to application; an acceptance of their illness; the capacity to commit to, and participate in, the nine weekly sessions; and the motivation to implement wellbeing strategies. Participants were sourced through a variety of avenues including community notice boards, the existing client base of the partner organisation, newspaper advertisements, the Black Dog Institute website, and through other health professional referral. Fifty-two participants (17 male, 35 female, age range 21 – 70, M=44) from six groups completed the REACH Participant Pre-Program Survey at the commencement of the program. Forty-nine participants from seven groups completed the Post-Program Feedback and Evaluation Survey at the completion of the program.

Description of the program
In the first week, participants filled out a pre-program survey which asked for age and gender, diagnosis, what wellbeing strategies were currently being employed, how much control they felt they have over their illness and their motivation to join REACH. Participants also completed a consent form and supplied their contact details. Upon completion of the paperwork, each member engaged in a short conversation with their neighbour and then introduced that person to the group. The facilitator also introduced themselves to the group and worked with the group members to decide on group rules and boundaries. The facilitator then initiated a discussion around the fears that may be experienced when beginning such a group, and emphasised the importance of hope. The group was introduced to mindful breathing (Wilhelm, as cited in Wigney, 2010, p.13) accompanied by a script read by the facilitator and engaged in 5-10 minutes of expressive writing (Baike & Wilhelm, 2005). At approximately fifteen minutes to the hour, the group broke for refreshments. On resumption of the group, participants were asked to contribute to a discussion on things in their life they are grateful for, and the ‘Mood Chart’ in their manuals was explained. At the end of the session, participants were asked to identify a ‘wellness goal’ that they would like to work on during the coming week.

In the following weeks, the first 45 minutes of each session were devoted to a mindfulness exercise, expressive writing and “The week that was”- a summary of the week’s highs and lows with the facilitator encouraging input from all group members. In the second hour, the
facilitator checked on any homework that was set from the previous week, such as gratitude journal entries, or an exercise or healthy eating commitment. The focus of the second hour was drawn from the material contained in the participants’ workbooks (Wigney, 2010), with each week addressing a different topic:

**Week 2: Identifying your strengths**
- Introduction to Wellbeing Plan
- Identify your unique strengths
- Practise setting a wellbeing goal, creating a mantra and cultivating gratitude
- Think about what is Happiness?

**Week 3: Dealing with Loss, Grief and Challenges**
- Work through any negative feelings associated with diagnosis, treatment or management of your mood disorder
- Name your emotions of loss, anger and grief
- Define the challenges and positive benefits of your diagnosis

**Week 4: Identifying your relapse signature**
- Learn a mindful eating exercise
- Determine your individual relapse signature
- Contextualise your illness episodes
- Identify early warning signals and triggers for episodes

**Week 5: Wellbeing Plans**
- Unpack the essential elements of a Wellbeing Plan
- Identify your triggers and Early Warning Signs
- Determine ‘Braking Actions’ to prevent relapse
- Overcome problems
- Understand the role of medication in staying well
- Monitor your progress

**Week 6: Addressing exercise and stress**
- Think about your Wellbeing Strategies and your Wellbeing Tree
- Exercise your Mood:
- Benefits of exercise
- Tips to get motivated
- Developing an exercise plan
- Barriers and solutions to exercise
- Discuss techniques to address your stress

**Week 7: Diet, sleep, work and self-esteem**
- Think about nutrition and food diaries
- Talk about alcohol
• Learn strategies to deal with social pressure
• Discuss impact of spirituality
• Discuss mood disorders at work
• Tips for healthy sleeping patterns
• Building self-esteem and wellbeing

Week 8: Identifying support networks
• Identify your support network
• Nominate people as your ‘outside insight’
• Think about formalising roles and responsibilities
• Learn strategies to nurture your supportive relationships

Week 9: Planning for your stay well journey
• Prepare for setbacks
• Write your final Stay Well Plan
• Thank each other
• Practical strategies for increasing happiness
• Discuss options for staying in touch
• Celebrate the end of REACH and all you have achieved
• Completion of the Participant Post-Program Feedback and Evaluation Survey

Materials
1. The REACH Group Program Participant Pre-Program Survey.
This anonymous survey asks for age and gender, diagnosis, what wellbeing strategies are currently being employed, how much control participants feel they have over their illness and their motivation to join REACH. Participants are asked about what strategies they currently find helpful in staying well.
This anonymous survey asks for how much control participants feel they now have over their illness, their confidence in their ability to recognise their individual relapse signature, whether the program met their expectations and whether the program addressed their original motivation for joining the group. Participants are asked whether they have implemented a “stay well plan” with anyone they trust, and whether they have adopted any new wellbeing strategies. Participants are asked what they found to be the most and least beneficial aspects of the program. Participants are also asked whether they feel ready to end the program, and whether they want to remain in contact with their fellow group members. Participants are also invited to suggest any topics they feel would be beneficial to include in future programs. Additionally, participants are asked to give ratings of the facilitator, the course design,
materials and content, the outcomes of the course and finally, for any additional comments they wish to make.

**Results**

*Demographics*

Fifty-two participants completed the Participant Pre-Program Survey, of which 17 were males and 35 were female. Participants’ ages ranged from 21 to 70 years and the average age was 44 years. Twenty three (44%) stated that they had depression and 29 people (56%) stated that they had bipolar disorder. Forty-nine participants completed and returned the Post-Program Feedback and Evaluation Survey which did not ask for any demographic information.

*Strategies*

Forty-four participants (84%) stated that they were currently taking medication to manage their mood disorder. Other commonly reported strategies included:

- Regular exercise
- Healthy diet
- Regular sleep
- Lifestyle routine
- Relaxation
- Talking to friends
- Limited coffee/alcohol
- Reading/information/education
- Counselling/psychotherapy

*Feeling of control*

In response to the question “In general, how in control do you feel over your mood disorder?” rated on a scale of 1-10 (1 = poor control, 10 = optimal control), participants on average rated a ‘five’ which suggested they felt neither in control nor out of control over their mood disorder. The most frequent response was a rating of ‘six’ with 15 participants (28%) indicating a mild level of control.

*Motivation to join REACH*
The most common motivation for joining the REACH program and what they hoped to gain from the experience, was to gain more understanding and control over their mood disorder. Some of the other common responses included:

- To learn coping strategies
- Identify triggers and prevent relapse
- Make positive life changes and feel some hope again
- Develop a stay well plan and implement this in daily life
- Get some support and practical help to manage the illness better
- Reduce feelings of isolation and connect with people who have similar life experiences
- Enjoy life and family and contribute positively to family life

**Figure 1: weekly attendance of reach participants across all groups (out of 100%)**

Perhaps due to the volunteer nature of the REACH support group program, weekly attendance varied, although never falling below 81%. This consistently high attendance rate infers that the REACH program format and content met the needs of the group participants.

**Success of the Program**

**TOPICS AND CONTENT**
Effective Topics and Activities

“The week that was” was identified as a highlight across all of the groups as it enabled the participants to share their experiences and personal insights about the previous week, as well as seek feedback and advice from the other group members. Additionally, consistently starting the sessions with a mindfulness activity and expressive writing created a sense of security and order.

Less Effective Topics and Activities

Some participants indicated that they already had very good insight into their illness and required more comprehensive information than the REACH program provided. Other participants indicated that the information on exercise and diet did not extend their existing knowledge.

BENEFITS OF REACH

Most Beneficial Aspects of REACH

Of the 49 participants who submitted a Post-Program Feedback and Evaluation Survey, 48 participants (98%) reported that the REACH program met their expectations and sufficiently addressed their original motivation for participating. Twenty-six participants (53%) stated that they had implemented a ‘Stay Well Plan’ with someone they trusted. Most of the participants who had not implemented a ‘Stay Well Plan’ stated that they were planning to implement the plan once they had identified a suitable support person. Forty-nine participants (100%) had adopted some new wellbeing strategies as a result of the REACH program with 30 (61%) reporting that they now exercised more than before completing the REACH program. The most common wellbeing strategies included:

- Mindfulness meditation/relaxation/eating
- Expressive writing
- Goal setting
- Problem solving
- Mood charting
- Implementing a braking action for early warning signs and triggers
- Regular sleep and mealtimes
- Stress reduction strategies
- Reduced coffee/alcohol intake

According to participant responses, the most beneficial aspects of the REACH program were:
- Meeting and sharing with other people who have similar experiences
- Knowing that they were not alone and making great friendships
- Gaining insight into triggers for their illness and learning strategies to assist in staying well and preventing relapse

**Positive outcomes experienced by participants**

![FEELING OF CONTROL](chart.png)

**Figure 2: average level of control perceived by REACH participants**

Forty-nine participants returned the completed the REACH Participant Post-Program Feedback and Evaluation Survey. As illustrated in Figure 1, in response to the question “In general, how in control do you feel over your mood disorder? Please rate on a scale of 1-10 (1 = poor control, 10 = optimal control)”, participants on average rated a ‘seven’, signifying a good level of control. The most frequent responses were ratings of ‘eight’ (33% respondents) and ‘seven’ (29% respondents), reflecting a good to very good level of control. This result reflects an improvement in perceived level of control once completing the REACH program
with an average rating of only ‘five’ across the groups in Week One and ‘seven’ in Week Nine.

When asked “How confident are you in recognising your unique relapse signature?” On a scale of 1-10 (1 = poor control, 10 = optimal control) on average, participants rated a seven, reflecting a good level of confidence having completed the REACH program (Figure 2).

Twenty-two participants (43%) indicated a least beneficial aspect of the REACH program and these included:

- Not enough time to cover all the content during some of the nine week sessions (the sessions should be increased from two to three hours)
- Expressive writing and mindfulness exercises were challenging for some participants
- Listening to other people’s stories was tiring (although ultimately helpful)
- At nine weeks, the program wasn’t long enough

Completion of REACH

Thirty-four participants (69%) stated that they felt ready to finish the REACH program with 45 (92%) wanting to preserve ongoing contact with their fellow REACH group members (which occurs without the involvement of the facilitator).

Suggested topics to include in future reach programs

Most of the participants were satisfied with the range of topics covered during the nine week REACH program. Some participants offered suggestions on additional topics that could be covered including:

- Relationships and the challenges of dating with a mood disorder
- Dealing with isolation and loneliness
- Education for family members, and family dynamics while living with a mental illness
- Dealing with stigma at work
- Different styles of mindfulness using creativity and visual arts

OVERALL PARTICIPANT PROGRAM FEEDBACK
As shown in Figure 3, REACH participants were neutral regarding whether there was sufficient time to cover the subject matter in the weekly two hour REACH sessions ($M = 3.2$). Anecdotal reports suggested that participants felt rushed and would like more time for group discussion. Participants agreed that the instructional methods and activities in REACH were appropriate and sufficiently varied across the nine week program ($M = 4.4$).
Figure 4: average ratings of course content by reach participants (5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, 1 = strongly disagree)

Figure 4 illustrates that participants agreed that the REACH course content was logically organised ($M = 4.5$) and that REACH was comprehensive and covered what the participants needed to know ($M = 4.3$).

Figure 5: average ratings of course materials by reach participants (5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, 1 = strongly disagree)

As reflected in Figure 5, REACH participants agreed that the REACH workbook and materials were informative, clear and easy to follow ($M = 4.5$) and that these materials will be a useful resource for their ongoing Stay Well Journey ($M = 4.6$).
As seen in Figure 6, REACH participants agreed that their facilitator was knowledgeable about the topic area of mood disorders ($M = 4.8$). Participants also agreed that their facilitator contained group discussions appropriately, so that everyone was comfortable and had a chance to contribute during each session ($M = 4.7$). Participants agreed that the facilitator created a warm and safe environment ($M = 4.8$) and presented the REACH material clearly and in a well-paced manner ($M = 4.5$). Participants agreed that their facilitator provided clear and complete answers to questions ($M = 4.6$) and provided feedback to make corrections and check progress ($M = 4.6$). In addition, participants agreed that their facilitator used language and examples that they could relate to ($M = 4.6$).
As shown in Figure 7, REACH participants agreed that their knowledge and skills increased as a result of completing the REACH course ($M = 4.6$) and that they would be able to apply what they have learnt during the REACH program in their daily lives ($M = 4.5$). Participants agreed that the REACH program was a good investment of their time ($M = 4.8$) and that the group program met their expectations and addressed the topics they needed to cover ($M = 4.6$). In addition, participants agreed that they felt more confident in implementing a Stay Well Plan following the REACH program ($M = 4.6$).

**Discussion**

The success of the REACH program is illustrated in a number of key areas. Importantly, all participants who submitted the Post-Program Feedback and Evaluation Survey had adopted some new wellbeing strategies as a result of the REACH program with 61% of participants reporting that they now exercised more than before attending the program. At the beginning of the program, participants were asked to indicate on a scale of 1-10 (where 1 = poor control and 10 = optimal control) how much control they had over their disorder. The average score was five at this time-point which increased to seven on completion of the REACH program. Additionally, the high rates of attendance for a non-compulsory program indicated an effective synergy between participant, group, and facilitator (Roback & Smith, 1987). Tellingly, 98% of participants stated that the REACH program met their expectations and
addressed their motivation for attending. The strength of the interpersonal bonds is demonstrated through 92% of participants indicating that they wanted to preserve ongoing contact with their fellow REACH group members. And it is reflective of the value of the program that most participants’ comments around what they disliked centred on not having enough of it, both in terms of session length and course duration.

**Limitations of this research and comments on future research**

Certainly, this study is limited in that the post-program evaluations are not linked to individual pre-program evaluations, and thus it is suggested that this may be a focus of future research. It is also possible that participants who submitted a post-program evaluation may have qualities (e.g., polarised in their experiences of the program) not shared by those who did not submit a post-program evaluation. The efficacy of the REACH program could be further evaluated by conducting a randomised controlled trial. In addition to valuable qualitative data, participants’ pre and post-group levels of depression could also be accessed using measures such as the Beck Depression Inventory (BDI; Beck, 1972) or the Depression Stress and Anxiety Scale (DAS; Lovibond & Lovibond, 1995). Participant satisfaction as a function of diagnosis, group size, age and gender, and facilitator age, gender and experience would also be instructive to research. In 2012, the Black Dog Institute began to recruit facilitators from within existing health services with a view to phasing out the recruitment of individual volunteer facilitators. This is in the interests of ensuring that the facilitators are appropriately resourced and have an accessible support network to assist them in delivering the REACH program (REACH Facilitator Evaluation Report, 2012). It would be also interesting to see whether this change impacts upon participant satisfaction in future groups.

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References


PROVIDING EVIDENCE – BASED DUAL DIAGNOSIS TRAINING
– IT'S NOT EASY!

By Kim Wood
Senior Practitioner – Dual Diagnosis and Complex Needs
Gold Coast Drug Council
Burleigh, Queensland 4220

Paper presented at the
15th International Mental Health Conference
Surfers Paradise, Gold Coast (QLD), 25 – 27 August 2014
Providing evidence – based dual diagnosis training – it’s not easy!

ABSTRACT: This paper outlines the process one region went through in developing a dual diagnosis training and evaluation methodology. The training is local, free and open to Workers from all sectors of the helping services – private, primary, secondary and tertiary care; government and non-government; youth oriented; and mental health and substance misuse services. The training aims to increase Worker capability in assessing and treating dual diagnosis (addiction and mental health). Measurement of effectiveness of a variety of issues - usefulness of content; satisfaction with training style; knowledge change; improved service collaboration - is discussed.

Keywords: mental health; addiction; dual diagnosis; training; evaluation

Introduction and Background

In order to modernise health and social care a lot of work has been done on discovering evidence – based interventions. Queensland developed some best practice guidelines around dual diagnosis (addiction and mental health) in 2010. Although education and training of staff is seen as necessary to underpin excellent service delivery (Bailey and Littlechild, 2001; Cooper et al, 2006; Hughes et al, 2008; Walters et al, 2012), there has been less attention paid to evidence – based ways of insuring this training actually does provide staff with the ability to provide these contemporary skills – based interventions (Shafran et al, 2010).

Dual diagnosis (DD) is an important clinical issue across Western cultures (Phillips et al, 2010). In terms of the extent of the problem, Slade et al (2007), in the Australian National Survey of Mental Health and Wellbeing, reported 35% of individuals with a substance use disorder (31% of men and 44% of women) have at least one co-occurring affective or anxiety disorder (see also Croton, in Phillips et al, 2010). Within AOD treatment centres, mental disorders range from 51 –84% (Brems & Johnson, 1997). Most common disorders are mood, anxiety and personality disorder. However we also know rates of trauma exposure and Post Traumatic Stress Disorder (PTSD) are high (Perryman & Dingle, 2013) and there has been an increase in psychosis with increasing use of methamphetamine (Topp et al, 2002).

To highlight local need, Campbell et al. (2010) within the WHOS rehabilitation treatment centres reported data on the average age of clients (33) and found 59% diagnosed
with mental health disorders. Unpublished data from the Gold Coast Drug Council (GCDC) shows average age at 24 and 49% with a recorded mental health diagnosis (Ford, 2013). The same data analysis found 12% of clients had diagnosed Schizophrenia or Drug Induced Psychosis compared to 9% reported in Campbell et al (2010). The 2007-2008 National Minimum Dataset reported amphetamine use at 11%. Within the GCDC (2013) cohort it was used by 36% of clients.

Comorbidity has a large impact (see Figure 1) especially if you are young, male, and homeless (Hughes, 2006; Hughes et al, 2008).

Figure 1: Impacts of Co - Morbidity

Services struggle to manage these clients (Croton, 2010). A training need was determined locally by the Gold Coast Heads Up Consortia Dual Diagnosis SubCommittee, following a review of its aims in 2011, combined with results of a training needs analysis
conducted within the local youth work service network (a “context” evaluation as per Bailey, 2002. See also Hughes, 2006; Stubbs et al, 2009).

In response to the need to translate the new guidelines into practice (Eaton et al, 2007), a Dual Diagnosis Training SubCommittee was formed. Membership consisted of the GCDC DD Coordinator (a local Non-Government Organisation, NGO), with the Queensland Health Dual Diagnosis Coordinator and Alcohol and Other Drugs Service (AODS) Educator.

These members were tasked with creating a rolling education program (“input evaluation”, Bailey, 2002) that would be local, free and open to Workers from all sectors of the helping services – private and primary, secondary and tertiary care, NGO, youth oriented, mental health and Alcohol and Other Drugs (AOD). Evidence points to the role of training in obtaining good treatment outcomes - as competence improves, outcomes improve (Shafran et al, 2010). There is little specific training available in “dual diagnosis” – and there was none locally. Training aimed to increase Worker capability in assessing and treating dual diagnosis. Dissemination of evidence – based interventions is critical to improving the public’s health but there has been little study of effective dissemination outside of relatively resource rich infrastructures within academic or research centres (Kerner et al, 2005).

Workshop Development

A series of six Workshops were developed. Inter-professional education was chosen as the most effective way of “cultivating collaborative practice” (Bailey, 2002). The aim is to get as many different Workers from services, sectors and professional backgrounds as possible – the broadest and most diverse context of community health practice settings (Kerner et al, 2006; Lee et al, 2011). One of the overarching aims of the series of Workshops is to improve collaboration between services (as per the Queensland Dual Diagnosis Best Practice Guidelines) (see also Rani & Byrne, 2012).

An original aim was to repeat the Workshops over the year – changing the day and month of delivery. It is not feasible to get every staff member from every organisation to a training session. Therefore, to maximise peoples’ ability to attend, the Workshops would be repeated and held on different days.
The content of the Workshops is based on the Queensland Dual Diagnosis Guidelines (2010) and aimed to introduce Workers to:

- **Mental health assessment and referral**
  - Aims of Session:
    - Introduction to Conducting A Mental State Examination
    - Introduction to Mental Health Diagnoses
    - Introduction to Issues of Consent to Share and Confidentiality
    - Referring into Mental Health Services – What Acute Care Team Want To Know
    - Introduction to ‘The Quadrant Model’ for Referring Dual Diagnosis Clients

- **Mental health interventions**
  - Aims of Session:
    - Introduction to Models of Treatment in Mental Health
    - Introduction to Mental Health Diagnoses
    - Introduction to Medication for Dual Diagnosis
    - Introduction to Modifications to Motivational Interviewing (MI) for Dual Diagnosis
    - Introduction to Transdiagnostic Cognitive Behavioural Therapy (CBT) for Dual Diagnosis

- **AOD Brief Intervention**
  - Aims of Session:
    - Introduction to Models of Treatment in AOD
    - Introduction to Brief Intervention Frameworks
    - Introduction to Motivational Interviewing
    - Introduction to Relapse Prevention

- **AOD Group Intervention**
  - Aims of Session:
    - Introduction to AODS “Back In Control” Treatment for AOD
    - Introduction to Groupwork in AOD
    - Introduction to Managing Difficult Client Interactions in AOD Treatment

- **AOD Education**
  - Aims of Session:
- Substance Specific Training on alcohol
- Substance Specific Training on cannabis
- Substance Specific Training on amphetamine type substances
- Substance Specific Training on Opiates and Other Abused Medications
- Service user experience of DD and service use

- Working with Dual Diagnosis
  - Aims of Session
    - Introduction to Dual Diagnosis
    - Engaging People with Dual Diagnosis
    - Screening for Drug Use and Mental Health Issues
    - Assessment of Drug Use and Mental Health Issues
    - Referral Facilitation

Most of the content maps to many other DD training presentations in the literature (eg: Bailey, 2002; Cooper et al, 2006; Hughes, 2006; Hughes et al, 2008a & b; Lewis, 2008; Renner, 2007) as does length of the training package (Bailey, 2002; Cooper et al, 2006; Hughes, 2006; Hughes et al, 2008; Lee et al, 2011). We want training clinicians will accept and adopt – “not too hard to learn, too complex, too boring or too confusing…focusing on the few most important steps that account for the lions share of clinical gains” (Hayes, 2002), training “easily adopted without burden” (Eaton et al, 2007).

Presenters are arranged for different sections of the training. We aim to get presenter representation from across non - government and government services (inter- and transdisciplinary cooperation and collaboration, as per Kerner et al, 2006 and Hughes et al, 2008) which also aids to improve the training capacity across the locality (cf Hughes et al, 2008). A short list of candidates is created and invitations made. A brief of the days outline and their specific timeslot topic is given to each presenter. They are responsible for creating and delivering content. This enables us to work within the availability of current resources (Bailey & Littlechild, 2001). We encourage using methods to address different adult learning styles - experiential and participatory learning (Bailey, 2002; Hughes et al, 2008b) as well as didactic teaching, as there is very little research on best ways of teaching therapeutic skills (Shafran et al, 2010).
We have been fortunate to get some excellent Queensland Health and NGO staff to accept the invitation to present (a psychiatrist, psychologist, AOD worker, social worker, nurse, lawyer). We also have a User Representative share their story of having DD and their recovery journey thus far.

**Workshop Advertising**

The Workshops are advertised as widely as possible with about one month’s advance warning. Electronic flyers and messages are passed to primary care networks, professional bodies such as the Australian Psychological Society (Gold Coast Branch), the Heads Up Consortia service members, the Heads Up Consortia DD SubCommittee service members, mental health service networks, youth service networks and widely within Queensland Health. As services / individuals contact us for information about the training, we add those contacts to our distribution lists as well.

**Workshop Attendance**

Workshops are consistently fully booked within days of advertising the date. We take about 30 people per Workshop. We believe this demonstrates a high need for local, free – to – access, dual diagnosis training within the area. In the first year, there was a 76% attendance rate.

Staff attend from the Queensland Health Continuing Care and CYMHS Teams, from the Acute Ward and from Community Health. There is employment agency and indigenous health service staff. There is private psychology and Department of Child Safety representation, as well as a wide range of NGO staff. There is a full range of professionals – from social workers, psychologists, psychiatrists and nurses, to youth and other support workers.

**Workshop Evaluation**

We have a variety of issues we need to measure our effectiveness in: usefulness of content; satisfaction with training style; knowledge and skills change; improved service collaboration; attitudes and confidence (“reaction evaluation”, Bailey, 2002).
Our hypotheses are:
- the training is useful
- the training is relevant
- the training meets learners needs
- that Workers attending the training have improved attitudes to work with people with DD
- that Workers attending the training have improved knowledge to work with people with DD
- that Workers attending the training have improved confidence to work with people with DD
- that Workers attending the training have improved skills to work with people with DD
- that Workers attending the training are able to help service users navigate the service system
- that Workers attending the training work more collaboratively with others within the service system.

There are no widely accepted and cost effective methods of monitoring the adoption and use of specific clinical practices (Hayes, 2002). Information has to be collected on content, structure and outcomes of training sessions (Bailey & Littlechild, 2001), gathering participant views on the learning experience and satisfaction with the program (Bailey, 2002).

Taking a very pragmatic stance, and following many others in the literature, a basic satisfaction survey is conducted for each Workshop to explore the experience of the training inputs (satisfaction with course structure, content and quality of instruction) from the learners perspective (Bailey and Littlewood, 2001; Cooper et al, 2006; Lewin, 2008; Hughes et al, 2008a & b; Stubbs et al, 2009; Walters et al 2012). Even though Blumenfeld and Holland, (1971) call this “one of the most popular though least meaningful criterion measures”, it does allow training providers to identify strengths and weaknesses and make changes to the training as it evolves (“formative evaluation”, Bailey, 2002). Ultimately it is feedback from trainees that matters most in determining the success of a course (Lewis, 2008). In Year 1, Workshops 1 & 3, 100% of attendees found the training very relevant/ relevant. 100% of attendees found it very professionally/ professionally delivered and 100% of attendees found
the content easy to understand (at least most of the time). The service user talk evaluates well. Similar results have been found in the following two years.

We use role play and use of direct observation against specific competency measures to give feedback on performance of skills (Bailey & Littlechild, 2001). A true “outcome evaluation” – questions on learning, job performance and service delivery (Bailey, 2002) is outside the scope of this initiative, which has been conducted solely within available resources.

A knowledge based questionnaire is used to assess attitudes and values around working with a DD clientele. There is no valid and reliable measure of this in the literature (see eg: Bailey, 2002; Hughes et al, 2008; Hughes et al, 2008b; Lewin, 2008; Stubbs et al, 2009. Cf Walters et al, 2012). In Workshop 1, Year 1, initially 72% had rated themselves with some knowledge and 23% felt they had good knowledge of the Workshop topic. A full 90% rated themselves as having achieved greater understanding by the end of the day. Anecdotal feedback is participants like the practical training (see also Walters et al, 2012). Similar results were found for Workshop 3.

As a result of the training in WorkShop 1, Year 1, participants found:

1. That they were more at ease with people who were DD
2. That they were more confident in their ability to assess the presence of DD
3. They experienced a slight improvement in their knowledge of substances and their effects.
4. They were more confident in their ability to provide appropriate mental health information
5. They were more confident in their ability to work holistically with complex needs clients
6. They were more knowledgeable about severe mental illness and its symptoms
7. They were more confident about their ability to communicate with clients irrespective of the problems
8. Their knowledge of housing accessibility improved.
9. Their knowledge of where to obtain support and help improved
10. They were more comfortable with legal issues of their clients
11. Their ability to prove drug treatment information improved.
12. Their available referral networks improved
13. Their confidence in helping DD clients overcome ambivalence and reluctance improved.
14. The percentage of those who were confident and became very confident improved.

There was improvement for participants even in areas which were not specifically covered in Workshop 1 (e.g., drug knowledge, housing, drug treatment). The only way this could have occurred was through participant discussion (Hughes, 2006). Therefore the aim of increasing collaboration across service professions and sector was met.

Year Two knowledge data is presented in Table 1 below. Interestingly, knowledge change was significant regardless of how many years attendees have been working in the sector (see Table 2). A mixed factorial analysis of variance was performed to investigate whether participants’ who had less than five years of experience benefited more (or less) from the workshop than participants who had greater than five years of experience.

The interaction between years of experience (less than five years and greater than five years) and time (pre-workshop and post-workshop) was non-significant $F(1, 21) = 2.23, p = .15$, partial $\eta^2 = .09$, suggesting that pre- and post-workshop scores did not vary as a function of participants’ years of experience. The main effect of time (pre- and post-workshop) was significant $F(1, 21) = 11.63, p < .001$, partial $\eta^2 = .36$, indicating that participants’ scores post-workshop were significantly higher than their scores at pre-workshop. The main effect of years of experience (less than five years and greater than five years) was non-significant $F(1, 21) = .06, p = .801$, partial $\eta^2 = .0$, indicating that there was no significant difference in learning between participants who had less than five years of experience and those that had greater than five years of experience (Read, 2013).

This more robust analysis in Year 2 gave two clear conclusions. Firstly, each workshop is effective at increasing participants’ perceived knowledge. Secondly, there is a trend for both pre- and post-workshop scores to improve with each successive workshop. Participants do go to more than one workshop. This is consistent with the argument that consecutive training days are required for successful uptake of skills (Kavanagh, 2011).

In a Year 3 analysis we found that as a whole group, over all workshops there was a significant increase in confidence in ability to work with DD (see Table 3, below).
Table 1: Pre- and Post-Workshop Knowledge Questionnaire Scores for Each Workshop (Year 2).

<table>
<thead>
<tr>
<th>Competence Questionnaire</th>
<th>Pre-Workshop</th>
<th>Post-workshop</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Workshop One</td>
<td>18.22</td>
<td>3.83</td>
</tr>
<tr>
<td>Workshop Two</td>
<td>20.25</td>
<td>4.96</td>
</tr>
<tr>
<td>Workshop Three</td>
<td>22.50</td>
<td>5.61</td>
</tr>
<tr>
<td>Workshop Four</td>
<td>22.29</td>
<td>4.56</td>
</tr>
<tr>
<td>Workshop Five</td>
<td>23.67</td>
<td>5.26</td>
</tr>
<tr>
<td>Workshop Six</td>
<td>25.35</td>
<td>4.55</td>
</tr>
</tbody>
</table>

Table 2: Pre- and Post-Workshop Knowledge Questionnaire Scores by Years of Experience (Year 2).

<table>
<thead>
<tr>
<th>Years of Experience</th>
<th>Pre-workshop</th>
<th>Post-workshop</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Less than five</td>
<td>25.06</td>
<td>4.97</td>
</tr>
<tr>
<td>Greater than five</td>
<td>29.81</td>
<td>5.61</td>
</tr>
</tbody>
</table>

Table 3: Pre- and Post-Workshop Confidence Questionnaire Scores

<table>
<thead>
<tr>
<th>Paired Samples Test</th>
<th>Paired Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
</tr>
<tr>
<td>Pair 1 confidence_pre</td>
<td>.54878</td>
</tr>
<tr>
<td>Pair 1 confident_post</td>
<td>.54878</td>
</tr>
</tbody>
</table>
Limitations of the study:

In Dixon’s taxonomy (cited in Bailey and Littlechild, 1991), we provided only a Level 2 evaluation – gathering participants reactions at the end of a training program with some attempt to gather (self-report) data on participants underpinning knowledge. There are the normal limitations of self report data (Cooper et al, 2006). There is a need to reliably assess the skill level required for a Worker to obtain good outcomes. This may be different for different disorders (Shafran et al, 2010).

There is no control group of people who did not attend our training, therefore we are unable to make causal pronouncements that the measured knowledge change was a factor of our training (Blumenfeld & Holland, 1971; Bailey, 2002). Learners were there voluntarily and so perhaps more likely to be responsive to changing their practice (Bailey & Littlechild, 2001).

As with most evaluations of DD training, there has been no long term follow up to assess whether actual clinical practice or the standard of care for clients has improved (Bailey & Littlechild, 2001; Bailey, 2002; Hughes, 2006; Lee et al, 2011; Shafran et al, 2010; Walters et al, 2012) – a “summative” evaluation or level 3. This is a limitation, for in Hayes (2002) words, “the ultimate purpose…is the modification of actual clinical practice”.

We can still not say what sort of improvements in skills can come from short training (with or without follow on supervision). There is some evidence to say supervision is essential for competency in CBT and MI for substance misuse (Shafran et al, 2010). We can not say if this training is an efficient way to disseminate treatment (Shafran et al, 2010).

We recognise ongoing long term support as important to build capacity across the sector (Hughes et al, 2008;) and improve interagency collaboration (Hughes, 2006). Practitioners need time to try out learning in the work setting to get full benefit (Bailey & Littlechild, 2001).

Assessing this would equate to a Level 4 evaluation – impact of the training upon the organisations attendees work at – has it added value to the services? An organisational or systems approach would be one way of doing this (see for example Donald et al, 2013).
Monitoring service user experience of services post training would be a useful audit/evaluation process (Hughes et al, 2008).

Further, at this stage we are not clear which elements of the training are more successful (Bailey & Littlechild, 2001; Hughes et al, 2008b) or whether there are “dose” training requirements.

The course has not been evaluated in terms of its’ cost – effectiveness or ‘value for money’ (Bailey & Littlechild, 2001). “Disseminating psychological technology is expensive and requires significant training for a diverse range of treatment providers, many of whom have strong commitments to existing interventions” (Hayes, 2002). We can argue that this training is provided within routine practice and current job descriptions and is free to participants, therefore it is a low cost activity. Costs involved in not having the trainers/attendees in their service delivery roles and costs of supervising the learned new practices would have to be calculated, as would the ‘savings’ of the increased capacity of the trained workers to be able to provide effective interventions into the future to truly make this claim. To date this has not been attempted.

Discussion:

Creating the training calendar took a lot of time in the first year. So much that it was (and still is) impractical for us to run the training twice a year as initially planned. The use of other professionals is vital, if you have the resource to do it. We have had to change presenters due to poor feedback in the evaluation forms. However interprofessional and interagency collaboration is possible and gives attendees a much wider range of knowledge and experience to learn from. It is important to have a clear ‘advertising’ and booking procedure and this also takes a significant amount of time. We often have to run a waitlist/cancellation policy as the training days have been oversubscribed (see also Cooper et al, 2006).

The pre and post test measurement tools were adapted from the limited resource available. Further research is required on all facets of questionnaire and evaluation design as well as on the validity of satisfaction surveys. There is little evidence base or psychometric robustness in the literature in this area to date (Hughes et al, 2008b).
The aim of the training is to have more confident Workers – better questions asked, better knowledge of sources of support for self and client and increased knowledge of possible interventions, as there is a lack of ‘specialists’. Improvements in team working and clarity about professional roles may also be important (Bailey & Littlechild, 2001). The benefits to clients aims to be improved outcomes, less harm and to operationalise the ‘no wrong door’ policy outlined in the DD Guidelines (2010). This latter may only be able to be assessed through interviewing a random sample of service users (Bailey & Littlewood, 2001) or by getting all services to implement and then share specific outcome measures. However for this we need “objective indicators of improved outcomes” (Shafran, 2010) and this area is still contentious.

We are aware of research that identifies that one – off training days are not enough to make new knowledge a standard part of practice (Kavanagh, 2010) and that learning needs to be transferred successfully to the practice environment so that the organisation gets the most benefit from training (Bailey & Littlechild, 2001). Training needs to be supported by organisations (eg: effective case load management) and to have effective supervision and follow – up in order to be maintained (Hughes et al, 2008; Lee et al, 2011; Stubbs et al, 2009) Training and supervision may even decrease staff turnover (Shafran et al, 2010; Walters et al, 2012). Training should be revisited to look at how to increase peoples sense of motivation, a sense of their right to work with these problems, how to increase perceptions of job satisfaction (Renner’s, 2007, “clinicians triad”) and how supported they are in their roles (Hughes et al, 2008b).

There is evidence that short course learning can be maintained up to 18 months later (Hughes et al, 2008b). Hughes et al, 2008b want regular follow ups of training to better understand the acquisition and erosion of learning. Independent verification of skill at baseline and follow – up is also required (Hughes et al, 2008b). Sadly, resources in our applied context do not allow us to provide this sort of follow – up.

**Conclusions:**

It is possible to facilitate the uptake of evidence based practice within existing resources by utilising an inter - and trans - disciplinary collaborative approach. The training program is labour intensive. The training evaluated as having useful content, satisfactory training style,
and creating knowledge change. Whilst there is some evidence of improved service collaboration/ knowledge, this is a difficult area to assess and requires more resource than is possible within our applied health setting context.

There are few evidence based ways of measuring the success of training in making Workers more effective with clients and more work needs to be done in this arena. We have existing models of good service delivery and ‘best’ practice. It’s time they are resourced appropriately with rigorous evaluation built in for continuous improvement. The public has every right to expect that best practice is available within all settings, from all workers.

References:


