

Some centres strive hard to shorten hospital stays by inserting ultra-short-stay acute care units into EDs^{39,43,44} or, as in the United Kingdom, by developing CRHT as a viable alternative^{45,46} operating also in a triage role. Inpatient admissions dropped to only 1:8 of those referred, selectively those with worse crisis ratings or Health of the Nation Outcome scores and came from deprived areas of the city.⁴⁵ Kapur et al²⁶ prospectively studied National Health Service inpatient psychiatric admissions between 1997 and 2008, a period of psychiatric bed reductions, and found that the rate of inpatient suicide deaths fell by one-third from 2.45 to 1.68/100,000 bed days, particularly in patients aged 15 to 44. There was a 59% reduction in hangings. Compensating for the fall in inpatient suicide deaths, there was a corresponding rise among patients under the care of CRHT teams, that is, a possible transfer of risk to community settings.

The Inpatient Ward

Safety Precautions Contemporary culture in Europe and North America stresses individual autonomy and frowns on old-fashioned, so-called custodial care. Gatekeepers are reluctant to detain patients involuntarily and impose restrictions on their movement or privacy. This mindset may influence clinical judgment and cause some physicians to prematurely and mistakenly discontinue 72-hour formal assessments, sometimes based on a single encounter. I have reviewed cases where suicide ensued. The same preconception may result in granting patients who are still suicidal but do not appear to be so, unaccompanied and weekend passes, or premature discharge from hospital. Appleby et al⁴⁷ surveyed 10 000 cases of people who had died by suicide who had contact with mental health services in the 12 months before death, 16% of them psychiatric inpatients at the time and 21% of these under special observation. One-half of the people were in contact with mental health services the week before their death and 20% in the previous 24 hours, but, at final contact, suicide risk was estimated to be high in only 2% of them. Paterson et al⁴⁸ explored judgments regarding suicide risk by psychiatrists and nurses on acute inpatient units in Scotland and found their judgments to be inconsistent, with lack of agreement in both psychiatrists' and nurses' ratings of the suicide risk for each individual vignette. We cannot avoid the conclusion that clinicians' ratings of suicide risk in individual patients is, to say the least, inaccurate,⁴⁹ and, therefore, it is best to be cautious and not overconfident when it comes to exercising responsibility for the safety of one's suicidal patient. After all, a truly suicidal patient has no interest in betraying his intentions to someone likely to impede them. Nevertheless, others act impulsively some time after having been assessed as not actively suicidal.

The corollary of an overly restrictive ward atmosphere is that it will transfer more of the responsibility for recovery from the patient to the doctor and may even reinforce stigmatization; it is, therefore, seen by some to be counter-therapeutic. Clearly, there has to be a balance between the 2 objectives. Where the patient is deemed to be at significant risk, a high level of surveillance and restricted movement is essential, while others who are demonstrably nonsuicidal and are thoroughly understood (that is, as to how they are thinking and feeling) should be entrusted with responsibility for themselves, and it would be invidious to impose unnecessary restrictions.

Unit Design and Environment The putative ideal design for an inpatient unit is one encompassing the greatest chance of keeping patients under direct vision at all times, together with the absence of physical hazards. In the case audits authorized by TJC known as root cause analyses, the physical environment of the inpatient unit was incriminated in 84% of reported suicides,¹⁵ clearly the most important factor in inpatient suicide. Benensohn and Resnik⁵⁰ consulted their own inpatients about design vulnerabilities on the unit that might be exploited for suicide (cited and discussed in Cardell et al⁵¹). They discovered that most patients had already explored the potential for suicide and suggested many weaknesses that had not occurred to the health care team and were delighted to do so. Since then,¹⁵ fiscal constraints have increased, with shorter lengths of stay, higher acuity of admissions, illness severity, and higher patient to staff ratios, making protection of patients even more challenging. Hanging was the method used in 75% of cases reported to TJC and most often occurred in bathrooms,⁵² bedrooms, and closets, and sometimes close to the floor. In bathrooms and bedrooms, acoustic ceiling tiles could be removed, and exposed plumbing, piping, or ductwork could be used as anchors for hanging (I know of such a case). The Lieberman et al paper¹⁵ lists numerous points about the physical environment that may require attention, including training cleaning staff to ensure their cleaning fluids are kept secure and their carts always attended, and informing visitors not to bring in potentially lethal items, such as plastic bags.

Mills and colleagues¹⁶ systematically undertook root cause analyses of 185 inpatient suicides and suicide attempts in VA hospitals. Doors and wardrobe cabinets accounted for 41% of the anchor points for hanging. Careful analysis led them to recommend eliminating doors when not required, removing doors on wardrobe cabinets and replacing the rods and hangers with shelves, eliminating belts, shoelaces, and safety razors, and ensuring there is a protocol in place to eliminate

access to drugs that could be used in overdose. Next, they recommended conducting regular environmental rounds to spot potential hazards.⁵² Finally, Mills and colleagues⁵³ were able to develop and implement the MHEOCC to review the environment of care in VA hospitals and identify suicide hazards requiring abatement. This checklist is now mandatory in all VA mental health units. The most common type of hazard was ligature anchor points, that is, protrusions capable of supporting the weight of a person more than 100 lbs. In the United Kingdom, hanging was the method in 77% of inpatient suicides between 1999 and 2007. The most common ligature points were doors, hooks or handles, windows, belts, and sheets or towels; the use of shoelaces, doors, and windows increased over time.⁵⁴ In its first 2 years of use in VA hospitals, the MHEOCC led to the abatement of 8298 hazards, accompanied by a reduction in VA hospital suicide rates from 2.64/100 000 inpatient mental health admissions to 0.87/100 000 admissions ($P < 0.001$).⁵⁵ The MHEOCC can be found online.⁵⁶

Protective Observation Among the root causes for 65 inpatient suicides investigated by TJC was “incomplete or infrequent patient observations.”¹⁴, p 1 The recommendations included advice to hospitals to update policies and procedures for patient observation and to monitor their consistent implementation. Official nursing guidelines recommend observation and therapeutic engagement “to provide support to clients who lack the capacity to prevent acting on suicidal ideation ... and reflect the client’s changing suicide risk”⁵⁷; however, there is no universal standard for a common nomenclature^{21,58,59} and policies are often disregarded by staff members in practice^{60–62} and between institutions.⁶³ Low staff-to-patient ratios aggravate the situation and adversely affect performance indicators.^{64–66}

Traditionally, observational supervision of suicidal patients (clients) was accepted as intrinsic to the nursing role but has, in the last 2 decades, become controversial. Failure to institute it with a patient who dies as a result carries potential legal consequences,^{67,68} but nurses complain that the practice lacks an evidence base,⁶⁹ is intrusive, humiliating to clients, and runs counter to nurses’ humanistic beliefs and desire for a therapeutic alliance.⁶² Polled patients say otherwise.^{70–72} Although the experience is intrusive, they uniformly feel safer and more hopeful when staff observers are upbeat, optimistic, emotionally supportive, and interact therapeutically with them.

Ontario nursing guidelines recommend that observation be “set at the least restrictive level, for the least amount of time within the least restrictive setting.”⁷³, p 42 This is consistent with the empirical finding that continuous observation (that is, constant care, special observation, constant special observation, and maximum observational care) beyond 72 hours can become counterproductive and demands fundamental case review.⁷⁴ No-suicide contracts lack empirical evidence^{67,75–77} and carry no assurances.⁷³ The guidelines specify sensible definitions of 4 levels of observation developed by Reynolds et al⁷⁸ and a New Zealand Guidelines Group (as cited by the Ontario Registered Nurses Association⁷³). Level I is General Observation: not all patients need to be kept within sight but their location should be known to staff at all times. Level II is Intermittent Observation: the patient’s location must be checked every 15 minutes. Level III is Within Eyesight): a patient could at any time act harmfully to self or others, thus staff is operational round-the-clock, but clearly observers might not be close enough to intervene effectively. Level IV is Within Arm’s Length: this is the highest risk level and requires nursing within arm’s length at all times, including in the bathroom. With inpatients considered actively suicidal, unpredictably psychotic, impulsive, or aggressive, more than one nurse may be assigned at a time. The guidelines also recommend, as do Lieberman et al,¹⁵ that at Level II, observation intervals change randomly at short intervals of less than 15 minutes to make the time-interval available for potential suicide less predictable.

*This is for the person who is considered to be at a significantly increased suicide risk ... It is recommended that the timing of observations be varied to ensure the person cannot predict the exact time of the next observation.*¹⁵, p 103

Level IV or equivalent is labour-intensive, stressful to nurses, and burdensome to nursing budgets. Hence some hospitals have developed acute care units where several patients may be housed within transparent cubicles and monitored from the nursing station. Closed-circuit television is sometimes used but has limitations because a suicidal person can readily find the blind spot of such equipment. The design of hospitals of the future will no doubt make it possible to monitor a psychiatric patient at all times, if necessary.

Absconders About one-third of inpatients take their lives while on agreed passes and another one-third having absconded. Locked doors have traditionally been used to secure inpatient units but are now controversial. Staff, patients, and visitors agree that locked doors reduce absconding but increase the workload for staff who have to let people in an out of the ward. However, open wards cause nurses anxious vigilance to prevent an abscond.⁷⁹ The patients surveyed expressed feeling depressed, stigmatized, and low self-esteem when the door was locked. In their review, Bowers et al²¹ noted there were just as many suicides following absconds from locked as open wards. Bowers et al⁸⁰ introduced a

package of nursing interventions (for example, delivering news of a cancelled pass with sensitivity and support) that resulted in a 25% decrease in absconding rates. Absconders were younger, more often unemployed, homeless, and suffering from schizophrenia and substance misuse. Often legally detained for treatment, they had histories of violence, noncompliance with medication, and died within 1 week of admission.²⁴

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Risk factors for inpatient suicide

Online eTables 1, 2, and 3 summarize, in descending order of conventional levels of evidence (but no randomized trials), most of the available international studies (including Asia but not Africa) on risk factors in inpatient suicide in the English literature. Although superseded by the controlled studies listed in online eTables 1 and 2, we have also learned from descriptive studies (online eTable 3). The risk of suicide while an inpatient and up to a year postdischarge is far higher than among the general public, far higher in affective disorders, schizophrenia, mood cycling,⁸¹ and personality disorders (reflecting the case-mix composition of wards), in those involuntarily detained, in young patients, particularly absconders, and also among those on authorized leave. The most consistent predictor is a history of attempting suicide, but depressed mood (notably in people with schizophrenia), hopelessness, agitation, anxiety,⁸² and impulsivity⁸³ also feature prominently. The timing of death is of concern, with peaks early on admission and shortly after discharge. Madsen et al⁸⁴ found 50% of the patients dead within 18 days of admission. Suicide methods depend on what is available: on the wards, hanging, asphyxiation, strangulation, and cutting; when outside, jumping from heights or into traffic, drowning, or overdosing. In a small number of cases, patients have got away from constant (special) supervision, either through force or stealth, and taken their lives.

Large et al⁸⁵ undertook the only meta-analysis of psychiatric hospital suicide published so far, to my knowledge, and found the usual predictors: affective disorder and schizophrenia, history of DSH or attempted suicide, hopelessness, guilt or inadequacy feelings, depressed mood, suicidal ideation, and family history of suicide. Within the group with schizophrenia, depressed mood was strongly associated with suicide (OR 4.8; *P* level or 95% CI not reported in text). Large et al⁸⁵ comment that their risk factors are highly intercorrelated and unlikely to pose cumulative risk, and the low base rate for suicide means that the predictive value of categorizing patients as high risk is less than 2%. Safer hospital environments and excellent care for all patients are more likely to reduce inpatient suicide than high-risk assessments.⁸⁶ I have previously discussed this conundrum and agree with this conclusion.⁸⁷ This should not, by any means, be taken to mean that there is no value in careful assessment of a person's suicide risk. To the contrary, meeting such criteria will rule those people in, but they will also include many false positives. Rather, it means that we cannot afford to exclude the others not labelled high risk, who, because their numbers are many times larger, will include more actual suicides than in those we deem high risk.

Reviewing the copious studies on inpatient suicide, one is struck by the broad range of potentially suicidal patients who cross the portals of the hospital. First, there are the DSH or suicide attempters, most of them young people, who are met with impatience in the ED and often given short shrift, as in the United Kingdom and the United States, where they often leave the ED without a psychosocial assessment and no arrangements for after-care. At the other end of the spectrum are the people with mental illness, suffering from severe affective illness or schizophrenia, frequently comorbid with anxiety or personality disorders. Transsyndromal depressed mood and genuine suffering seems to weave them together as a potentially suicidal group. Kessing⁸⁸ has shown that severity of depression is associated with suicide risk. Numerous other papers point to suicide occurring in those who have been fighting a losing battle against severe mental illness with previous hospitalizations, while treatment responders are able to overcome their suicidal risk.⁸⁹ We badly need more efficacious treatments in psychiatry for people such as these.

It is time for clinicians to acknowledge their inability to accurately predict suicide in individual patients, for the health care team members involved to work together and communicate with one another, for thorough clinical assessments of the patient's personhood, illness, and current predicament, and for vigorously yet sensitively applying the best and most appropriate treatments available. Insofar as safety precautions and protective observation are concerned, the only licence we have to impose these is the expectation of being able to help the patient reverse both the illness and their adverse predicament, and we should not withhold whatever is necessary to achieve this.

Supplementary Material

Go to: Go to:

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Abbreviations

Go to: Go to:

CRHT	crisis resolution and home treatment
DSH	deliberate self-harm
ED	emergency department
MHEOCC	Mental Health Environment of Care Checklist
NCI	National Confidential Inquiry into Suicide and Homicide by People with Mental Illness
SE	sentinel event
TJC	The Joint Commission
VA	Veterans Affairs

Editor's Note

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References 90 to 205 are located online in [eTables 1, 2, and 3](#), and freely available at <http://www.TheCJP.ca>.

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- EXHIBIT 306
- Living well at home
 - Living your way
 - Living and belonging
 - Living through change
 - Living better

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Therapeutic Youth Services – Rubys Reunification Program

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If you are a young person who is experiencing conflict at home, Rubys Reunification Program can help you and your family establish a positive relationship.

Rubys Reunification Program helps to resolve conflict between a young person and their parents or caregivers. It is for young people who:

- are at home but are at risk of leaving or being kicked out because of the conflict
- are staying in and out of home (e.g. you might be spending some nights at home and some nights with friends, with extended family or elsewhere)
- have not stayed at home for a while, but are not receiving an independent income from Centrelink and are interested in reconciling with home.

We focus on helping young people and their families resolve conflict and establish a positive relationship together again, regardless of whether the young person is going to return home or find other accommodation.

We take a broad definition of family – so we often work with young people and grandparents or other extended family members to reunify. Family counselling (for the young people and the parents or carers) is a mandatory component of the program.

As part of the program, the young person will spend some nights at Rubys accommodation and some nights at home.

Rubys accommodation provides 24 hour support and supervision. We are located at:

- Enfield – 4 bed residential unit
- Thebarton – 6 bed residential unit
- Edwardstown – 5 bed residential unit, and
- Mount Gambier – 5 bed residential unit.

This service is funded through the Department for Communities and Social Inclusion.

Eligibility Criteria

This service is available to young people and their families, where the young person is aged 12 to 17 and looking at returning home.

There is a cost component for rent when a young person spends nights at Rubys. This is means tested for people's ability to pay and can be waived.

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Cochrane Database Syst Rev. 2014 Jan 30;1:CD000384. doi: 10.1002/14651858.CD000384.pubs.

Length of hospitalisation for people with severe mental illness.

Babalola O¹, Gormez V, Alwan NA, Johnstone P, Sampson S.

Author information

Abstract

BACKGROUND: In high-income countries, over the last three decades, the length of hospital stays for people with serious mental illness has reduced drastically although considerable variation remains. In lower-income countries this variation may be greater. Some argue that reduction in hospital stay leads to 'revolving door admissions' and worsening mental health outcomes despite apparent cost savings, whilst others suggest longer stays may be more harmful by institutionalising people to hospital care.

OBJECTIVES: To evaluate the effect of short stay/brief admission hospital care with **long** stay/standard in-patient care in people with serious mental illness.

SEARCH METHODS: We searched the Cochrane Schizophrenia Group's register of trials, July 2007 and updated this search in May 2012.

SELECTION CRITERIA: We included all randomised controlled trials comparing planned short/brief with **long**/standard hospital stays for people with serious mental illnesses.

DATA COLLECTION AND ANALYSIS: We extracted data independently. For dichotomous data we calculated risk ratios (RR) and their 95% confidence intervals (CI) on an intention-to-treat basis based using a fixed-effect model. For continuous data, had we identified such data, we planned to calculate fixed-effect mean differences (MD). We assessed risk of bias for included studies and rated quality of evidence using GRADE.

MAIN RESULTS: We included six relevant trials undertaken between 1969 and 1980. We found no significant difference in death ($n = 175$, 1 RCT, RR in the longer **term** 0.42, CI 0.10 to 1.83, very low quality evidence). In the **long term**, there was no difference in improvement of mental state ($n = 61$, 1 RCT, RR 3.39, CI 0.76 to 15.02, very low quality evidence). There was no difference in readmission to hospital ($n = 651$, 4 RCTs, RR by the **long term** 1.26, CI 1.00 to 1.57, low quality evidence). Data for leaving the study prematurely by the longer **term** showed no difference ($n = 229$, 2 RCTs, (RR 0.77, CI 0.34 to 1.77, low quality evidence). There was a significant difference favouring short stay ($P = 0.01$) in numbers of participants with delayed discharge from hospital exceeding the time planned in study ($n = 404$, 3 RCTs, RR in the longer **term** 0.54, CI 0.33 to 0.88, low quality evidence). There was no difference in numbers of participants lost to follow-up ($n = 404$, 3 RCTs, RR by the longer **term** 1.07, CI 0.70 to 1.62, low quality evidence). Finally, there was a significant difference favouring short-stay hospitalisation for social functioning, including unemployment, unable to housekeep, or unknown employment status ($n = 330$, 2 RCTs, RR by

longer **term** 0.61, CI 0.50 to 0.76, very low quality evidence).

EXHIBIT 306

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AUTHORS' CONCLUSIONS: The effects of hospital care and the length of stay is important for mental health policy. We found limited low and very low quality data which were all over 30 years old. Outcomes from these studies do suggest that a planned short-stay policy does not encourage a 'revolving door' pattern of admission and disjointed care for people with serious mental illness. More large, well-designed and reported trials are justified especially where a short-stay policy is not routine care.

Update of

Length of hospitalisation for people with severe mental illness. [Cochrane Database Syst Rev 2008]

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Group Therapy for Repeated Deliberate Self-Harm in Adolescents: Failure of Replication of a Randomized Trial

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Abstract

Objective

To replicate a study, which found group therapy superior to routine care in preventing the recurrence of self-harming behavior in adolescents who had deliberately harmed themselves on at least two occasions.

Method

Single blind study with parallel randomized groups undertaken in three sites in Australia. The primary outcome measure was repetition of self-harm, assessed on average after 6 and 12 months. Secondary outcome measures included suicidal ideation, psychiatric disorder, and service use.

Results

Seventy-two adolescents aged 12 to 16 years (91% female subjects) were randomized to group therapy or routine care. Primary outcome data were available for 68 of the 72 randomized participants. More adolescents randomized to group therapy than those randomized to routine care had self-harmed by 6 months (30/34 versus 23/34, $\chi^2 = 4.19$, $p = .04$), and there was a statistically nonsignificant trend for this pattern to be repeated in the

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interval of 6 to 12 months (30/34 versus 24/34, $\chi^2 = 3.24$, $p = .07$). There were few differences between the two groups on secondary outcome measures, other than a trend for greater improvement over time on global symptom ratings among the experimental group compared with the control group.

Conclusions

Our findings contradict those of the original study. Some differences in participant characteristics between the studies, along with less experience at the Australian sites in delivering the intervention, may have accounted for the different outcome. The benefit of group therapy for deliberate self-harm is unproven outside the environment in which it was originally developed. *J. Am. Acad. Child Adolesc. Psychiatry*, 2009;48(6):662–670.

Key Words:

self-injurious behavior, psychotherapy, group, suicide, attempted

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Clinical trial registration information—Group Psychotherapy to Reduce the Repetition of Self-Harm in Adolescents. URL: <http://www.ANZCTR.org.au>. Unique identifier: ACTRN12608000532303.

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Effectiveness of Long-term Psychodynamic Psychotherapy A Meta-analysis

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ABSTRACT

ABSTRACT | METHODS | RESULTS | COMMENT | ARTICLE INFORMATION | REFERENCES

Context The place of long-term psychodynamic psychotherapy (LTPP) within psychiatry is controversial. Convincing outcome research for LTPP has been lacking.

Objective To examine the effects of LTPP, especially in complex mental disorders, ie, patients with personality disorders, chronic mental disorders, multiple mental disorders, and complex depressive and anxiety disorders (ie, associated with chronic course and/or multiple mental disorders), by performing a meta-analysis.

Data Sources Studies of LTPP published between January 1, 1960, and May 31, 2008, were identified by a computerized search using MEDLINE, PsycINFO, and Current Contents, supplemented by contact with experts in the field.

Study Selection Only studies that used individual psychodynamic psychotherapy lasting for at least a year, or 50 sessions; had a prospective design; and reported reliable outcome measures were included. Randomized controlled trials (RCTs) and observational studies were considered. Twenty-three studies involving a total of 1053 patients were included (11 RCTs and 12 observational studies).

Data Extraction Information on study characteristics and treatment outcome was extracted by 2 independent raters. Effect sizes were calculated for overall effectiveness, target problems, general psychiatric symptoms, personality functioning, and social functioning. To examine the stability of outcome, effect sizes were calculated separately for end-of-therapy and follow-up assessment.

Results According to comparative analyses of controlled trials, LTPP showed significantly higher outcomes in overall effectiveness, target problems, and personality functioning than shorter forms of psychotherapy. With regard to overall effectiveness, a between-group effect size of 1.8 (95% confidence interval [CI], 0.7-3.4) indicated that after treatment with LTPP patients with complex mental disorders on average were better off than 96% of the patients in the comparison groups ($P = .002$). According to subgroup analyses, LTPP yielded significant, large, and stable within-group

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Taming the adolescent mind: a randomised controlled trial examining clinical efficacy of an adolescent mindfulness-based group programme

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Background: Mindfulness interventions with adolescents are in the early stages of development. This study sought to establish efficacy of a mindfulness-based group intervention for adolescents with mixed mental health disorders. **Method:** One hundred and eight adolescents (ages 13–18) were recruited from community mental health clinics and randomised into two groups (control vs. treatment). All participants received treatment-as-usual (TAU) from clinic-based therapists independent of the study. Adolescents in the treatment condition received TAU plus a 5-week mindfulness-training programme (TAU+Mi); adolescents in the control group received only TAU. Assessments including parent/carer reports were conducted at baseline, postintervention and 3-month follow-up. **Results:** At postintervention, adolescents in the mindfulness condition experienced significant decrease in mental distress (measured with the DASS-21) compared to the control group (Cohen's $d = 0.43$), and these gains were enhanced at 3-month follow-up (Cohen's $d = 0.78$). Overall outcomes at 3 months showed significant improvement for adolescents in the mindfulness condition; in self-esteem, mindfulness, psychological inflexibility and mental health, but not resilience. Parents/carers also reported significant improvement in their adolescent's psychological functioning (using the CBCL). Mediation analyses concluded mindfulness mediated mental health outcomes. **Conclusions:** Increase in mindful awareness after training leads to improvement in mental health and this is consistent with mindfulness theory. The mindfulness group programme appears to be a promising adjunctive therapeutic approach for clinic-based adolescents with mental health problems.

Key Practitioner Message

- Taming the Adolescent Mind' – mindfulness-based programme is efficacious adjunctive treatment
- Mindfulness mediates mental health outcomes in this study
- The young people in this study improved in mental health
- Improvements were sustained postintervention and up to 3 months

Keywords: Mindfulness; children; adolescents; psychological flexibility; mediation; clinical efficacy; RCT design; mental health

Introduction

The popularity of mindfulness-based psychotherapies is growing exponentially. There is general consensus in the literature that mindfulness is a learned skill that enhances self-management of attention (Baer, 2003; Bishop et al., 2004; Kabat-Zinn, 1994; Segal, Williams, & Teasdale, 2002). Mindfulness-based therapies seek to develop mindful attention using a variety of meditative exercises and activities and are generally effective in reducing anxiety, stress and depressive symptoms in adults (Baer, 2003). However, researchers are just beginning to explore the feasibility, acceptability and effectiveness of this approach for children and adolescents (Biegel, Brown, Shapiro, & Schubert, 2009).

For some adolescents daily activities present many potential stressors. Some stress is an expectable

response to stressful situations, but excess anxiety and challenges may interfere with the adolescent's ability to cope. This results in attentional biases (Ehrenreich & Gross, 2002), cognitive distortions, emotional lability (Mineka & Gilboa, 1998) and physiological hyperarousal (Joiner et al., 1999). Research shows that 75% of chronic adult mental disorders first present before the age of 25 years (Burns, Morey, Lagelee, Mackenzie, & Nicholas, 2007; Kessler et al., 2007). While patients may seek professional help in the first year of symptom onset, many delay seeking initial consultation (Boydell, Gladstone, & Volpe, 2006) or do not seek help at all (Andrews, Henderson, & Hall, 2001). Evidence-based psychotherapies such as cognitive-behavioural therapy are moderately effective in treating a wide range of childhood mental health issues, particularly anxiety problems, but may be limited in their strength and

durability. Mean treatment effect sizes (Cohen's *d*) are approximately $d = 0.30$, suggesting only modest effectiveness (Weisz, Jensen-Doss, & Hawley, 2006), which may not be lasting. Furthermore, Emslie, Mayes, Laptook, and Batt (2003) argued that childhood depression and anxiety is often more contextual in nature than in adults. As such innovative, nontraditional interventions may be required to augment traditional therapies (Hammen, Rudolph, Weisz, & Burge, 1999).

This study aimed to extend the research on the use of mindfulness training with a psychologically symptomatic adolescent population within community mental health clinics. Using the *Taming the Adolescent Mind* (TAM) mindfulness treatment programme (described in Tan & Martin, 2012a), a randomised controlled trial (RCT) was undertaken comparing treatment-as-usual and mindfulness treatment (TAU+Mindfulness) to a control group receiving treatment-as-usual (TAU). Based on considerable research with adults, it was hypothesised that compared to the control condition, participants in the TAM intervention would show greater improvements in mental health (reduction in stress, depression, anxiety and cognitive inflexibility) and an increase in self-esteem and resiliency compared to the control group. External validation (i.e., parental reports) of the adolescents' mental health functioning was collected. A further aim of this study also examined whether changes in mindfulness mediated the changes in the primary outcomes (i.e., mental health symptoms).

Method

Participants

Participants were recruited from three public community child and adolescent mental health clinics in a major east-coast city of Australia. They had been approached by their case managers or had responded to posters been placed around clinic campuses. Inclusion criteria included primary psychiatric diagnoses, *without* prior mindfulness training. Exclusion criteria were intellectual impairment, organic brain syndromes, chronic substance abuse, acute suicidality and psychosis. Both the Ethics Committees for Human Research at the Royal Children's Hospital and the University Of Queensland approved the study protocol.

The sample was predominantly female (75%) which is representative of consumers who present at these clinics. Age ranged from 13 to 18 years ($M = 15.40$ years, $SD = 1.55$ years). Overall, 69% of all participants were not on medication.

Sample size

To detect whether mindfulness mediated mental health outcomes, sample size was estimated from the results of a power analysis performed on G*Power (available on-line) using medium effect size estimates from recent meta-analytic reviews of Mindfulness-based stress reduction programme (Grossman, Niemann, Schmidt, & Walach, 2004). This yielded a minimum total of 40 participants required for each group.

Randomisation

Participants were randomly allocated to two groups. Adolescents allocated to the control group (TAU) were advised there would be an opportunity to attend mindfulness training at a later stage. Adolescents allocated to the experimental group (TAU+Mindfulness) continued with usual care and received mindfulness training. All participants and their parents/carers completed questionnaires over 3 time points (pre-, postintervention and 3-month follow-up). All participants received a \$20 gift card at the end of 3 months when all questionnaires had been returned.

Treatment-as-usual (TAU)

As per clinic practice, all adolescents were screened by a multi-disciplinary mental health clinician and diagnosed by a child and adolescent psychiatrist. Usual psychiatric care focused on appropriate clinical intervention for Axis 1 mental health diagnoses as identified by the International Classification of Diseases, Tenth edition (World Health Organization, 2008). Standard care provided in clinics comprised a mix of medication, family therapy, expressive play therapy and manualised cognitive-behavioural therapy that included psychoeducation, relapse prevention, coping with unpleasant thoughts, increasing pleasant activities scheduling, problem solving skills, goal setting and crisis management. Participants in the TAU arm were informed they would be able to receive mindfulness intervention at a later stage.

Measures

Depression Anxiety Stress Scale – short version (DASS-21; Lovibond & Lovibond, 1995) consists of three subscales assessing symptoms of depression, anxiety and stress. Adolescents rate items on a 3-point scale (0 = *did not apply to me* to 3 = *most of the time*). DASS-21 has high internal consistency (Cronbach's $\alpha = .80-.91$); yields meaningful discrimination of the current state and change in states over time (Lovibond & Lovibond, 1995). Confirmatory factor analysis has shown distinct depression, anxiety and stress factors, as well as a general distress factor (Henry & Crawford, 2005).

Rosenberg Self-Esteem Scale (Rosenberg, 1965) is a 10-item self-report of adolescent self-esteem. Responses are rated on a 4-point scale (1 = *strongly agreed* to 4 = *strongly disagree*) relating to overall feelings of self-worth or self-acceptance. It has high reliability, test-retest correlations are in the range of .82-.88 and Cronbach's α is in the range of .77-.88 (Blascovich & Tomaka, 1993; Rosenberg, 1986). It has good reliability and validity across a large number of different sample groups.

Resiliency Scales for Children and Adolescents (RSCA; Prince-Embury, 2006) is a 64-item instrument with three self-report scales: Sense of Mastery Scale (which measures optimism, self-efficacy and adaptability); Sense of Relatedness Scale (which measures trust, support, comfort and tolerance); and Emotional Reactivity Scale (which measures sensitivity, recovery and impairment). Item responses are rated on a 4-point scale (0 = *never*, 4 = *almost always*). Internal consistencies of the RSCA global scale for adolescents are in the range of Cronbach's $\alpha = .92-.96$ (Prince-Embury, 2006). It yields a total Resiliency score.

Avoidance and Fusion Questionnaire for Youth (AFQ-Y8 short version; Greco, Lambert, & Baer, 2008). Adolescents rate responses to the eight items on a 4-point scale (0 = *not at all true* to 4 = *very true*). High scores on the scale indicate greater psychological inflexibility characterised by high levels of experiential avoidance.

Children's Acceptance and Mindfulness Measure (CAMM short version; Greco, Smith, & Baer, 2011) comprises 10 items and assesses the adolescent's self-report on mindfulness awareness. Adolescents rate their responses on a 4-point scale (0 = *never true*, 4 = *always true*). The CAMM items assess three facets of mindfulness in children and adolescents: (a) 'Observing' involves the degree to which adolescents notice or attend to internal phenomena (thoughts, feelings and bodily sensations), (b) 'Acting with awareness' refers to present moment awareness and (c) 'Accepting without judgment' entails nonjudgmental awareness and openness to experiencing a full range of internal events.

The Child Behaviour Checklist (CBCL; Achenbach, 1999) was designed to obtain, from parents or carers, multi-axial data on emotional and behavioural problems, social and academic competencies in children and adolescents. The CBCL consists of 113 problem-behaviour items identifying mental health problems in three general areas: 'Internalising problems' (including withdrawn, anxious/depressed, somatic complaints subscales), 'Externalising problems' (antisocial or undercontrolled

behaviours, including delinquency and aggression subscales) and 'Total problems' (overall mental health problems).

Taming the Adolescent Mind mindfulness-based intervention

The same group facilitator throughout the 2-year RCT delivered the TAM mindfulness-based protocol. The TAM intervention has been previously described in detail by Tan and Martin (2012a). The 5-week adolescent programme ensured it was developmentally appropriate. The protocol was designed to make mindfulness as accessible as possible to young people through simple sensory exercises, for example, the use of visual and tactile exercises of 'describing' and 'judging' as well as directing attention. A total of seven groups (with a minimum of four and a maximum of 12 participants per group) were conducted. A separate 1-hr precourse session for parents and carers was delivered, providing the rationale of the treatment, attendance and outlining homework expectations.

Results

Participation

A total of 108 participants were approached and assessed for eligibility, of these 91 participants met criteria after accounting for initial screening and completion of consent forms. Further attrition resulted in a final total of 80 participants enrolled in the trial. Details of participation flow are presented in Figure 1 (CONSORT guidelines; see Schulz, Altman, & Moher, 2010). In the treatment condition, participants were considered to have dropped out if they missed two sessions out of five of the TAM classes and failed to reply to follow-up contact. All participants who missed a previous week's session were followed up by phone and offered additional make-up time at the following session, 18% overall ($n = 8$) receiving make-up sessions. The majority of par-

ticipants who missed sessions had valid reasons (examinations, sick, scheduling problem). Make-up sessions involved a half hour one-on-one session before the start of the session.

To ensure comparability between the two groups a series of *t*-tests were conducted on all preintervention psychological measures. No variables (with exception of the resiliency score) reached significance indicating the effectiveness of randomisation.

Statistical analyses

The effect of the intervention was examined for each variable using mixed model analyses with time (time 1 = *preintervention*, time 2 = *postintervention* and time 3 = *3-months follow-up*), and group as the independent variable. Dependent variables were mental health outcomes (DASS-21), self-esteem (Rosenberg self-esteem questionnaire), resiliency (RSCA-resiliency scales), mindfulness (CAMM), psychological inflexibility (AFQ) and parent/carer's report of their adolescent's behavioural problems (CBCL total). Each analysis used group as the between-subject variable (two levels: TAU+Mindfulness and TAU) and time as the within-subjects variable (three levels: time 1, time 2, time 3). An alpha of .05 was used for all tests.

The main effects of group were examined to estimate the overall difference in outcomes between the two groups. The time by group interactions were examined to see if changes in outcomes over time differed between the two groups. If the interaction was significant these were followed up using post hoc tests to investigate significant differences between time points, that is, between pre- and postintervention, and between preintervention and follow-up. Overall results are depicted in Table 1.

Mental health outcomes

Tests of between-subjects effects for group showed that TAU+Mindfulness participants had improved significantly, achieving lower DASS-21 total scores overall compared to control group participants, $F(1,78) = 4.64$, $p = .034$, $\eta_p^2 = .06$. In addition, there was a significant time by group interaction, which indicated the reduction in DASS-21 total scores over time differed between the groups, $F(2,156) = 9.79$, $p < .001$, $\eta_p^2 = .11$. Post hoc tests of between-subject contrasts for time by group interactions showed that at time 1 (baseline) participants in both groups scored similarly in psychological distress. However, by time 2 TAU+Mindfulness participants improved significantly with a decrease in their psychological distress, $F(1,78) = 5.93$, $p = .017$, $\eta_p^2 = .08$. This improvement was maintained and reached greater significance at follow-up, $F(1,78) = 16.51$, $p < .001$, $\eta_p^2 = .18$ when compared with participants in the control group.

Self-esteem

Tests of between-subjects effects for group showed that self-esteem in the treatment group had improved significantly compared to control group participants, $F(1,78) = 6.92$, $p = .01$, $\eta_p^2 = .08$. In addition, there was a significant time by group interaction, which indicated that the increase in self-esteem scores over time differed between the groups, $F(2,156) = 6.73$, $p = .002$, $\eta_p^2 = .08$. Post hoc tests of between-subject contrasts for time by group interactions showed that at time 1

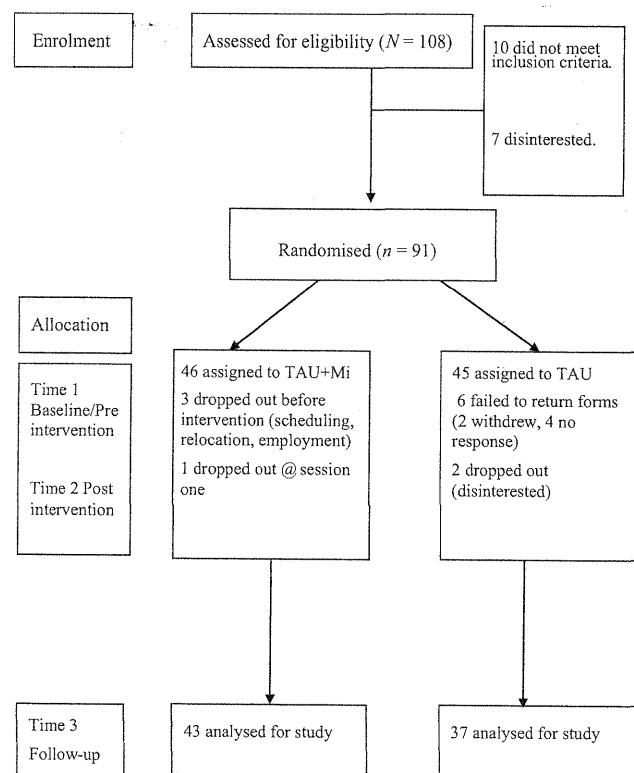


Figure 1. CONSORT diagram of participants through the study

Table 1. Comparing means and standard deviations of study variables over time

Variables	TAU			TAU+Mi			p (time × group)	
	Time 1	Time 2	Time 3	Time 1	Time 2	Time 3	Time 1–2	Time 1–3
Mental health	68.43 (24.26)	69.24 (27.61)	65.78 (26.75)	67.07 (25.98)	57.62 (26.02)	44.33 (27.91)	.017**	<.001***
Mindfulness	17.22 (8.63)	16.03 (8.37)	16.24 (7.80)	16.58 (5.60)	20.37 (5.67)	22.79 (7.35)	<.001***	<.001***
Resiliency	31.27 (9.59)	31.68 (10.35)	31.49 (9.86)	36.30 (8.91)	35.74 (9.50)	38.81 (10.79)	.542	.210
Psychological inflexibility	17.59 (7.19)	18.05 (7.21)	17.78 (6.75)	17.58 (7.69)	14.84 (6.98)	12.14 (7.53)	.003**	<.001***
Self-esteem	11.03 (5.25)	11.30 (4.73)	10.86 (4.50)	11.84 (4.90)	13.70 (5.14)	16.07 (8.35)	.105	<.001***
CBCL total	68.35 (10.15)	66.41 (8.35)	67.46 (7.94)	62.60 (9.78)	60.63 (10.63)	57.60 (9.04)	.171	.001***

p = for time × group contrasts, SD in parentheses, time 1 = preintervention, time 2 = postintervention, time 3 = 3-month follow-up.

**Significant $p < .05$.

***Significant $p < .01$.

participants in both groups scored similarly in psychological distress. At time 2, there was no significant difference between the groups, $F(1,78) = 2.69$, $p = .11$, $\eta_p^2 = .03$. However by time 3, self-esteem of participants in the treatment group had improved significantly compared with the control group, $F(1,78) = 10.85$, $p = .001$, $\eta_p^2 = .12$.

Resiliency

Tests of between-subjects effects for group showed that at Time 1 there was a significant difference in the resiliency scores between the two groups, with treatment group participants achieving a higher score, $F(1,78) = 60$, $p = .007$, $\eta_p^2 = .09$. No significant effect was found for time by group interaction, $F(2,156) = 55.75$, $p = .137$, $\eta_p^2 = .03$.

Psychological inflexibility

Tests of between-subjects effects for group showed that psychological inflexibility in the treatment group had improved significantly when compared to control group participants, $F(1,78) = 3.97$, $p = .05$, $\eta_p^2 = .05$. In addition, there was a significant time by group interaction which indicated the decrease in psychological inflexibility scores over time differed between the groups, $F(2,156) = 12.23$, $p < .001$, $\eta_p^2 = .14$. Post hoc tests of between-subject contrasts for time by group interactions showed that at time 1 participants in both groups scored similarly in psychological inflexibility. By time 2 there was a significant difference between the groups, $F(1,78) = 9.57$, $p = .003$, $\eta_p^2 = .11$. At follow-up, participants in the treatment group maintained improvement and the difference was significant when compared with control group, $F(1,78) = 18.73$, $p < .001$, $\eta_p^2 = .19$.

Parents' report – CBCL Total score

Tests of between-subjects effects for group showed that there was a significant difference in how the parents of the two groups reported of their adolescent's overall psychological functioning, $F(1,78) = 11.71$, $p = .001$, $\eta_p^2 = .13$. Parents in the treatment group reported improvement in the adolescents. In addition, there was a significant time by group interaction which indicated the decrease in problem scores over time differed between the groups, $F(2,156) = 7.48$, $p = .001$, $\eta_p^2 = .09$. Post hoc tests of between-subject contrasts for time by group interactions showed that at time 2 there was no significant time by group effect, $F(1,78) = 1.91$, $p = .17$,

$\eta_p^2 = .03$. However at time 3, parents in the treatment group reported a significant improvement in their adolescents in psychological functioning compared with control group parents, $F(1,78) = 10.84$, $p = .001$, $\eta_p^2 = .12$.

Mindfulness changes

Tests of between-subjects effects for group showed that mindfulness scores in the treatment group had improved significantly achieving higher scores when compared to control group participants, $F(1,78) = 5.33$, $p = .024$, $\eta_p^2 = .06$. In addition, there was a significant time by group interaction which indicated that the increase in mindfulness scores over time differed between the groups, $F(2,156) = 18.17$, $p < .001$, $\eta_p^2 = .19$. Post hoc tests, estimated by tests of between-subject contrast for time by group interactions, showed that at preintervention participants in both groups scored similarly in mindfulness scores. After intervention, the treatment group participants attained significantly higher mindfulness score, $F(1,78) = 17.14$, $p < .001$, $\eta_p^2 = .18$, and also at follow-up, $F(1,78) = 34.49$, $p < .001$, $\eta_p^2 = .31$. Effect sizes were in the moderate range ($ES = .18-.31$).

Mediating effects of changes in mindfulness

To test the hypothesis that changes in mindfulness would mediate mental health changes, mediational analyses were undertaken (Baron & Kenny, 1986). For the first step in the test of mediation, the independent variable (treatment group) accounted for a significant proportion of the variability in the dependent variable (change in mental health scores – DASS-21 total), via a simple linear regression analysis. A decrease in mental health symptoms (i.e., improvement) in mental health scores was significant (standardised $\beta = -.42$, $p < .001$), establishing that there was an effect that may be mediated (see Figure 2).

In step 2 of the analysis, a regression was conducted to determine whether the initial independent variable (i.e., treatment) was associated with change in the mediator (i.e., mindfulness). A significant effect of treatment group on mindfulness change was observed (standardised $\beta = .55$, $p < .001$). In step 3 of mediation analysis, change in the mediator (mindfulness) must predict change in the dependent variable (mental health) when controlling for the independent variable (group). The result of this was significant (standardised $\beta = -.42$,

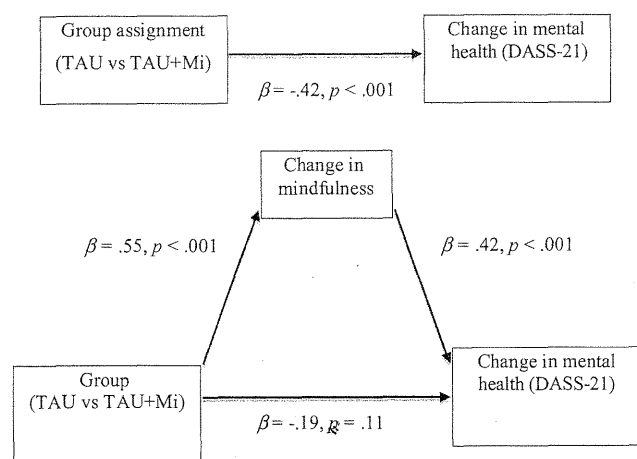


Figure 2. Mindfulness changes mediate mental health outcomes

$p < .001$). Finally, results indicated the effect of treatment group on mental health change was reduced and became statistically not significant (standardised $\beta = -.19, p = .11$) when mindfulness was entered into the model, establishing that mindfulness change completely mediated the impact of treatment group on mental health change.

Discussion

The TAM group therapy was developed as an intervention for adolescents with mixed clinical mental disorders. The TAM aimed to enhance self-management of regulating attention to improve affect regulation by promoting mindfulness, decentring from problematic thoughts and emotions and increasing social-emotional awareness or resiliency in adolescents with clinical mental health problems. This study is the first randomised controlled trial using an age-appropriate mindfulness measurement to assess a manualised TAM mindfulness treatment programme to ameliorate multiple symptoms of mental health distress in a clinical cohort. Our results demonstrate that levels of mindfulness increased significantly from pre- to posttherapy and pre- to follow-up, with effect sizes in the small to moderate range. This is an important study given previous empirical investigations did not include formal mindfulness measurements. Our study enhances and strengthens the body of empirical findings through inclusion of formal mindfulness measurements.

Results of this RCT of manualised mindfulness intervention for adolescents with mixed mental health diagnoses were very encouraging. Across all but one primary outcome (resiliency) TAU+mindfulness was superior to TAU. These gains were maintained or even enhanced at 3-month follow-up. As predicted, increases in mindfulness were shown to completely mediate the relationship between mindfulness intervention and improvement in mental health improvement. Our findings are important because they provide support for a central tenet of mindfulness-based treatment approach – that by regulating attention and awareness we can improve coping and mental health through a process of re-perceiving, and increased acceptance, regardless of the emotional content (Shapiro, Carlson, Astin, & Freedman, 2006). Tan

and Martin (2012b) have previously shown that high scores for mindfulness are related to fewer mental health symptoms. Focused awareness brings attention to the present moment (either good or bad), so the adolescent might become more aware of life stress and experiences. Active acceptance leads to acknowledgement of a difficult situation and dealing with it constructively. As such, active acceptance is a form of emotion-focused coping and positively related to mental health (Nakamura & Orth, 2005). While this expectation is almost universally believed, there has been limited empirical evidence for the claim in an adolescent clinical population. This is the first study to report evidence for the association with an adequate sample in an adolescent clinical context.

The significant reductions in psychological inflexibility found for the treatment group may also explain changes in attention and acceptance processes hypothesised to occur as a result of mindfulness practice. Mindfulness practice attempts to cultivate nonjudgmental, moment-to-moment awareness to inner, as well as external stimuli. The development of this skill may result in the ability to shift and redirect attention to the present moment rather than being 'fused' with thinking about past or future experiences.

Given the documented relationship between mindfulness practice and stress (Kabat-Zinn, 1990; Kabat-Zinn, Lipworth, & Burney, 1985; Sethi, 1989), depression (Segal et al., 2002), anxiety (Kabat-Zinn et al., 1992; Semple, Reid, & Miller, 2005), psychological inflexibility and acceptance (Hayes & Fieldman, 2004; Lau & McMain, 2005; Linehan, 1993) in adults, it is notable that the TAU+Mindfulness arm in this study of adolescent sample was associated with improvement in overall mental health distress. A significant strength of this study was the inclusion of parent/carer reports. Parents in the TAU+Mindfulness arm reported significant improvement in their adolescents compared to parents in the control group with a large between-group effect size ($\eta_p^2 = .13$).

A nonsignificant effect was found for resiliency in this study. No reasons can be put forward to explain the initial difference between our randomised groups – especially given similar scores on other measures at preintervention. The authors are unaware if the RSCA test is sensitive to clinical change; this limitation may require future investigation using a more sensitive measurement of resiliency.

Resilience is viewed as the capacity of an individual to mobilise health-sustaining resources from a myriad sources – family, community and culture. Anecdotally, adolescents in mental health services believe that to survive, it is important that one is self-reliant, and not depend on or trust others. Cauce, Felner, and Primavera (1982) have demonstrated that positive external connections or resources to self are important variables in adolescent resiliency, but of equal importance is the adolescent's perception of that support, their ability to recognise, seek and utilise the support; all important interactive processes which contribute to adolescent resiliency. As such, there may be a sleeper effect; more time may be required in follow-up, beyond the 3 months used in this study to establish improved resilience. Given there are no other comparative adolescent studies available, further research is warranted to examine the

efficacy and effectiveness of mindfulness treatment on adolescent resiliency.

Limitations

A primary limitation of this study is the reliance on self-report measures, subject to both bias and social desirability. These factors were not controlled for in this study. Social desirability is the tendency for persons to report what the examiner or therapist expects of them, instead of what they might report to be their 'real' situation. However, according to Corrigan and Shapiro (2010) this effect may be reduced by permitting participants to complete study measures anonymously, using observations or reports by outside party and randomised controlled trial. Although this study was randomised, allowing participants to complete clinical measures anonymously may be practically and ethically problematic as these adolescents present with moderate to severe mental health disorders require proper psychiatric care and follow-up. Neither the adolescents nor their parents necessarily know what each self-report measure actually measures, as measures are administered as a suite. We would argue that even if participants were showing early social desirability response bias, elevations in mindfulness scores might not necessarily have been sustained from posttreatment to follow-up time points, when initial enthusiasm for (or from) the training may have diminished.

A second limitation in the study is the lack of data examining the possibility of facilitator effect. As the same clinician conducted all group interventions, it may be argued that participants improved in mental health outcomes due to a 'zealous and engaging' facilitator. Although this may be plausible, it is unknown how long a facilitator effect on intervention lasts. McCowan, Neville, Crombie, Clark, and Warner (1997) examined this issue in a process and outcome study of childhood asthma and found that the effect of a facilitator lasts only for the period of intervention. In this study, participants in the treatment condition continued to improve in their mental health long after the intervention had ceased, and this result was statistically significant. A final argument to support the fact that real change occurred over time is that parents did not receive any part of the mindfulness intervention and acted as external reporters.

These possible limitations must be weighed against the overall strengths of this research programme. Our study contributes to the literature supporting the efficacy of mindfulness intervention for adolescents with mixed mental health disorders by: (a) including randomisation and a control group undertaken in naturalistic setting. Moreover, the sample studied was appropriate to the hypothesis being tested, thus leading to results appropriately generalisable, (b) Smith, Glass, and Miller (1980) have highlighted that the internal validity of outcome studies and effect sizes are highly correlated. In this study, sample size calculation was undertaken a priori, ensuring the sample size was adequate, reducing the probability of error and enhancing internal validity; (c) This study utilised a comprehensive assessment battery with validated age-appropriate measures, especially establishing mindfulness changes which previous studies neglected; (d) Obtaining collateral reports and observations from third parties (i.e., parents/carers) over time, adding external validity and

credibility to the study and (e) Evaluating a prescribed, manualised mindfulness intervention. All of these provide important initial steps in identifying an efficacious treatment programme.

Clinical implications

The study presented results demonstrating the efficacy of a 5-week session mindfulness-based intervention for adolescents with mental health disorders. This programme is one of the few supported by empirical evidence, and for which actual mindfulness changes were measured, and follow-up data collected. Results suggested that the majority of adolescents who completed the intervention reported improvements in mental health functioning. These improvements were confirmed by third-party reports. Finally, the small-group format and its short duration suggest that TAM is a useful adjunctive option for enhancing psychological health for distressed adolescents. As such its cost-effectiveness warrants further research.

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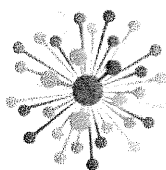
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The effectiveness of dialectical behaviour therapy in routine public mental health settings: An Australian controlled trial

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Abstract

Randomised controlled studies in research environments have demonstrated dialectical behaviour therapy (DBT) to be more efficacious than treatment as usual in reducing suicidal behaviour in patients with borderline personality disorder (BPD). Limited evidence exists for the effectiveness of DBT in the treatment of BPD within routine clinical settings. This study examines the clinical and cost effectiveness of providing DBT over treatment as usual in a routine Australian public mental health service. Forty-three adult patients with BPD were provided with outpatient DBT for six months with patient outcomes compared to those obtained from patients in a wait list group receiving treatment as usual (TAU) from the same service. After six months of treatment the DBT group showed significantly greater reductions in suicidal/non-suicidal self-injury, emergency department visits, psychiatric admissions and bed days. Self-report measures were administered to a reduced sample of patients. With this group, DBT patients demonstrated significantly improved depression, anxiety and general symptom severity scores compared to TAU at six months. Average treatment costs were significantly lower for those patients in DBT than those receiving TAU. Therapists who received intensive DBT training were shown to produce significantly greater improvements in patients' suicidal and non-suicidal self-injury than therapists who received only 4 day basic training. Further clinical improvements were achieved in patients offered an additional six months of DBT. This study demonstrates that providing DBT to patients within routine public mental health settings can be both clinically effective and cost effective.

Keywords

Borderline personality disorder; Dialectical behaviour therapy; Effectiveness

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Dialectical Behaviour Therapy with Adolescents: A Review

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Background: Dialectical behaviour therapy (DBT) is the first empirically validated treatment for chronically suicidal patients diagnosed with borderline personality disorder (BPD). Numerous randomised clinical trials conducted with adults with BPD have demonstrated that DBT is effective in reducing suicidal and non-suicidal self-injurious (NSSI) behaviours. Other research on the use of DBT for adults has shown that the treatment is effective in reducing a variety of problem behaviours in a range of therapeutic settings. In the last decade, a number of studies have evaluated DBT as a promising treatment for adolescents with different psychological disorders and behaviours, including borderline personality disorder (BPD), eating disorders, externalising disorders, and suicidal and NSSI behaviours. This article reviews the literature on the use of DBT with adolescents. **Results:** Overall findings indicate some empirical support for the conclusion that DBT is a promising treatment for adolescents with BPD symptomatology, suicidal ideation and comorbid depression, bipolar disorder, disordered eating behaviours and aggressive and impulsive behaviours. Adolescents in these studies were also hospitalised less frequently when treated with DBT. Moreover, studies conducted with these populations suggest that DBT may be adapted for use in outpatient, inpatient, community, and residential treatment settings. **Conclusions:** The authors conclude that DBT may be effective in treating adolescents with additional disorders and dysfunctional behaviours not yet examined. Data from soon to be completed randomised controlled trials need to be published.

Key Practitioner Message:

- Dialectical behaviour therapy (DBT) is the first empirically validated treatment for chronically suicidal patients diagnosed with borderline personality disorder (BPD)
- A number of studies have evaluated DBT as a promising treatment for adolescents with eating disorders, externalising disorders, and suicidal and NSSI behaviours
- There is empirical support for the conclusion that DBT is a promising treatment for adolescents with a range of psychopathology, and who receive treatment in a variety of settings
- Future studies must address methodological shortcomings by increasing sample size and diversity, implementing adherence coding and control groups, and using consistent terminology

Keywords: Dialectical behaviour therapy; adolescents; adolescent problem behaviour; suicide attempt; self-injurious (parasuicidal) behaviour

Introduction

Dialectical behaviour therapy (DBT) is the leading evidence-based treatment for suicidal adult women diagnosed with Borderline Personality Disorder (BPD). DBT is a comprehensive treatment that targets the interpersonal and environmental factors that maintain clients' suicidal behaviours; it uses a number of key principles and strategies derived from behaviour therapy, dialectical philosophy and Zen practice. Multiple randomised controlled trials have demonstrated DBT's superiority to treatment as usual for problems associated with BPD (Linehan et al., 1991; Linehan, Heard, & Armstrong, 1993; Koons et al., 2001; Verheul et al.,

2003; van den Bosch et al., 2005; Linehan et al., 2006). The treatment has been shown to improve treatment adherence rates, decrease inpatient psychiatric days, and reduce frequency and severity of suicide attempts, non-suicidal self-injurious behaviours, and suicidal ideation (Linehan et al., 1991, 2006; Koons et al., 2001; Verheul et al., 2003; van den Bosch et al., 2005; Bohus, Haaf, & Simms, 2004; Lynch et al., 2003). A review of this research can be found in Scheel (2000), Robins and Chapman (2004), and Lynch et al. (2007).

Research on DBT has been conducted with various adult populations, including outpatient (Linehan et al., 1991, 1993, 2006; Verheul et al., 2003; van den Bosch et al., 2005), inpatient (Barley et al., 1993; Linehan

et al., 1999; Bohus et al., 2000; Koons et al., 2001; Bohus et al., 2004; Simpson, Pistorello, & Begin, 1998) and forensic populations (Evershed et al., 2003; Bradley & Follingstad, 2003; Berzins & Trestman, 2004). DBT has been shown to have applications for adults with comorbid BPD and substance abuse problems (Linehan et al., 1999; Linehan et al., 2002; van den Bosch et al., 2005), comorbid BPD and eating disorders (Palmer et al., 2003), as a treatment for eating disorders (Safer, Telch, & Agras, 2001; Telch, Agras, & Linehan, 2001), and as a treatment for geriatric depressed outpatients with mixed personality features (Lynch et al., 2003; Lynch, 2000). Research on the use of DBT with various adolescent populations has started to expand and diversify, indicating that the treatment also has applications for a number of problem behaviours among adolescents. The purpose of the following review is to survey this area of research and to highlight considerations for researchers and practitioners applying DBT to various adolescent populations.

DBT with adolescents

A total of 12 outcome studies published between 1997–2008 are included in the current review. None of these studies, however, are randomised controlled trials (RCTs), although the last author is consultant to two RCTs that are currently in progress. Lars Mehlum is the principal investigator of the first adolescent DBT RCT being conducted in Oslo, Norway, while the second adolescent DBT RCT is being conducted in New Zealand under the direction of Emily Cooney.

DBT was first adapted for use with suicidal adolescents by Miller and colleagues (Miller et al., 1997). Although the core tenets and modes of the treatment were retained, several changes were made by the authors to make Linehan's original textbook and treatment manual appropriate for this younger population. For example, treatment length was decreased from 12 months to 16 weeks, age-appropriate terminology was incorporated, and family members were included in the weekly skills training groups (Miller et al., 1997; Miller, Rathus, & Linehan, 2007). Likewise, a fifth skills training module, 'Walking the Middle Path', was added in an effort to help adolescents and their families navigate impasses by learning validation skills, behavioural principles, and dialectical thinking and acting.

DBT and suicidal, multi-problem adolescents

Two quasi-experimental studies on DBT with adolescents have been conducted to date, with both indicating that the treatment is promising in reducing several behaviours found among suicidal, multi-problem multiply diagnosed youth. Rathus and Miller (2002) compared depressed and suicidal adolescents treated with DBT to treatment as usual (TAU) in a 12-week outpatient program (see Table 1 for details). Despite having more severe psychopathology at baseline (92% of the group had a comorbid depressive disorder at the outset of treatment), adolescents treated with DBT were significantly more likely to complete treatment (60% versus 38%) and had significantly fewer psychiatric hospitalisations (0% versus 13%). DBT was also associated with significant reductions in depressive

symptoms and suicidal ideation. No statistically significant differences were found between the number of suicide attempts in the two conditions (0% versus 9%), yet this probably reflects the low frequency of this behaviour during the 12-week study. Within the DBT group at post-treatment, adolescents reported significant reductions in all four problem areas targeted in DBT (i.e. confusion about self, impulsivity, emotional dysregulation, and interpersonal problems) as measured by the Life Problems Inventory, a measure highly correlated with the borderline personality disorder subscale of the SCID-II (Rathus & Miller, 2002; Rathus, Wagner, & Miller, 2005). Moreover, reductions in anxiety, depression and suicidal ideation were found among DBT participants at post-treatment (Rathus & Miller, 2002).

Katz and colleagues (2004) used a similar design when comparing outcomes between adolescents treated with DBT vs. TAU for 2 weeks in an inpatient setting (initial $n=62$; see Table 1). All participants had been hospitalised for recent suicide attempts or suicidal ideation and were admitted to one of two inpatient units; one unit used a DBT protocol and the other unit relied on TAU. Those who received DBT attended individual therapy twice weekly and skills training groups 5 days per week, and were able to request and receive skills coaching by milieu staff on the unit. The DBT unit held a weekly therapist consultation meeting and staff from evening shifts were able to 'participate' as well by leaving and receiving notes related to consultation questions or concerns they had. DBT was superior to TAU in reducing behavioural incidents (including NSSI behaviours) and increasing adherence to treatment, including medication compliance, during the hospitalisation. Upon discharge, all patients in both conditions were referred for outpatient treatment and assessed one year later. Both groups (DBT $n=26$ and TAU $n=27$ at follow-up) demonstrated a significant reduction of suicidal ideation, non-suicidal self-injurious behaviour, and depressive symptoms. Although the effect sizes were greater for DBT than TAU with respect to self-report ratings of depressive symptoms and suicidal ideation, differences were not statistically significant, perhaps due to the small sample size. Additionally, it is possible that the pattern of results in both of these quasi-experimental studies was affected by the nature of the TAU treatment delivered, which was noted to vary in content between adolescents.

Several additional studies have examined the effectiveness of DBT for adolescents with features of BPD, including NSSI and suicidal behaviours; in general, these studies evaluate pre- and post-treatment outcomes in the absence of control groups and randomisation (James et al., 2008; Sunseri, 2004; Fleishhaker, 2006; Woodberry & Popenoe, 2008). Fleishhaker and colleagues (2006) evaluated DBT treatment outcomes for 16 older female adolescents with at least 6 months of 'severe and persistent deliberate self-harm' (DSH). Of note, the authors defined DSH after Hawton et al. (2002), whose definition problematically does not distinguish non-suicidal self-injurious behaviours from suicide attempts. Adolescents were seen at a DBT clinic twice a week, once for an hour-long individual session and once for a 90-minute skills training group, and received telephone coaching. Overall, post-treatment assessments,

Table 1. Articles on the use of DBT with adolescents

Authors	N	Design/ Setting	Key criteria for DBT inclusion	% of N who completed treatment	Total # DBT sessions individual/ group	Modes	Outcome measures
Rathus & Miller (2002)	DBT = 29 TAU = 82 F/M = 27/2	Quasi- experimental Outpatient	(a) Suicide attempt, in last 16 weeks or current suicidal ideation; and (b) at least 3 BPD features	DBT=60% TAU=38%	12/12	DBT: I/G/C/T TAU: Twice weekly individual (psychodynamic/ supportive) and family sessions Family: Yes	Beck Depression Inventory (BDI) Life Problems Inventory (LPI) Scale for Suicidal Ideation (SSI) Symptom Checklist 90-Revised (SCL-90-R) # of Psychiatric hospitalizations and suicide attempts during treatment (clinician records)
Katz et al., (2004)	DBT + TAU = 62 F/M = 52/10	Quasi- experimental Inpatient	Recent suicide attempt or suicidal ideation	—	4/10	I/G/C/T? TAU: Individual (psychodynamic) therapy at least once per week and (psychodynamic) group therapy five days a week Family: No	Number of incident reports during admission (based on staff records) Beck Depression Inventory (BDI) Kazdin Hopelessness Scale for Children (KHS) Reynolds Suicidal Ideation Questionnaire-Jr. (SIQ) Lifetime Parasuicide Count (LPC) # of ER visits secondary to parasuicidal behavior/ideation and of psychiatric readmissions to the hospital (based on hospital charts and parent report)
James et al. (2008)	16 F/M = 16/0	Pre-post Community Clinic	History of at least 6 months of 'persistent deliberate self-harm'	87.5%	24/24	I/G/C/T? Family: No	Beck Depression Inventory (BDI) Beck Hopelessness Scale (BHS) Global Assessment of Functioning (GAF) Episodes of Deliberate Self-Harm
Fleischhaker et al. (2006)	12 F/M = 12/0	Pre-post Outpatient	(a) Deliberate self-harm (suicide attempt orNSSI) in last 16 weeks or current suicidal ideation; and (b) at least 3 BPD features	75%	16-24/16-24	I/G/C/T Family: Yes	Symptom Checklist-90-Revised (SCL-90-R) Child Behavior Checklist (CBCL) Youth Self-Report (YSR) Inventar zur Erfassung der Lebensqualität bei Kindern und Jugendlichen (ILK)- Assessment of life quality Clinical Global Impressions (CGI)

Authors	N	Design/ Setting	Key criteria for DBT inclusion	% of N who completed treatment	Total # DBT sessions individual/ group	Modes	Outcome measures
Woodberry & Popenoe (2008)	46 F/M=41/5	Pre-post Community Clinic	History of suicide attempts, self-injury, and/or intense and unstable affect or relationships w/in past 3-6 months	61%	15/15	I/G/C/T Family: Yes	Reynolds' Adolescent Depression Scale (RADs) Behavior and Symptom Identification Scale (BASIS-32) Adult Attachment Scale (AAS) Trauma Symptom Checklist for Children (TSCC) Child Behavior Checklist (CBCL) Beck Depression Inventory (BDI) (Parent rating)
Sunseri (2004)	68 F/M=68/0	Pre-post Residential Treatment Facility	Resident at facility; must make commitment to TX	—	~52/~104	I/G/C/T Family: No	# Premature terminations (determined by staff records) # Inpatient days Duration of physical restraints and seclusions (staff records)
Goldstein et al. (2007)	10 F/M=8/2	Pre-post Specialty Outpatient Clinic	Diagnosis of Bipolar I,II or NOS w/an acute manic, mixed, or depressive episode w/in the last 3 months	90%	18/18	I/G/T Family: Yes	Modified Scale for Suicidal Ideation (MSSI) Select items from Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime version (K-SADS-PL) Children's Affective Liability Scale Matson Evaluation of Social Skills with Youngsters (MESSY) Treatment satisfaction questionnaire
Trupin et al. (2002)	DBT=45 TAU=45 F/M=45/0	Pre-post with control group Juvenile Detention Facility	Offenders living on either Mental Health Unit or General Population Unit	—	0/20-40	G/C/?/T? Family: No	# Youth behavior problems (tallied from daily behavior logs (completed by staff) # Staff punitive actions (based on staff records) Rates of participation in various on-campus programs (based on staff records) Community Risk Assessment (CRA) Scores (calculated by Juvenile Rehabilitation Administration) Massachusetts Youth Screening Instrument (MAYSI)

Table 1. Continued

Authors	N	Design/ Setting	Key criteria for DBT inclusion	% of N who completed treatment	Total # DBT sessions individual/ group	Modes	Outcome measures
Nelson-Gray et al. (2006)	54 = Initial 32 = Retained F/M=5/27	Pre-post Outpatient	Diagnosis of Oppositional Defiant Disorder	69% (32 participants plus 5 who elected to repeat group)	0/16	G Family: Yes*	Diagnostic interview schedule for children, parent version (DISC-P) Child Behavior Checklist (CBCL) Youth Self-Report (YSR) Behavioral and Emotional Rating Scale (BERS) Child Depression Inventory (CDI)
Salbach, Klinkowski, & Pfeiffer (2007)	31 Anorexia (n=23) Bulimia Nervosa (n=8) F/M=31/10	Pre-post Inpatient	Diagnosis of Anorexia or Bulimia Nervosa	97%	24/12 Plus family meetings on weekly or bi-monthly basis	I/G/C?/T? Family: Yes	Eating Disorder Diagnosis (SIAB-EX) Body Mass Index (BMI) Binge eating frequency Vomitting frequency Use of laxatives Food restriction Eating Disorders Inventory -2 (EDI-2) Global Severity Index (GSI)
Safer, Lock, & Couturier (2007)	1 F/M=1/0	Single case Outpatient Specialty Clinic	Diagnosis of Binge Eating Disorder	100%	21/0 Plus 4 family meetings	I/T Family: Yes	Eating Disorder Examination (EDE) Body Mass Index (BMI) Objective binge eating frequency (self-report on diary card)
Salbach-Andrae et al. (2008)	12 Anorexia (n=6) Bulimia Nervosa (n=6) F/M=12/0	Case series with pre-post measures Outpatient	Diagnosis of Anorexia or Bulimia Nervosa	92%	25/25	I/G/C/T Family: Yes	Eating Disorder Diagnosis (SIAB-EX) Body Mass Index (BMI) Binge eating frequency Vomitting frequency Use of laxatives Food restriction Eating Disorders Inventory -2 (EDI-2) Global Severity Index (GSI)

I= Individual therapy; G=Group skills training; C=Consultation team; T=Telephone consultation

* Parent did not participate in skill groups

conducted 8 months after treatment concluded, indicated that participants completed more than 78% of sessions and evidenced a significant increase in participants' general functioning, as well as a marked reduction in self-report of depression, hopelessness, and episodes of DSH. Importantly, it is not possible to separate out the effects of the treatment for non-suicidal self-injurious behaviour versus suicide attempts, as these two classes of behaviours are grouped together in the definition of DSH. Nevertheless, all of the improvements observed at the end of treatment were maintained at follow-up, suggesting that DBT with multi-problem adolescents may produce long-term effects. Linehan and colleagues (2006) conducted a large-scale study of adult patients over a 2-year period that demonstrated that patients treated with DBT, as compared to treatment by non-behavioural experts in the community (TBE), had lower rates of suicide attempts, re-hospitalisation, and treatment attrition. More research is needed to determine if such findings can be replicated with an adolescent population.

Other studies have found similar support that DBT improves functioning and decreases life-threatening behaviours among adolescents. In a partial replication of the Rathus and Miller (2002) study, Fleischhaker et al. (2006) assessed DBT treatment outcomes in an outpatient sample of 12 adolescents using similar inclusion criteria as Rathus and Miller (2002). Prior to the start of treatment, 67% of participants in the study had at least one suicide attempt and all had engaged in NSSI during their lifetimes. Post-treatment measures indicated that deliberate self-harm incidents and number of hospitalisations decreased significantly over time, as did other indices of psychopathology, including depressive symptoms. Furthermore, there were no suicide attempts among adolescents during the course of the study.

Similarly, Woodberry and Popenoe (2008) found positive treatment outcomes in a group of suicidal and non-suicidal self-injuring adolescents and their caregivers treated in an open 15-week trial of DBT in a community outpatient clinic. In particular, improvements were seen in adolescent-reported depressive symptoms, anger, dissociative symptoms, and indices of NSSI and suicidal ideation. Parents reported changes in adolescent internalising, externalising, and total problem behaviours (see Table 1 for specific outcome measures). Moreover, parents reported a considerable decrease in their own depressive symptoms at the conclusion of treatment. This finding highlights the transactional nature of psychopathology in families and the broad impact a comprehensive adolescent DBT treatment program may have on other family members.

Sunseri (2004) adapted DBT for use in a residential treatment facility and reported outcomes indicating that the treatment was useful in helping the severely impaired adolescent population. Over a period of 5 years, all 68 adolescent girls served by the treatment facility underwent DBT. Results from this uncontrolled open-trial indicated that DBT contributed to a reduction in number of premature terminations, which was defined as 'a client who engaged in self-harm and was admitted to a psychiatric hospital, subsequently refusing to return to treatment'. It is not clear what 'self-harm' behaviour includes; nevertheless, it was noted that clients were typically referred for hospitalisation

subsequent to a 'parasuicidal event (i.e. cutting, burning, overdose attempts) or the expression of suicidal ideation'. Significant reductions were also observed in the number of days spent in psychiatric hospitals due to 'self-injurious behaviours', and length of time patients were held in restraints or seclusion. Although this sample was more heterogeneous than the ones cited thus far, consisting of adolescents with a variety of diagnoses and problem behaviours, the data suggest that DBT may be useful in preventing such multi-problem adolescents from requiring a higher level of care beyond their residential providers. Of course, without a control group, it is not possible to draw any firm conclusions about the specific effects of the treatment provided.

DBT has also been adapted for use with adolescents diagnosed with bipolar disorder. Like BPD, bipolar disorder is associated with difficulties in emotion regulation coupled with high rates of impulsive behaviours. Goldstein and colleagues (2007) conducted a year-long open trial of DBT with 10 outpatient adolescents diagnosed with bipolar disorder, most of whom had a history of at least one suicide attempt and many of whom had intermittent suicidal ideation. The authors made some modifications to Miller, Rathus and Linehan's adolescent multi-family skills training manual (2008), including adding a module containing two sessions of psychoeducation on bipolar disorder and decreasing the length of the five core skills modules. The study also varied from standard DBT for adolescents in that participants received 24 weekly 60-minute sessions, alternating between individual therapy and skills training conducted within individual family units rather than in a larger group setting. The continuation phase of treatment consisted of 12 total sessions, also alternating between family skills training and individual therapy sessions, and tapering in frequency through one year. A major limitation of the study was the absence of a therapist consultation team, as the study's first author was the only DBT-trained clinic staff member and provider.

Results indicated that retention among participants was extremely high (i.e. 90%), with one patient moving away and the remainder completing treatment. In addition, patients exhibited significant improvements at post-treatment in suicidal ideation, emotion dysregulation, and depressive symptoms. Although non-suicidal self-injurious behaviours decreased over the course of treatment, the change was not statistically significant. Lastly, both patients and parents indicated a high degree of satisfaction with the DBT approach and the progress that the adolescents made during treatment. These high acceptability and satisfaction ratings are consistent with patient's treatment acceptability and satisfaction in an adult DBT treatment study (Linehan et al., 2006). Thus, the DBT treatment (i.e. individual therapy and family skills training) was well tolerated by the patients and their families in that they 'liked' the therapy and would refer others in need to such a program.

DBT and externalising disorders

Many researchers have started conducting DBT treatment outcome studies with adolescents who exhibit

problems and symptoms other than those associated with BPD and mood disorders. For example, two studies found some support for the use of DBT to treat adolescents with externalising behaviours (Trupin et al., 2002; Nelson-Gray et al., 2006). Trupin and colleagues (2002) implemented a DBT treatment program with 90 incarcerated female juvenile offenders. DBT was employed on two units: a mental health unit, in which staff members had received 80 hours of DBT training (i.e. 10-day gold standard intensive training), and a general population unit, in which staff members had received 16 hours of DBT training (two-day workshop). Both of these units were compared to adolescents on a third unit receiving treatment as usual from clinicians with no training in DBT. Adolescents assigned to the mental health unit had higher rates of externalising disorders and internalising disorders than adolescents assigned to either the general population or the TAU units. Behaviour problems – the composite of classroom disruption, aggression, and parasuicidal acts (including self-mutilation, suicide attempt, and threatened suicide) – were recorded by staff members on a daily basis for all adolescents and compared to incidents occurring in the year before the DBT intervention began. Results indicated that adolescents on the mental health unit showed a statistically significant reduction in behaviour problems during the 10-month period of the study and exceeded the changes seen in the other units. Moreover, interventions by staff who had received the intensive DBT training (i.e. those on the mental health unit) were significantly less punitive than in the year before the intervention began. By comparison, no adolescent behaviour changes or changes in staff members' responses were observed in the general population unit. This finding highlights the value and impact intensive training has on staff behaviour and client outcomes as compared to less intensive training. Comparisons between pre-and-post treatment for the group receiving TAU were not measurable on account of the group's fewer problems at baseline.

Nelson-Gray and colleagues (2006) conducted a 16-week trial of group-based, outpatient DBT skills training for 54 non-suicidal adolescents diagnosed with oppositional defiant disorder (ODD), 32 of whom completed the treatment program. Analyses indicated that those participants who dropped out of the treatment evidenced more comorbid psychopathology at baseline than those who completed the program. Notably this study differs from others discussed thus far in that adolescents received only weekly adolescent-only group skills training and therefore received no individual therapy or telephone consultation. Treatment protocols were based on Linehan's (1993) manual, with modifications made to make the material more age-appropriate and to encourage homework compliance through financial incentives. The authors reported post-treatment decreases in oppositional-defiant disorder criteria and externalising behaviour problems according to parent reports. Parent ratings also indicated reductions in depressive symptoms and increases in positive behaviours. Again, while there is no control group it is hard to make definitive statements about these findings; however, it does raise the question as to whether comprehensive DBT, which is typically recommended for multi-problem multi-diagnostic youth, is necessary

for youth who present with a single diagnosis (e.g. ODD).

DBT and eating disorders

Finally, a handful of studies have examined the effectiveness of DBT for adolescents with eating disorders (Salbach-Andrae et al., 2008; Salbach et al., 2007; Safer et al., 2007). Salbach and colleagues (2007) published results from a pre-post treatment study of 31 inpatient adolescent girls with anorexia ($n=23$) and bulimia nervosa ($n=8$), many of whom were also diagnosed with a depressive disorder, an anxiety disorder, and/or a personality disorder. The authors modified Miller and colleagues' (1997, 2007) treatment model by making several changes, including shortening the duration of treatment while increasing the frequency of sessions; adding content specific to eating disorders; using both therapists and nursing staff trained in DBT to deliver treatment; and adding weekly groups that focused on issues of weight and eating. Outcome measures indicated that overall retention in treatment was high (only one participant dropped out). Significant improvements were seen with respect to depressive symptoms and eating disordered behaviour, including restriction of intake, excessive exercise, and use of weight-loss substances. Body mass index (BMI) scores in the patients with anorexia also increased strongly and significantly. Salbach-Andrae and colleagues (2008) reported a similar pattern of findings with adolescents treated with DBT for eating disorders on an outpatient basis. Namely, treatment with DBT was associated with a decline in the behavioural symptoms of eating disorders and symptoms of general psychopathology. As is the case in many of the studies reviewed here, the authors noted the possibility that patients' improvement was due to factors other than DBT that were not controllable within their study design.

Safer and colleagues (2007) made adolescent-specific modifications to standard DBT for adults with binge eating disorder and published a single case study of a 16 year-old female showing preliminary support for their revised treatment manual. DBT for binge eating disorder is based on the affect-regulation model of binge eating, which posits that binge eating is a behavioural attempt to modify painful emotional states. The authors adapted a manualised version of DBT for binge eating disorder in adults (Telch, 1997) by adding an Interpersonal Effectiveness module, changing the order in which skills were taught by presenting the Distress Tolerance skills first, and introducing family sessions as needed. In this case study, four family sessions were scheduled as adjuncts to individual sessions during the course of the 21-week treatment program for a total of 24 therapy hours. The authors reported that the frequency and severity of their patient's binge eating was reduced at post-treatment, but cautioned that additional case studies and case series are needed before justifying a randomised controlled trial of DBT for binge eating disorder. In sum, the results of these studies indicate that DBT may be a promising treatment for a variety of eating disorders and that well-controlled studies with more robust designs are warranted.

Discussion

Twelve studies on the effectiveness of DBT with adolescents in the period between 1997-2008 were found (Table 1). It is difficult to compare findings across these studies because there is considerable variability in populations, settings, structure, and format of treatment. There is also wide variation in the design of the studies, with the majority consisting of a pre-post treatment design and none including a randomised controlled design. Furthermore, some studies provided clear and detailed descriptions of their fidelity to (or divergence from) the original DBT protocol, whereas other studies were more vague. Taken together, these many areas of discrepancy do not permit direct comparisons between studies. At the same time, research evaluating complex interventions such as DBT must be flexible and endeavour to ask whether the intervention works in everyday practice (Medical Research Council, 2008). The studies reviewed here provide important information about practical effectiveness, and many of the findings indicate that DBT has a range of therapeutic effects for adolescents.

Wide-ranging improvement in functioning

Although these 12 studies lack commonality in method and design, nevertheless the adolescents treated with DBT made improvements on a variety of measures of functioning across a wide range of treatment settings. For example, adolescents with BPD features reported significant reductions in impulsivity, emotional dysregulation, confusion about oneself and interpersonal difficulties after a short 12-week comprehensive outpatient intervention (Rathus & Miller, 2002). Incarcerated juvenile offenders were found to have fewer acts of aggression, classroom disruptions and 'parasuicidal' acts when treated with DBT (Trupin et al., 2002); bipolar adolescents and their families indicated that DBT was a highly satisfactory treatment that contributed to reductions in suicidal ideation, NSSI, emotional dysregulation, and depressive symptoms (Goldstein et al., 2007); and adolescents with anorexia or bulimia demonstrated significant improvements in behavioural indices of disordered eating and general psychopathology when treated with DBT on an outpatient basis (Salbach-Andrae et al., 2008). Moreover, DBT was shown to have some clinical utility in settings where comprehensive treatment is often less feasible or very difficult to implement, such as a residential treatment facility (Sunseri, 2004), community outpatient clinic (Woodberry & Popenoe, 2008), and rehabilitation facility for juvenile offenders (Trupin et al., 2002). This suggests that the treatment's theoretical underpinnings and clinical approach have value for clinicians working with multi-problem youth who have difficulty regulating their emotions and behaviours.

Treatment acceptability

As with adult studies comparing DBT to treatment as usual or to treatment by experts (Linehan et al., 1991, 1999, 2006), many of the studies reviewed here suggest that DBT is a well-tolerated treatment for the adolescents and family members involved (Rathus & Miller, 2002; Goldstein et al., 2007; Woodberry & Popenoe, 2008). Thus, those teens and parents participating in

DBT complete the treatment more often than the control subjects and also report 'liking' the treatment and would consider referring others in need to such a program. The DBT approach was particularly well-tolerated in the Goldstein et al. (2007) study, in which participants attended 90% of scheduled sessions. Satisfaction ratings indicated that both adolescents and their parents were highly satisfied with the intervention and the visible gains made by the adolescents during the course of treatment. Future studies should continue to assess acceptability and satisfaction among adolescent and family members treated with DBT, as it provides an important index of the treatment's effectiveness. Clinicians could use such data to help educate potential patients about DBT and to build commitment among those starting in treatment.

Treatment retention

Treatment retention is one indicator of an intervention's tolerability and acceptability; across the studies reviewed here, participants frequently completed the DBT program provided. This is particularly compelling not only because DBT often involves a high degree of commitment and involvement on the part of adolescents and their parents, but also because the types of adolescents followed in these studies are often considered the most difficult to engage and retain in treatment. Suicidal adolescents and patients with BPD frequently drop out of treatment prematurely, which in turn increases their risk for multiple negative outcomes including repeated hospitalisations and/or suicide.

Treatment retention was lowest in the studies by Woodberry and Popenoe (2008) and Nelson-Gray and colleagues (2006), and the differences between the studies suggest some key considerations for future research. In the Woodberry and Popenoe (2008) study conducted in a community outpatient clinic, 63% of the 46 adolescents who initially consented to treatment completed the 15-week program. Among non-completers, the most common reason for drop-out was 'external' factors, such as transportation difficulties or lack of parental support. This finding highlights the challenges inherent in working with a multi-problem population in a community setting.

In the study by Nelson-Gray et al. (2006), pre-treatment differences in comorbidity may have contributed to the 69% retention rate. The absence of the individual DBT therapy modality may have contributed to the relatively smaller retention rate when compared to other multi-modal studies reviewed. Overall, findings from the study indicated that the treatment was portable in the community and replicable across graduate student therapists; nevertheless, it remains to be seen whether DBT group skills training is an effective stand-alone treatment for adolescents. In an unpublished study by Linehan, Heard and Armstrong (cited in Linehan et al., 1993), group skills training alone was not effective when paired with treatment-as-usual individual therapy with adult women diagnosed with BPD. Given the dearth of published findings in this area, future research is needed to determine whether group skills training alone may be effective for some adolescent populations, including those with a single diagnosis or those with severe restrictions that limit frequent

attendance, such as those with comorbid medical problems.

Considerations for future research

Future research on the use of DBT with adolescents must address the methodological shortcomings observed in the studies. First, researchers must be clear, precise, and consistent when defining the inclusion criteria and outcome measures for their samples. The inconsistencies in terminology used to describe NSSI and suicidal behaviour make it impossible to compare inclusion criteria and findings across some of the studies reported here. Until relatively recently in the US, researchers used the term suicidal behaviour, suicide attempts, suicidal gestures, parasuicide, and deliberate self-harm (DSH) interchangeably to describe both suicide attempts and non-suicidal self-injury; however, research has demonstrated empirical support for the importance of separating suicidal from non-suicidal self-injurious behaviours (Jacobson et al., 2008). Many European authors continue to use the DSH terminology, which makes it difficult to know what effect DBT may have on non-suicidal self-injurious behaviours with no intent to die vs. suicidal behaviours with at least some intent to die. To increase the reliability and validity of future studies of DBT for adolescents, we urge researchers and clinicians to consider using the same language to describe the same behaviours.

Second, researchers must improve the internal validity of their studies by including control groups and adherence coding. Few of the studies reviewed here included a control group and those that did (Rathus & Miller, 2002; Katz et al., 2004) were quasi-experimental. Without control groups, it is not possible to make strong inferences about the effectiveness of the intervention provided. Fortunately, two randomised controlled trials are underway, the findings from which should answer some of the questions raised, as well as posing new questions for future research. In addition, it would be helpful for researchers to record and report on any events or factors that may influence their outcomes, such as adverse events on an inpatient unit or community violence in outpatient settings. Very few of the studies reviewed here comment explicitly on issues of internal validity beyond stating the need for a control group.

Adherence coding will also permit greater clarity about the nature of the intervention provided. Adherence coding refers to the process of recording treatment sessions and rating therapists' interventions according to the criterion specified in the original model. Therapists who delivered DBT in the studies described varied in profession, training, years of experience, and whether they had the support of a consultation team. Although many had sought training through intensive DBT workshops and other reliable methods of training, very few studies mentioned whether any steps had been taken to ensure therapists' adherence to the DBT protocol (see Woodberry & Popenoe, 2008 for an exception). These sources of variance inevitably make it more difficult to compare the treatments being delivered to patients across studies and to determine whether these patients were actually receiving DBT (as measured by a reliable adherence measure).

A related recommendation involves researchers stating explicitly the ways in which their treatment interventions adhered to, or deviated from, Miller and colleagues' (2007) DBT protocol. Guidelines on conducting effectiveness research, such as those proposed by the Medical Research Council (2008), highlight the value of making modifications and flexible adaptations of an original treatment protocol in order to maximise a treatment's utility. In the process of doing so, however, it is crucial that researchers and clinicians record all ways in which their treatment was delivered. Such information will permit a more nuanced understanding of DBT's essential components for particular populations.

Third, efforts should also be made to maximise the generalisability of findings to new populations. For example, many of the studies reviewed included small samples that were predominantly female, with the exception of the study conducted by Nelson-Gray et al. (2006), in which 85% of their adolescent sample was male. Small samples and the over-representation of females limit the applicability of findings to other groups. Similarly, DBT has only recently begun to be applied to populations other than the one it was originally developed for, and thus there are not yet enough studies to make comparisons between DBT interventions for the same disorder (i.e. bipolar disorder) or the same setting (i.e. residential treatment facility). As research on the use of DBT with adolescents proliferates, we will be able to make stronger comparisons between groups.

In conclusion, the research to date on DBT with adolescents is both very limited on the one hand and quite promising on the other. Many of the studies contain methodological weaknesses that decrease the internal and external validity, and the reliability of the findings. Only two studies (Rathus & Miller, 2002; Katz et al., 2004) compared DBT to a comparison group using a quasi-experimental design; the next step is to evaluate DBT in randomised controlled trials. Two such trials are currently underway and will undoubtedly contribute to the treatment literature in important ways. At the same time, the research reviewed here has yielded several promising findings and suggests that DBT may help improve the lives of adolescents and their families. One particularly encouraging finding was that parents participating in Woodberry and Popenoe's (2008) study reported a large change in their own depressive symptoms, suggesting that DBT may change the overall health of a family system from multiple angles. Research on DBT has only recently started to investigate specific factors associated with outcome (Robins & Chapman, 2004) and future studies should continue to do so, particularly given the many questions raised by the findings discussed in this article. Finally, by having more consistent terminology to describe our independent variables and by having more robust study designs, future research will build on the foundation outlined by these 12 studies.

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A Pilot Evaluation of Dialectical Behavioural Therapy in Adolescent Long-Term Inpatient Care

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Background: There is a paucity of research investigating psychosocial treatments for youth receiving long-term residential care. **Objective:** This study describes the implementation and impact of dialectical behavioural therapy (DBT) in a long-term psychiatric hospital located in the United States of America. **Method:** Changes in overall functioning, number of psychotropic medications prescribed, non-suicidal self-injurious behaviour (NSIB), and locked seclusions were investigated in 106 consecutive unique adolescent patients who received DBT. In addition, a comparison group of historical controls was used to examine the effect of DBT in youth with the highest rates of NSIB. **Results:** A statistically significant increase in overall functioning, as well as a decrease in number of psychotropic medications and non-suicidal self-injurious behaviour (NSIB) was observed within the DBT group. A decrease in locked seclusions was not observed. Accounting for the effects of age, gender, length of stay, and time, youth who received DBT were less likely to engage in NSIB relative to historical controls. **Conclusions:** These preliminary data suggest that DBT is beneficial for youth with NSIB in long term inpatient psychiatric care.

Key Practitioner Message:

- DBT is a feasible treatment in long-term inpatient care.
- Relative to a comparison group, DBT appeared to reduce non-suicidal self injurious behaviour in this setting.
- No effect of DBT was observed on the frequency of locked seclusions.
- While maintaining treatment integrity, it was possible to tailor the intensity of DBT to specific groups of patients.

Keywords: Dialectical behaviour therapy, adolescents, inpatient psychiatric care, long term.

Dialectical behavioural therapy (DBT) is an empirically supported treatment developed to reduce suicidal behaviour, non-suicidal self-injurious behaviour (NSIB), and other impulsive behaviours in persons with borderline personality disorder (Linehan, 1993) and has demonstrated reductions in psychiatric hospitalization (Verheul et al., 2003), self-harm (Linehan et al., 1991), and depression (McQuillan et al., 2005).

DBT has been adapted for adolescents with NSIB and emotion dysregulation (Miller, Rathus, & Linehan, 2007). Two university medical centre based trials utilised quasi-experimental designs to evaluate the relationship between DBT and outcomes in adolescents with histories of NSIB were conducted in the United

States of America (Rathus & Miller, 2002) and Canada (Katz et al., 2004). Katz and colleagues demonstrated feasibility of DBT in an acute inpatient setting, where DBT was associated with reductions in behavioural incidents during inpatient care, relative to a treatment as usual control group. Miller et al. (2007) found similar outcomes, relative to a comparison group, in an outpatient adolescent sample. A community based pilot study conducted in the United Kingdom of 16 outpatient adolescent females also found positive effects of DBT (James et al., 2008). Based upon these supportive initial data, DBT is currently being adapted for a variety of adolescent samples, some of which maybe quite different in terms of settings and samples that form the

base of empirical support (e.g. adolescent females with NSIB). Therefore, data evaluating the impact of DBT on outcomes in novel settings and patient populations, such as youth in long-term psychiatric care, is needed. Further, the impact of DBT on outcomes relevant to inpatient care, such as seclusion and functional status, has not been studied.

There is also a paucity of research investigating empirically supported treatments in long-term inpatient care, despite the high costs associated with long-term inpatient hospitalization. In long-term juvenile detention the impact of DBT was assessed among 45 incarcerated adolescent females with psychiatric disorders (Trupin et al., 2002). Relative to historical controls, a significant decrease in behaviour problems over 10-months was observed.

Based upon previous research and in an effort to reduced length of stay, use of seclusion, and NSIB, a DBT adaptation was developed for adolescents in long-term inpatient care located in the USA. In this adaptation, DBT was the core milieu strategy for all patients. Patients were assigned to varying intensities of DBT based on clinical characteristics (e.g. self-harm history, diagnosis). The impact of DBT was evaluated using outcomes that were gathered in the course of clinical treatment (i.e. NSIB, seclusions, number of prescribed psychotropics, functional impairment). The number of psychotropic medications prescribed and functional impairment at admission and discharge were investigated within the DBT sample. Changes in NSIB and locked seclusions were also investigated across time. We hypothesized that DBT would be associated with improved outcomes during the course of hospitalisation. We also hypothesized that DBT would be associated with decreased rates of NSIB and lock seclusions relative to a historical control group who received inpatient care at this facility prior to implementation of DBT.

Method

Participants

DBT participants were 106 youth aged 12 to 17 years ($M = 15.54$, $SD = 1.20$) admitted and discharged between 2000 and 2005. Historical control participants were 104 youth aged 12-15 years ($M = 15.3$, $SD = 1.1$) admitted and discharged between 1995 and 1999. The majority of the overall sample was female ($n = 121$, 58%). Participants were consecutive unique admissions. Voluntary and involuntary admissions were included. Involuntary admissions are defined as individuals who were detained under civil commitment laws because they are judged to be a danger to themselves or others and/or are unable to function in the community. Admissions for legal competence restoration were excluded, as the goal of treatment for these individuals was to restore their legal competency to be tried for criminal offences. The Washington State Institutional Review Board provided human subject approval.

Treatment

DBT included all components of Linehan's model (Linehan, 1993). All staff, including teachers, recreational therapists, nursing staff, and front line clinical

staff received DBT training. Developmental modifications were made to treatment techniques and materials. Treatment group participants received either milieu only (milieu DBT), milieu and DBT skills training group (group DBT), or milieu, skills training group, and individual DBT (full DBT). Assignment to DBT intensity was based on clinical judgment, not random assignment. Milieu DBT included chain analysis of problematic behaviour, behavioural interventions, and skills taught individually. DBT therapists were licensed clinicians and trainees in social work, psychology, and psychiatry. A DBT consultation group met regularly and included all group and individual DBT therapists. Youth not enrolled in full DBT were provided with individual, group and family therapies.

The general treatment setting was a single unit at a long term inpatient psychiatric facility (the facility includes 3 age based treatment units) that specialized in the treatment of older adolescents (14-17 year olds). The typical census in this unit was 12-16 patients at any given time. Staff included psychiatric technicians, who provided behavioural management and direct supervision of patients, nursing staff, an attending psychiatrist, a social worker and an attending psychologist. All participants, including historical controls, were prescribed psychiatric medications as indicated. All patients received recreational therapy, specially designed educational instruction, case management, and other group psychotherapies. Historical controls received individual and family psychotherapies as indicated.

Procedure

The first author collected medical record data from the records of the 106 DBT participants. Discharge diagnoses were made by attending psychiatrists responsible for patient care and structured interviews were not used. Dependent measures included length of stay (months), discharge placement, and change in number of psychiatric medications and functional status (Child-Global Assessment Scale, CGAS, range 0-100) from admission to discharge. Attending child and adolescent psychiatrists who were University of Washington faculty conducted admission and discharge CGAS ratings. CGAS scores, discharge placement, and change in psychiatric medication data were not available for the comparison group, due to the infeasibility of abstracting these data from the medical record. Therefore, comparisons between the DBT and historical comparison group were not possible across these variables. The electronic hospital quality assurance database was used to assess the frequency of locked seclusions for all 210 participants. NSIB were also obtained from the quality assurance databases. However, these data were only recorded beginning in 1997. Therefore, NSIB data were available for only 49 the 104 historical controls.

Data analysis

Variables were descriptively analysed. Repeated measures ANOVA were used to assess change in continuous outcomes (number of psychiatric medications & CGAS scores) within the DBT group. Dichotomous outcomes (locked seclusions and NSIB) were investigated across 12 months post-admission using generalised estimating equations utilizing SPSS Statistics version 17.0.

Generalised estimating equations are a generalized linear model technique that allows investigation of dichotomous correlated data across time.

Results

Of participants that received DBT, 73% ($n = 77$) had a history of suicidal ideation or behaviour; 32% ($n = 34$) were wards of the state, 66% ($n = 70$) had a history of child protection system involvement, 52% ($n = 55$) had suffered sexual abuse, and 68% ($n = 72$) had juvenile justice involvement. At discharge, patients averaged 3 (1.4) Axis I diagnoses, with oppositional defiant (81%, $n = 86$), conduct disorders (71%, $n = 75$), and internalizing disorders (major depression = 52%, $n = 55$; post-traumatic stress disorder = 45%, $n = 45$) the most common. At discharge, antipsychotic medications were most frequently prescribed (51%, $n = 54$), followed by antidepressants (42%, $n = 45$), anti-convulsants (29%, $n = 31$), anxiolytics (17%, $n = 18$), stimulants (12%, $n = 13$), and lithium (5%, $n = 5$).

These variables were descriptively examined across DBT intensities. Since patient characteristics were not independent from the type of DBT prescribed, statistical comparisons were not conducted. Youth receiving full DBT were likely to be female, had high rates of mood disorders, post-traumatic stress disorder, cluster B personality disorder traits, sexual abuse histories, and NSIB. Adolescents who received group DBT were often male and diagnosed with externalising disorders. Those who received milieu DBT were likely to have a psychotic illness or developmental disability. Youth in the historical control group were similar to those receiving DBT in regards to age, gender, and length of stay.

Treatment outcomes

A statistically significant increase of 14.14 points ($SD = 17.52$) in CGAS scores from admission to discharge was observed, $F(1,97) = 154.86$, $p < .001$, for youth who received DBT. On average, DBT participants were prescribed 2.4 psychotropic medications ($SD = 1.7$) at admission and 1.1 ($SD = 1.4$) at discharge, a statistically significant reduction, $F(1, 97) = 55.89$, $p < .001$. Forty-three percent ($n = 49$) were discharged to their parents, 22% ($n = 25$) to foster care, 18% ($n = 20$) to a group home, and 2% ($n = 2$) to long-term inpatient treatment.

The relationships between DBT and locked seclusion and NSIB were investigated for the first year of treatment using generalised estimating equations. Accounting for gender, age, and length of stay, there was a significant effect of time on NSIB, $wald \chi^2(3) = 21.1$, $p < 0.001$. The effect of time on locked seclusion was not significant.

Rates of NSIB in youth who received DBT were compared to historical controls. NSIB was infrequent in the overall sample. Fifty-one percent ($n = 79$) had no NSIB, 21% ($n = 33$) had 1 or 2 NSIB, and 28% ($n = 43$) had 3 or more NSIB during their treatment. For this analysis, we focused on youth with 3 or more recorded episodes of NSIB. Accounting for gender, age, length of stay, and the effect of time, youth who received DBT ($M = 0.59$, $CI = 0.49-0.69$) had significantly lower rates of NSIB across 12 months of hospitalisation, compared to his-

torical controls ($M = 0.75$, $CI = 0.64-0.86$), $wald \chi^2(1) = 4.1$, $p < .05$.

Discussion

In our long-term psychiatric inpatient setting, those who received DBT experienced statistically significant improvements across time in global functioning, as well as reductions in prescribed psychotropic medications. Data for these outcomes was not available for comparison group youth; therefore, changes in these variables cannot be directly attributed to DBT. In comparison to historical controls, exposure to DBT was associated with a greater reduction in NSIB, in those youth with the most severe histories of self-injurious behaviours.

This was not a randomised trial. Changes in outcomes cannot be attributed solely to the effects of DBT. However, these data support for use of this model in adolescents in long-term inpatient care, particularly patients with high rates of NSIB. Randomised clinical trials of DBT in this setting are needed to establish its efficacy for this population.

One unique characteristic of this DBT model was the three levels of DBT intensity. This allowed for tailoring of the DBT program to the needs of each patient. Those assigned to treatment groups represented distinct clinical populations. Youths who received full DBT were similar to adults for whom the intervention was designed and to adolescents for whom the intervention has been piloted (James et al., 2008; Katz et al., 2004; Linehan, 1993; Rathus & Miller, 2002).

Teens who received group DBT were likely to be males with externalising disorders. Group DBT was likely to benefit these youth, as they may have interpersonal skills and emotion regulation difficulties that manifest as externalising behaviours, but do not have persistent NSIB that would require full DBT. Those assigned to milieu DBT typically suffered from psychotic or pervasive developmental disorders. While contingency management principals of DBT provided a foundation for milieu management for these youth, the more complex and cognitive based group and individual components of DBT were less appropriate.

Other study limitations include lack of randomisation to treatment, retrospective data collection, and no measure of DBT adherence. In addition, results may have been influenced by other efforts to respond to reduce length of stay, NSIB, and seclusion and restraint. The implementation of DBT was only one of many quality improvement efforts and staff trainings that occurred during this time period.

This report is one of few that describe outcomes associated with evidence based interventions adapted for adolescent inpatients (Case et al., 2007; Greene, Albon, & Martin, 2006). Adolescents in long-term care represent a small, but important, group of youth, as they are served by multiple publicly funded systems of care. Therefore, implementation and evaluation of empirically supported treatments for youth in this setting is important in order to improve symptomatic and functional outcomes, as well as prevent long-term disability.

Hospitals and community programs may be hesitant to adopt and adapt empirically supported treatments.

In our setting, the innovative adaptation of DBT formed the core treatment for youth and was associated with positive therapeutic outcomes. This study demonstrates how treatments, such as DBT, can be adapted and evaluated utilising existing means in real world settings. Future research should focus on evaluating the efficacy and/or effectiveness trials of DBT in this and similar settings. Research that investigates issues related to dissemination, such as DBT model adherence, impact of DBT on staff outcomes, and cost savings are also important.

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PROFESSIONAL PUBLICATIONS

Relevant Papers on Adolescent NSSI, Suicidality, and Depression in Peer Reviewed Journals

1. Kaur, J. & **Martin, G.** (To be submitted). Correlates of Non-Suicidal Self-injury in First Year Graduate Medical Students. *Australian New Zealand Journal of Psychiatry*.
2. Hasking, P., Rees, C., **Martin, G.**, & Quigley, J. (Submitted). What happens when you tell someone you self-injure? The effects of disclosing NSSI to adults and peers.
3. Caltabiano, G. & **Martin, G.** (Submitted). Mindless Suffering: The Relationship Between Mindfulness and Non-Suicidal Self-Injury. *Suicidology Online*.
4. Hasking, P., **Martin, G.**, & Voon, D. (Submitted). Identifying predictors of NSSI over time: A latent growth curve analysis. *Psychological Medicine*. IF 6.15.
5. Tatnell, R., Hasking, P., **Martin, G.**, Newman, L. (In Review). Childhood sexual and physical abuse, attachment and emotion regulation in NSSI: A moderated-mediation model in adolescents. *Child Abuse & Neglect*. IF 3.036.
6. Hasking, P., Berger, E., Callaway, T. & **Martin, G.** (Corrections submitted). Emotion regulation moderates the relationship between reward sensitivity and non-suicidal self-injury. *Australian Journal of Psychology*. IF 0.66.
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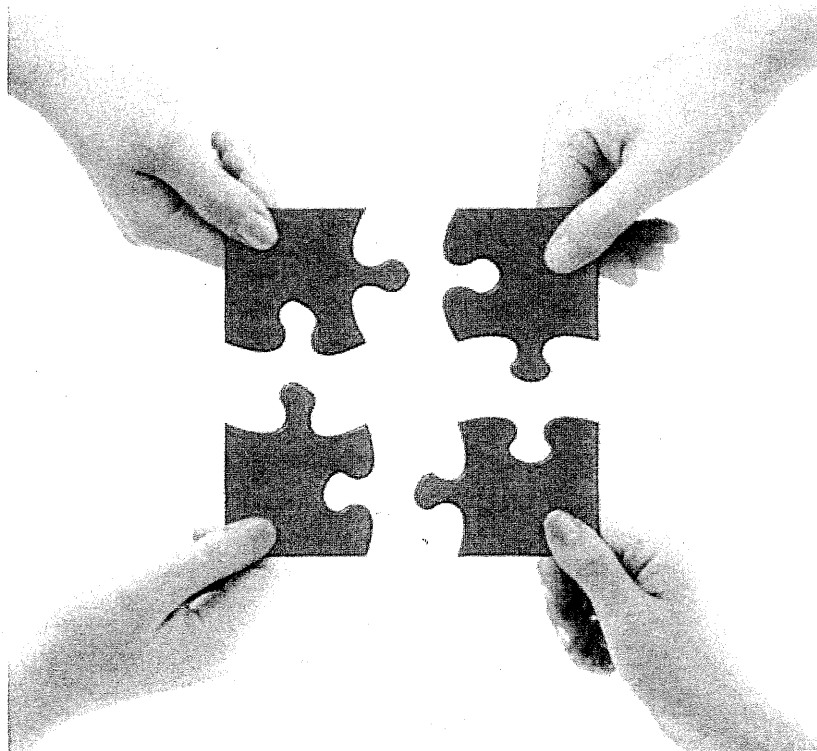
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Seeking solutions to self-injury



A GUIDE FOR PARENTS AND FAMILIES

Child and Adolescent Psychiatry
The University of Queensland, Brisbane, Australia

to discover *what* self-injure in the first *od* of self-injury, or ition or increasing

friends' is the most age to give up self-ou are 'connected' in phone someone am getting all upset, same is likely to be ng part of a caring u gain some sense lf-injury.

h more clear how elationships, early all fit together for better at helping r they need. We are hich therapies work s. But for now, we person by person, The critical thing is d by someone who the whole journey.

4. WHY DO PEOPLE SELF-INJURE?

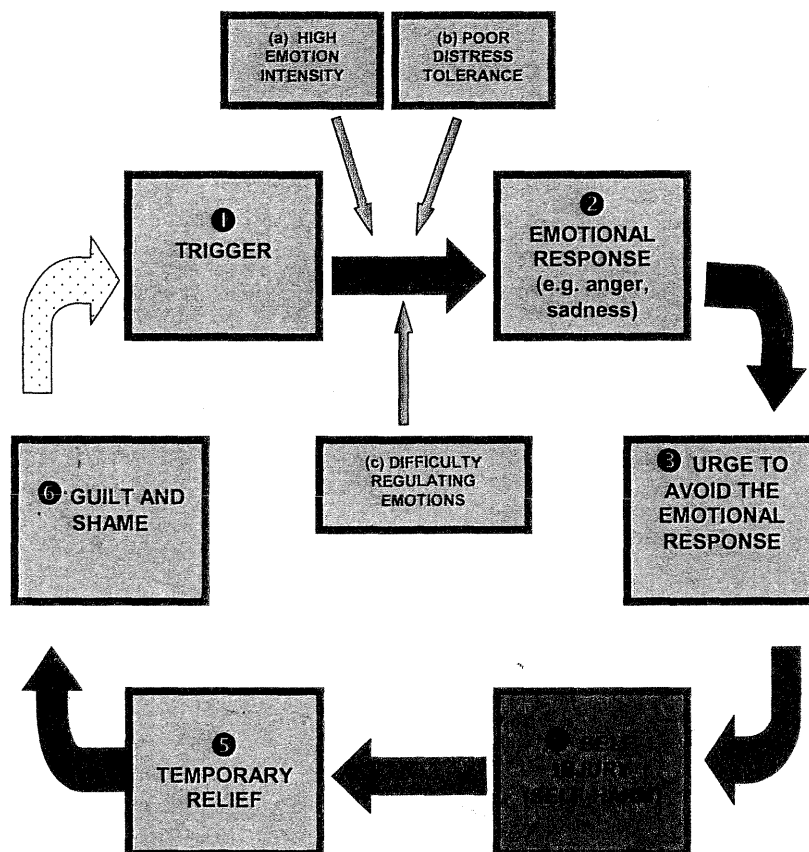
Self-injury is relatively common. Our recent research has shown that about 8% of Australians claim to have self-injured at some time, and that 1% admit to hurting themselves more than once in the previous month. The research also found many reasons someone might self-injure. These may include:

- *Releasing unbearable mounting tension*
- *Relieving feelings of aloneness, alienation, hopelessness or despair*
- *Combating desperate feelings or thoughts*
- *Getting rid of anger or rage*
- *Self-punishment*
- *Attempting to feel alive again*
- *Regaining a sense of control*
- *Self-soothing*
- *Confirming personal boundaries and a sense of self*
- *Communicating with others*
- *Expressing conflicting ideas that feel confusing*
- *Controlling dissociative states, where the person is trying to bring themselves back to reality*

But you must not jump to conclusions. Always ask the young person what best describes what they are going through.

We think this model is helpful. The diagram describes how a person can get into a cycle of self-injury.

Chapman, A.L., Gratz, K.L. & Brown, M.Z. (2006). Solving the puzzle of deliberate self-harm: The experiential avoidance model. *Behaviour Research and Therapy* 44, 371-394.



1. The cycle begins with a new event or 'trigger', (often involving feelings of loss, rejection or abandonment). This may remind the person of an old problem. The upset

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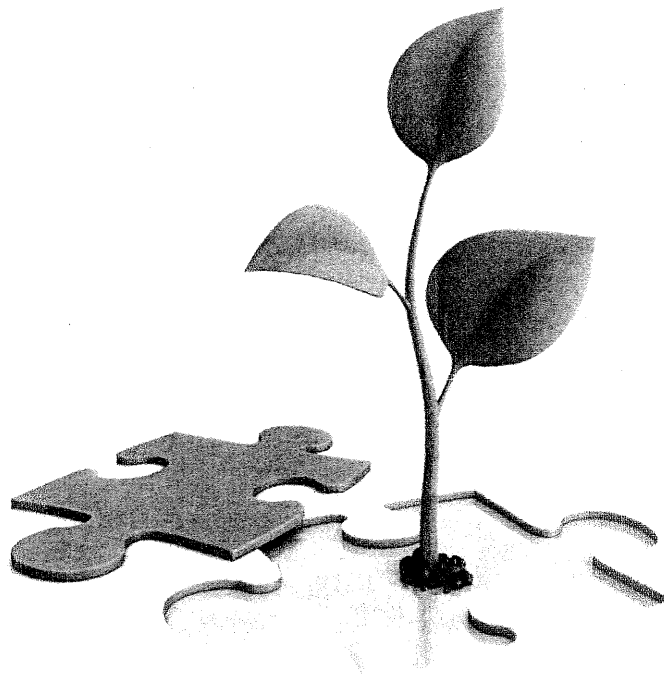
feelings may be automatically unbearable, or may increase over time, despite attempts to avoid them. For some people, there is emotional and psychological numbness.

2. The emotional pain or numbness becomes intolerable
3. Other ways to reduce the pain fail, and though attempts may be made to avoid self-injuring, a critical level is reached and the urge to self-injure (having maybe appeared to work in the past) becomes the 'only alternative'.
4. The aftermath may involve an initial feeling of relief, but this is usually short lived. Guilty thoughts creep in, and friends and family may be avoided. At this point there may be 'an urge to tell', or even a search for help. If help is not recognised or is actively pushed away or resisted, then the cycle may begin again.

Self-injury occurs for a number of different reasons. Many different theories have been proposed to better understand and explain it. These include: biological influences, or differences in how the brain works (perhaps genetic, but also some people think it may be dietary); internal conflicts (arguments within ourselves) about which we are not always aware; old patterns of behaviours that we have learned over time; and influences in our social and cultural environment. These theories are explained a little more on the next page.

Biological: Psychological trauma from old painful events in our lives can affect the brain and the body in powerful, subtle and enduring ways. With a sensitised biology, the person may then experience more stress than others in a new

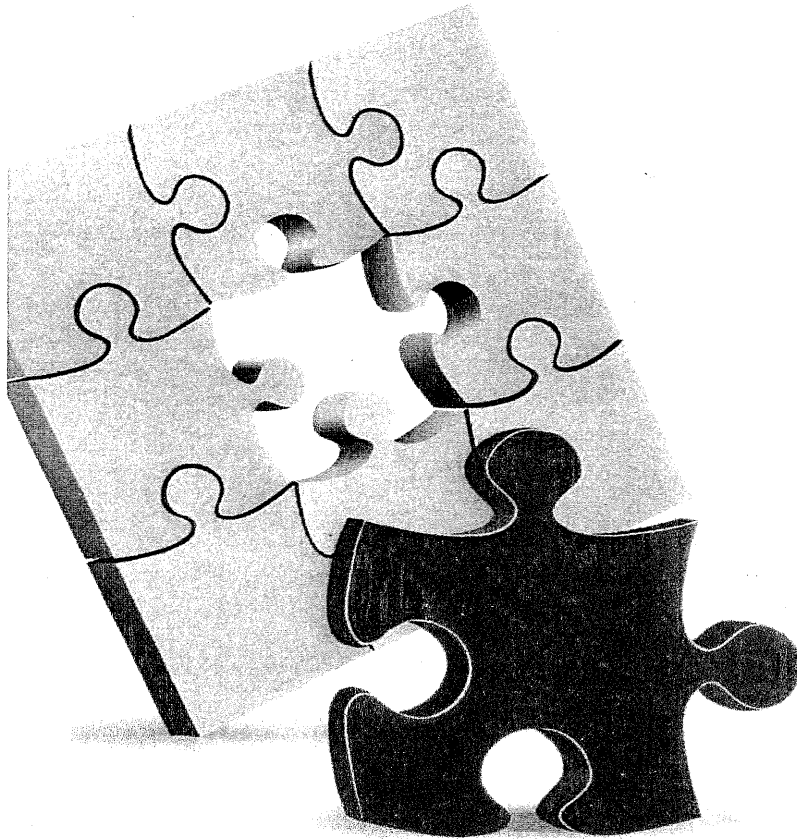
Seeking solutions to self-injury



A GUIDE FOR YOUNG PEOPLE

Child and Adolescent Psychiatry
The University of Queensland, Brisbane, Australia

Seeking solutions to self-injury

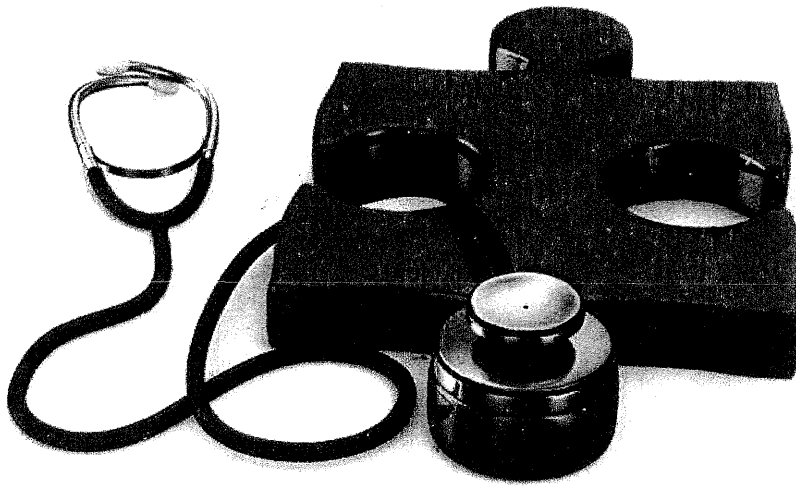


A GUIDE FOR SCHOOL STAFF

What can you do when you're not the counsellor?

Centre for Suicide Prevention Studies
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Seeking Solutions to Self-injury



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Seeking Solutions to Self-injury



A GUIDE FOR EMERGENCY STAFF



Centre for Suicide Prevention Studies

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Self-injury in Australia: a community survey

Graham Martin, Sarah V Swannell, Philip L Hazell, James E Harrison and Anne W Taylor

Self-injury is deliberate damage to the body without suicidal intent. Given the young age of onset for most self-injurers, community-based studies have focused on adolescents^{1,2} or university students.^{3,4} However, most studies for all ages focus not on community samples but on clinical cases in emergency departments^{5,6} or inpatient units.⁷⁻⁹ To date, there has been only one previous nationally representative study of adult self-injury, conducted in the United States.¹⁰

A key clinical issue is the reported overlap between self-injury and suicidality. Many studies combine self-injury and suicide attempts together as "deliberate self-harm". However, recent research suggests that there are clear differences between these behaviours in their correlates, responses to therapy, and long-term outcomes.¹¹ There have been recent calls for non-suicidal self-injury to be recognised as a unique syndrome. As recently noted: "People have engaged in self-injury ... in the absence of suicidal intent ... for thousands of years; however, systematic research on this behavior has been lacking."¹²

Self-injury does not necessarily lead to medical intervention; much is hidden, and reliable statistics about lifetime prevalence are not available. Self-injury causes distress for family, friends and carers and, when it escalates into more serious harm, places financial burden on the health system through emergency medical care and admission to hospital. Planning for prevention, or developing intervention services, may be inadequate unless we understand better the size and nature of the problem.

We aimed to gain an accurate understanding of 4-week and lifetime prevalence of self-injury in the Australian population according to key demographic variables, describe the nature of self-injury (including age of onset, methods, frequency, motivations and help-seeking), and describe associations between self-injury and psychiatric morbidity, suicide and substance use.

METHODS

A pilot study, using 50 randomly selected households, was conducted to assess question formats and sequence, survey procedures, and suitable times for interviewing. To check validity, the survey was piloted

ABSTRACT

Objective: To understand self-injury and its correlates in the Australian population.

Design, participants and setting: Cross-sectional survey, using computer-assisted telephone interview, of a representative sample of 12 006 Australians from randomly selected households.

Main outcome measures: Data on demographics, self-injury, psychiatric morbidity, substance use, suicidality, disclosure and help-seeking.

Results: In the 4 weeks before the survey, 1.1% of the sample self-injured. For females, self-injury peaked in 15–24-year-olds; for males, it peaked in 10–19-year-olds. The youngest self-injurers were nine boys and three girls in the 10–14-year age group, and the oldest were one female and one male in the 75–84-year age group. Mean age of onset was 17 years, but the oldest age of onset was 44 years for males and 60 years for females. No statistically significant differences existed between those who did and did not self-injure on sex, socioeconomic status or Indigenous status. Most common self-injury method was cutting; most common motivation was to manage emotions. Frequency of self-injury during the 4-week period ranged from 1 to 50 instances (mean, 7). Self-injurers were significantly more psychologically distressed, and also more likely to use substances. Adults who self-injured were more likely to have received a psychiatric diagnosis. Self-injurers were more likely to have experienced recent suicidal ideation (OR, 11.56; 95% CI, 8.14–16.41), and have ever attempted suicide (OR, 8.51; 95% CI, 5.70–12.69). Most respondents told someone about their self-injury but fewer than half sought help.

Conclusion: The prevalence of self-injury in Australia in the 4 weeks before the survey was substantial and self-injury may begin at older ages than previously reported. Self-injurers are more likely to have mental health problems and are at higher risk of suicidal thoughts and behaviour than non-self-injurers, and many self-injurers do not seek help.

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with 20 previously or currently self-injuring volunteers.

A random sample of 42 938 Australian addresses was derived from the electronic White Pages telephone directory, and each address was posted an approach letter, participant information sheet, lists of mental health and Indigenous health services, and a summary of survey questions.

Eligible households from the sample were telephoned and, for each contacted household, the last person aged 10 years or over to have a birthday was invited to participate; non-contactable persons were not replaced. Addresses with disconnected telephone lines, fax numbers or modem numbers, as well as those listed as relocations or non-residential properties, were ineligible. Calls were made from January to July 2008 (09:30–21:00 Mondays to Fridays, 09:30–15:00 Saturdays, and 10:00–20:30 Sundays). Interviewers identified themselves, reminded the respondent about the approach letter and survey purpose, and sought permission to conduct the interview. Given ethical issues associated with asking

people younger than 18 years about deliberate self-injury and suicidality over the telephone, parental permission was sought for these respondents. If the parent refused to allow his or her child to be interviewed, he or she could answer on the child's behalf. If required, appointments were made to conduct interviews in Italian, Greek, Vietnamese, Chinese, or Arabic.

Specially trained interviewers from the Harrison Research Health Research Division used computer-assisted telephone interviewing (CATI) to conduct the survey. This allows immediate entry of data from the interviewer's questionnaire screen to the computer database, precise ordering of questions, and an enforced range of checks on each response, with most questions having predetermined response categories. Responses to open-ended questions were transcribed verbatim for later analysis. Ten per cent of each interviewer's work was randomly selected for validation by the supervisor.

After enquiry about demographics, current mental health status and aspects of psycho-

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logical functioning (which included the 12-item General Health Questionnaire) interviewers stated: "The following questions are about self-injury. Self-injury means deliberately hurting yourself or any part of your body without meaning to kill yourself. Do you understand this definition?" If the participant said "yes", the interviewer then stated: "If you feel uncomfortable, you don't have to answer these questions." The interviewer then asked: "Over the past 4 weeks, have you self-injured?" If the participant said "yes", responses were sought regarding a predetermined list of self-injury methods. (No detail about self-injury was asked until after self-injury had been acknowledged.) Telephone numbers of relevant support services were offered to participants on survey completion.

The project was carried out according to the National Health and Medical Research Council's *National statement on ethical conduct in research involving humans*¹³ and approved by the Behavioural and Social Sciences Ethical Review Committee of the University of Queensland. Harrison Research is a member of the Association of Market and Social Research Organisations and complies with policies on privacy, workplace relations and quality assurance.

Statistical analyses

Data from the CATI system were imported into SPSS version 17.0 (SPSS Inc, Chicago, Ill, USA), and data cleaning was completed with agreement between two of us (GM, SVS) on response categorisation for answers to open-ended questions.

Comparisons between sample characteristics and the Australian population were conducted using χ^2 goodness-of-fit tests. Prevalence estimates (proportions of the total sample) were stratified by relevant variables. Comparisons between self-injurers and non-self-injurers on categorical variables (suicidality, psychological distress and substance use) were conducted using the χ^2 test for independence. Comparisons on continuous variables were conducted using the independent samples *t* test. Respondents who only reported overdosing were not included in comparison analyses.

Data were weighted by age, sex and state, to reflect the structure of the Australian population aged 10 years and over (Australian Bureau of Statistics 2006 Census¹⁴). Weights reflect unequal sample inclusion probabilities and compensate for differential non-response. Data weighting resulted in some rounding effects. For prevalence estimates stratified by gender and age group,

1 Reasons why members of eligible households (n = 31 216) did not participate in the survey

	No. (%)
Adult refusal	14 032 (45.0%)
Parent refusal	671 (2.1%)
Unable to contact household after six attempts	2 341 (7.5%)
Respondent unable to speak English, Italian, Greek, Vietnamese, Chinese or Arabic	726 (2.3%)
Respondent incapacitated and unable to be interviewed (ie, too ill or hearing impaired)	912 (2.9%)
Interview terminated part way through	173 (0.6%)
Respondent unavailable after 10 attempts	351 (1.1%)
Completed interviews	12 010 (38.5%)*

*Four participants were excluded owing to missing or irreconcilable data, leaving a sample of 12 006

numerators and denominators are rounded within categories and therefore may not appear to sum to overall totals.

RESULTS

A total of 31 216 eligible households were telephoned (11 722 of 42 938 addresses were ineligible) to reach the target of 12 010 interviews (response rate, 38.5%). Our original plan was to telephone 20 000 households, but this was increased because of the numbers of adult and parent refusals, uncontactable households, and interviews terminated part way through. Reasons why members of eligible households did not participate are shown in Box 1. Of note, only 173 interviewees terminated the interview (mean duration, 13.6 min) part way through. Records for four participants were removed owing to missing or irreconcilable data, leaving a sample of 12 006 participants, representative of all states and territories, and city, rural and remote households.

Sample characteristics

The sample comprised 5943 males (49.5%), 6063 females (50.5%), 10 531 adults (87.7%, aged 18–100 years), and 1475 children (12.3%, aged 10–17 years). Of those born in Australia, 1.9% (183/9480) identified as Aboriginal or Torres Strait Islander, similar to 2.3% of the Australian population¹⁴ ($\chi^2 = 0.63$, $P = 0.43$). Compared with the Australian population, Asian-born people were under-represented in the sample ($\chi^2 = 133.08$, $P < 0.001$). Overall, participants were more highly educated ($\chi^2 = 1086.80$, $P < 0.001$), and adults were more likely to report their marital status as single ($\chi^2 = 42.07$, $P < 0.001$).

The percentage of participants aged 16–85 years with anxiety disorders was 15.1% (1646/10 898), including general anxiety, social anxiety, post-traumatic stress disorder, obsessive-compulsive disorder, panic disorder, panic attacks and agoraphobia. This was not statistically different to the percentage in the 2007 National Survey of Mental Health and Wellbeing (14.4%, $\chi^2 = 3.75$, $P = 0.05$).¹⁵ Conversely, the percentage of participants aged 16–85 years with a mood disorder was 19.2% (2095/10 898), including depression, post-natal depression, dysthymia, mood disorder not otherwise specified, seasonal affective disorder and bipolar disorder. This was higher than that in the 2007 National Survey of Mental Health and Wellbeing¹⁵ (6.2%, $\chi^2 = 2979.62$, $P < 0.001$).

Self-injury and key variables

The 4-week prevalence of self-injury for the total sample was 1.1% (133 participants), and the 6-month prevalence was 1.8% (222 participants). Overall lifetime prevalence, including during the 4 weeks before the survey, was 8.1% (978 participants).

Sex and age

The 4-week prevalence of self-injury for males (61 participants, 1.0%) was not statistically different to that for females (72 participants, 1.2%), and both were similar to the overall 4-week prevalence. For females, self-injury peaked at 15–19 years (23/574, 4.0%) and 20–24 years (16/450, 3.6%). For males, self-injury peaked at 10–14 years (9/388, 2.3%) and 15–19 years (14/629, 2.2%), then declined with age for both sexes. The oldest participants to self-injure in the 4 weeks before the survey were one woman and one

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2 Methods of self-injury in the 4 weeks before the survey

	Number (%) [*]		
	Males (n = 61)	Females (n = 72)	Total (n = 133)
Cutting	17 (27.9%)	37 (51.4%)	54 (40.6%)
Scratching	17 (27.9%)	36 (50.0%)	53 (39.8%)
Deliberately hitting body part on hard surface	26 (42.6%)	22 (30.6%)	49 (36.8%)
Punching, hitting or slapping self	26 (42.6%)	19 (26.4%)	45 (33.8%)
Biting	7 (11.5%)	13 (18.1%)	20 (15.0%)
Burning	13 (21.3%)	7 (9.7%)	20 (15.0%)

^{*} Acknowledging multiple methods means percentages add to more than 100%. ♦

man, both in the 75–84-year age group. The youngest were nine boys and three girls in the 10–14-year age group.

The mean reported age of onset for self-injury was 17.2 years (SD, 10.7 years). The youngest age of onset was 5 years (one female); age of onset was 6 years for four participants (three males, one female), 8 years for three participants (two males, one female) and 9 years for one female. Oldest ages of onset were 60 years (one woman) and 44 years (one man). Six women reported first self-injuring in the age group 45–54 years.

Lifetime prevalence was higher in females (530/6063, 8.7%) than in males (448/5943, 7.5%). It was highest in the 20–24-year age group for females (110/451, 24.4%) and males (79/436, 18.1%) followed by the 15–19-year age group for females (95/574, 16.6%) and 25–34-year age group for males (119/957, 12.4%), then declining with age for both sexes. Lifetime prevalence for males in the 15–19-year age group was 11.6% (73/629).

Socioeconomic and work status

There were no statistically significant socioeconomic differences between participants who did and did not report self-injury in the 4 weeks before the survey, based on Index of Education and Occupation scores ($t = -0.30$, $P = 0.77$) or Index of Relative Socioeconomic Disadvantage scores ($t = 0.45$, $P = 0.66$). However, those who had ever self-injured scored lower (mean, 1002.5 [SD, 59.3] v mean, 1008.5 [SD, 61.8]; $t = 2.93$, $P = 0.003$) on the latter index. Of participants aged 19 years or older with work status as student, 49 of 375 reported ever having self-injured (13.1%).

Indigenous status and country of birth

A small difference between 4-week prevalence of self-injury in Indigenous (4/183, 2.2%) and non-Indigenous (111/9297, 1.2%) participants did not reach statistical

significance (OR, 1.86; 95% CI, 0.68–5.09). However, participants born in Australia were more likely than those born elsewhere to self-injure in the 4 weeks before the survey (OR, 1.81; 95% CI, 1.08–3.01).

Methods and frequency of self-injury

Among the participants who self-injured in the 4 weeks before the survey, the most common methods of self-injury were cutting (54, 40.6%), scratching (53, 39.8%), hitting body part on a hard surface (49, 36.8%), and punching, hitting or slapping (45, 33.8%) (Box 2). Most used one method (53, 39.8%). However, 37 (27.8%) used two, 24 (18.0%) used three, 11 (8.3%) used four, and six (4.5%) used five or more methods (two respondents refused to specify self-injury method). Frequency of self-injury during the 4 weeks before the survey ranged from one to 50 instances (mean, 7; mode, 1).

Motivation for self-injury

The most common motivation for self-injury among the 133 participants who self-injured in the 4 weeks before the survey was to manage emotions, with 41.0% (25/61) of males and 58.3% (42/72) of females reporting this. A need to punish oneself was also common (16/61, 26.2% of males; 13/72, 18.1% of females). Less common were to communicate to others (7/133, 5.3%), remind oneself that he or she is alive (6/133, 4.5%), influence others (5/133, 3.8%), scarify (2/133, 1.5%), get a high (4/133, 3.0%), act on voices encouraging self-injury (1/133, 0.8%), and prevent suicide (2/133, 1.5%). No statistically significant differences in motivation existed between males and females. Other motivations were reported by almost a quarter of the sample, including habit, compulsion, distraction (from chronic pain or from disturbing or abhorrent thoughts), curiosity, for a laugh, and to prove toughness.

Suicidality

Of those who self-injured in the 4 weeks before the survey, 48.1% (64/133) also experienced suicidal ideation during this period, compared with 7.7% (915 of 11826 for whom there were complete data) of those who did not self-injure (OR, 11.56; 95% CI, 8.14–16.41). Over a quarter of those who self-injured in the 4 weeks before the survey (35/133, 26.3%) reported a lifetime suicide attempt. This was significantly greater than the percentage of non-self-injurers who had ever attempted suicide (509/11826, 4.3%; OR, 8.51; 95% CI, 5.70–12.69).

Psychiatric morbidity

Participants who self-injured in the 4 weeks before the survey had significantly higher levels of psychological distress compared with non-self-injurers; 62.4% (83) of self-injurers scoring in the high-distress range on the General Health Questionnaire, compared with 17.1% (2017/11826) of non-self-injurers (OR, 8.04; 95% CI, 5.64–11.46). Adults who self-injured were more likely to report receiving a diagnosis of anxiety (OR, 7.68; 95% CI, 5.11–11.52), mood disorder (OR, 5.00; 95% CI, 3.34–7.46), attention deficit hyperactivity disorder (OR, 9.23; 95% CI, 4.82–17.67), eating disorder (OR, 47.35; 95% CI, 12.06–185.92), or personality disorder (OR, 16.81; 95% CI, 3.74–75.51). Those aged 10–17 years were more likely to report being diagnosed with depression (OR, 19.35; 95% CI, 8.52–43.95).

Substance use

Respondents of all ages were asked about cigarette smoking and substance use. More self-injurers reported being current tobacco smokers (54/133, 40.6%) compared with non-self-injurers (2061/11826, 17.4%) (OR, 3.33; 95% CI, 2.32–4.76). Self-injurers were more likely to have used prescription drugs (OR, 6.52; 95% CI, 2.33–18.24), stimulants (OR, 3.10; 95% CI, 2.14–4.50), opioids (OR, 6.03; 95% CI, 3.19–11.37) and hallucinogens (OR, 2.88; 95% CI, 1.84–4.50). Of respondents aged 14 and above, more self-injurers reported drinking to get drunk (54/120, 45.0%) compared with non-self-injurers (2382/11265, 21.1%) (OR, 3.27; 95% CI, 2.26–4.74).

Disclosure and help-seeking

Most self-injurers (95, 71.4%) had told at least one family member or friend about their self-injury, but fewer than half (42, 31.6%) had asked for help. Few of those who self-injured in the 4 weeks before the survey (19, 14.3%) received medical treatment for their

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injuries; only three (2.3%) attended an emergency department, and these three were also admitted to hospital overnight.

DISCUSSION

In our large, nationally representative study, the 4-week prevalence of self-injury in Australia was 1.1% and the lifetime prevalence was 8.1%, based on a response rate of 38.5%. Our study confirmed that self-injury occurs in the absence of suicidal thoughts (51.9%) and in the absence of a lifetime history of suicide attempts (73.7%).

The only previous nationally representative study of adult self-injury, conducted in the US,¹⁰ was a postal survey of 927 adults (mean age, 46 years; range, 18–90 years) with a response rate of 64%. “Self-mutilation behaviour” was based on Item 48 from the Trauma Symptom Inventory — intentionally hurting yourself in the absence of suicidal intent.¹⁶ Occasional instances were reported by 4% of participants, and 0.3% reported often self-mutilating over the prior 6 months. There was no sex difference in frequency of self-mutilation, but those who reported such behaviour were younger (mean age, 35 years) and about three times more likely to have a history of being sexually abused than those who did not report self-mutilation.

Our equivalent 6-month prevalence of 1.8% may relate to greater specificity of our survey questions. Studies of self-injury among high school students indicate that lifetime prevalence ranges from 14% to 47%.^{1,11,17–20} Our equivalent lifetime figures, for the 15–19-year age group, are 16.6% for females and 11.6% for males. Studies of self-injury among university students have indicated that lifetime prevalence ranges from 17% to 41%,^{3,21–23} similar to our equivalent value of 13.1%.

Although the pattern of self-injury in the 4 weeks before the survey is in general agreement with earlier work,²⁴ novel findings in our study are that prevalence for males is higher than previously reported, self-injury may continue into older age, and onset may occur in older age.

In addition, most self-injurers in our study reported discussing the problem with someone, but only a third had sought help. Although only a small percentage received medical help and very few were admitted to hospital, we estimate that, in the 4 weeks before our survey, more than 200 000 Australians self-injured, more than 30 000 sought medical help, and almost 5000 were admitted to hospital (assuming our sample is representative of the Australian population).

Assuming single-night admissions for those hospitalised, the cost would be between \$5 million and \$10 million per month. Unfortunately, hospital separation data report “intentional self-harm” and do not distinguish between suicide attempts and self-injury without suicidal intent, so it is not possible to corroborate these estimates.

Our study is timely because, as a result of considerable research and discussion, non-suicidal self-injury has been proposed as a new diagnosis for inclusion in the forthcoming revision of the *Diagnostic and statistical manual of mental disorders*, due in 2013.²⁵ This is because self-injury is primarily not about intended suicide and, while self-injury in adults has historically been linked to borderline personality disorder, much self-injury (particularly in adolescents and young adults) relates to a wide variety of disorders.

Surveying a representative sample of Australians on history of self-injury was complex and difficult. To reach the planned sample size, a sampling frame of 31 216 eligible households was required. Also, our ethics approval required that a letter be posted to each address before each interview, explaining the study in detail and providing a warning of the types of questions. This may have contributed to the overall 47.1% refusal rate, higher than for other CATI surveys, but acceptable given the sensitive topic and recent trends of increased refusal for telephone-based surveys in Australia and the US.²⁶ Conversely, after having agreed to be interviewed, very few people dropped out from the interview. This may indicate that any discomfort is related more to perception of the topic in general, rather than the actual survey questions. The sampling process may of course have resulted in recruitment of participants who felt comfortable in answering sensitive questions about mental health.

Our study may have underestimated the prevalence of self-injury, especially for children, for whom a third of parents responded on the child's behalf. Other factors that may have led to underestimation include that the self-injuring population may be highly mobile, homeless, institutionalised or, in the case of young adults, more likely to use mobile phones than landlines. About 14.7% of Australians live in mobile phone-only households.²⁷ Our sample is therefore open to a number of biases, even though we can claim a representative national sample on the basis of demographic and mental health parameters. However, these biases were accounted for by weighting of data to reflect

unequal sample inclusion probability and compensate for differential non-response within the sample.²⁸ As such, our data are representative with respect to the variables used in weighting of data (age and sex for each state or territory).

The rate of self-injury in Australia in the 4 weeks before the survey was substantial, and onset of self-injury may occur at older ages than previously thought. The personal and financial costs are likely to be high, and further research is needed to determine the most appropriate and cost-effective strategies for prevention.

COMPETING INTERESTS

Graham Martin and Sarah Swannell received a grant for this project from the Australian Government Department of Health and Ageing National Suicide Prevention Strategy. This included reimbursement of travel and accommodation expenses for training professional interviewers. James Harrison has received grants from the World Health Organization, including funding for travel; he has been employed by the Australian Institute for Health and Welfare, which funds the Research Centre for Injury Studies to run the National Injury Surveillance program; he is a member of the International Classification of Diseases Revision Steering Committee and chairs the Australasian Mortality Data Interest Group. Anne Taylor has received grants from the Department of Health and Ageing.

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Maternal Overcontrol and Child Anxiety: The Mediating Role of Perceived Competence

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Abstract

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Previous research has shown that maternal overcontrol is related to higher levels of child anxiety. It has been theorized, though not empirically tested, that maternal overcontrol decreases child perceived competence and mastery, which increases child anxiety. The present study investigated this theory using a sample of 89 mother–child dyads (children aged 6–13, 84.3% Caucasian, 6.7% African American, and 51.7% male). After statistically controlling for maternal anxiety level, child perceived competence was shown to partially mediate the relationship between maternal overcontrol and child anxiety. Though current findings are based on cross sectional data, they suggest multiple pathways through which maternal overcontrol impacts child anxiety. One pathway, described in theoretical models, posits that greater levels of parental control reduce children's opportunities to acquire appropriate developmental skills, lowering their perceived competence, and thus increasing their anxiety. Implications of these findings and directions for future research are discussed.

Keywords: Parenting, Anxiety, Overcontrol, Perceived competence, Child anxiety

Introduction

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Anxiety is one of the most pervasive psychiatric problems experienced by children [1]. Thus, research on the etiology of these problems is paramount. One factor found to contribute to child anxiety problems is specific parenting behaviors [2–4]. Indeed, parenting has become a central focus of research due to the increased probability of familial transmission of anxiety disorders [5, 6] as well as empirical research examining the parents of anxious youths (see [7–9] for reviews). One particular parenting behavior, parental control, has received the most attention (and empirical evidence) and has been shown to be associated with higher levels of anxiety in children [2, 10, 11].

Parental overcontrol refers to an excessive amount of involvement in a child's activities, daily routines, or emotional experiences and an encouragement of dependence on the parents [12–14]. The common assumption is that parental overcontrol is a result of increased parental anxiety; however, research in this area is inconsistent [15, 16]. Indeed, studies have shown that anxious and nonanxious parents do not always differ in their use of

overcontrol [16–18]. In contrast, parents of anxious, compared to nonanxious youth, have been consistently found to use a greater degree of overcontrol [8, 19], suggesting that regardless of parental anxiety status, the use of parental overcontrol appears related to higher levels of anxiety in children.

Despite the ambiguity in the relation between parental anxiety and parental overcontrol, it has been posited that overcontrolling behaviors restrict a child's access to his/her environment and also communicate to a child that there is an excessive amount of threat that the child will not be able to cope with or master on his/her own. Thus, it is hypothesized that this parenting behavior reduces the opportunity for the child to develop competence, or mastery over things in their environment, particularly, novel or threatening situations [20, 21]. Theoretically, it is this decrease in child self-competence which leads to an increased level of anxiety in the child. Conversely, granting of a child's autonomy is thought to encourage a child's independence, thereby allowing him/her to gain a sense of mastery of his/her environment and reducing his/her level of anxiety [9].

There is a growing body of empirical support for the theory that lowered child self-perceived competence is related to higher levels of child anxiety. In a recent longitudinal study [22] a community sample of 185 adolescents were followed from age 13 to age 18 to evaluate prospective predictors of social anxiety and fears of negative evaluation. As expected, structural equation modeling analyses found that a lack of perceived social acceptance (or competence) predicted subsequent explicit social anxiety (i.e., those responses which are subject to conscious control and measured by self-report), even after accounting for pre-existing social withdrawal symptoms [22]. This finding was supported in a cross sectional study, which found that low levels of perceived competence, in adolescents 10–14 years old, were associated with current symptoms of both child anxiety and depression ($N = 214$) [23]. Furthermore, adolescents' self-perceptions about competency were more consistent predictors of symptoms of anxiety than beliefs about control and contingency.

Data using clinical samples have found similar results. In a study of 47 children with anxiety disorders versus 31 non-anxious controls, researchers found that anxious children, compared to their nonanxious peers, reported significantly lower self-competence than controls [24]. Ekornås et al. [25], in a study of 329 children aged 8–11 years also found that children with anxiety disorders, compared to their nondisordered peers, perceived themselves as being less accepted by peers and less competent in physical activities.

There has been inquiry into the effect of parenting behaviors on child and adolescent competency; however, these studies tended to use the general, nonspecific variable of parenting style, rather than specific parenting behaviors and were not specifically focused on anxiety. For instance, in a study of 108 adolescents, high levels of maternal rigid control were related to decreased adolescent social competence and self-worth [26]. Similar findings have been reported in other studies [12, 27].

Taken together, while maternal overcontrol has been associated with higher child anxiety and lower child self-perceived competence has been found to predict higher child anxiety, the extent to which lowered perceptions of competence in children mediate the relation between maternal overcontrol and child anxiety, as hypothesized in developmental models of child anxiety, has not been tested. The current study sought to empirically investigate this model (see Fig. 1). In addition, because some studies have found over-control to be related to subtypes of anxiety [28], we examined both overall levels of anxiety as well as specific domains of anxiety linked to DSM-IV anxiety disorders. It is important to note that though the arrows point in a singular direction in this model, the correlational nature of this research means that claims about causation or directionality cannot be made and reciprocal and bidirectional effects may occur (e.g. child anxiety level affects maternal control and children's self-perceived competence). Based on extant theory and literature, it was hypothesized that maternal overcontrol and childhood anxiety levels would be mediated by the child's self-perceived competence, after controlling for maternal anxiety.

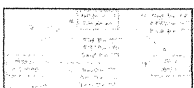


Fig. 1

Empirical model of the mediating role of self-perceived competence in the relationship between maternal overcontrol and child anxiety total score, generalized, and social, controlling for maternal anxiety, with appropriate

Method

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Participants

Participants were 89 mother–child dyads. Of the 89 mothers, 54 of them met criteria for a DSM-IV anxiety diagnosis, generalized anxiety disorder ($n = 41$), panic disorder with agoraphobia ($n = 4$), specific phobia ($n = 4$), social phobia ($n = 3$), panic disorder without agoraphobia ($n = 2$), and 35 did not meet criteria for any psychiatric disorder. The presence or absence of diagnoses was determined by trained evaluators using the Anxiety Disorders Interview Schedule-Client Version [29]. Mothers ranged in age from 27 to 54 ($M = 40.16$, $SD = 5.60$). The majority of mothers had a college degree or higher (73%), a family income of 80,000 or more (64%), and were married (87.6%).

Child age ranged from 6 to 13 years of age ($M = 9.58$, $SD = 2.0$) and children were primarily Caucasian (84.3%, 6.7% African American). There was an even split between male and female children (51.7% male). None of the children were diagnosed with an anxiety disorder, or any other psychiatric or medical condition needing treatment or contraindicating study participation (e.g. suicidality), or were receiving psychological or pharmacological treatment aimed at reducing anxiety. Non-anxious children were selected for the current study as research has shown that parenting behaviors may be influenced by excessive child anxiety [20, 30]. Thirty-four percent of the children had total Screen for Child Anxiety-Related Emotional Disorders—Child Version (SCARED-C) scores 25 and over (the suggested clinical cut off); the range of scores was 0–61.

Procedure

Anxious mothers were recruited as part of a larger study examining the impact of an anxiety prevention program on their non-anxious offspring [31]; nonanxious mothers were recruited as a community sample of controls. All families who contacted the study completed a preliminary phone screen to determine their eligibility, prior to an in-person evaluation. Families that were deemed eligible based on this phone screen were scheduled for an in-person assessment in which all the measures of the present study were administered. Prior to completing their initial evaluation, all participants, both children and parents, completed a written informed assent/consent.

Measures

Maternal Anxiety Maternal anxiety was measured using the State-Trait Anxiety Inventory (Trait Version) (STAI; [32]), a 20-item questionnaire measuring the stable, enduring symptoms of anxiety. The measure uses a 4-point likert scale from 1 (almost never) to 4 (almost always) and yields a total score. Scores range from 20 to 80, where higher scores indicate greater anxiety. The STAI correlates highly with other measures of adult anxiety ($r_s = 0.73$ – 0.85) and has shown excellent test-retest reliability ($r_s = 0.73$ – 0.86). The internal consistency for this scale in the current sample was .64.

Maternal Overcontrol Maternal overcontrol was measured using child reports on the Egna Minnen av Barndoms Uppfostran—My memories of upbringing—Child version (EMBU-C, [33]), a 40-item scale used to assess perceptions of parental behaviors. The questionnaire includes 4 subscales, each with 10 items; overprotection/control, emotional warmth, rejection, and anxious rearing. Each item is answered using a 4-point likert scale from 1 (no) to 4 (yes, most of the time). For the purposes of this study only the overprotection/control subscale was used. Scores range from 10 to 40, where higher scores indicate greater overcontrol. A sample item of this subscale is “your parents watch you very carefully.” The internal consistency for the 10-item subscale for the current sample was .66.

Child Perceived Competence Child self-perceived competence was measured using the three subscales of the Harter Self-Perception Profile for Children [34] that assess the most important domains of children's functioning: scholastic competence, social acceptance and global self-worth. Each scale contains six items and the child chooses one of two contrasting statements (“Some kids would like to have a lot more friends BUT Other kids have as many friends as they want.”) that describes them better and then rates whether that statement is partially

true or really true for them. A composite score of perceived competence was used based on the mean of the three subscale scores. Scores range from 1 to 4, where higher scores indicate greater perceived competence. The internal consistency for the composite score for this sample was .81.

Child Anxiety Child anxiety was measured using the SCARED-C [35]. The SCARED-C is a 41-item measure of pediatric anxiety shown to differentiate between clinically anxious and nonanxious psychiatrically ill youth [35]. Children answer questions using a 3-point likert scale indicating to what degree a statement about themselves is true, from 1 (not true) to 3 (very or often true). The SCARED-C yields a total score, obtained by summing the 41 items, and five subscale scores which correspond to some of the *DSM-IV* anxiety disorders (panic, generalized anxiety, separation anxiety, social anxiety and school phobia). For the purposes of this study the SCARED-C Total score was used to assess overall anxiety levels. Total scores range from 0 to 84, where higher scores reflect higher overall levels of child anxiety. Internal consistency for the Total score for this sample was .92. Because several of the domain-specific subscales scales were too highly skewed (i.e., more than twice the standard error of skewness [36]), we were only able to examine the social and generalized anxiety subscales. Internal consistencies for these scales were .75 and .74, respectively; and higher scores reflect higher anxiety.

Results

Go to:

Descriptive and Correlational Analyses

Means and standard deviations on all measures appear in [Table 1](#). In order to establish basic relations between variables needed for meditational analyses, first order correlations were calculated between the IV, DV, mediator and covariate. [Table 2](#) shows the first order correlations between child anxiety, parent anxiety, maternal overcontrol and child perceived self-competence. Child anxiety was significantly and positively associated with levels of maternal overcontrol but negatively associated with child perceived self-competence. Levels of child perceived self-competence were significantly related to levels of maternal overcontrol.

[Table 1](#)
Range, means, and standard deviations for all variables

[Table 2](#)
First order correlations for all variables

Mediational Analyses

Mediation was tested by determining the significance of the indirect effect of the independent variable (maternal overcontrol, X) on the dependent variable (child anxiety, Y) through the mediator (child competence, M), quantified as the product of the effects of Y on M and M on X, deducting the effect of Y. The Sobel test was used to determine if the indirect effect was statistically significant [37, 38]. The following analyses were completed after statistically controlling for maternal anxiety. As [Table 3](#) shows, the total effect of maternal overcontrol on child anxiety was significant ($t = 3.92, p < .001$). Also, there was a significant effect of maternal overcontrol on child perceived self-competence ($t = -2.91, p = .005$) as well as child perceived self-competence on child anxiety, when controlling for maternal overcontrol ($t = -3.53, p = .001$). This resulted in a significant indirect effect ($z = 2.29, p = .02$). That is, when controlling for maternal anxiety, child perceived self-competence was a significant mediator of the relation between maternal overcontrol and child anxiety ([Fig. 1](#)). Despite significant mediation, the direct effect (c') remained significant, suggesting that child perceived self-competence was a partial mediator of the relation. When gender was entered as a covariate it did not influence the results. Although gender was significantly correlated with child anxiety, it was not significantly correlated with either maternal overcontrol or child perceived competence. When conducting the same analyses described above, for each gender, no significant results were discovered.



Table 3

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The effect of perceived competence on child anxiety through maternal overcontrolling for maternal anxiety

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The Sobel test [37, 38] was also used to determine if child perceived competence mediated the relationship between maternal overcontrol and two subscales of the SCARED-C, social and generalized anxiety. As Fig. 1 shows, there was a significant indirect effect ($z = 2.44, p = .01$) for the mediating role of perceived competence in the relation between maternal overcontrol and child generalized anxiety disorder symptoms. Also, there was a significant indirect effect ($z = 2.27, p = .02$) for the mediating role of perceived competence in the relation between maternal overcontrol and child social anxiety symptoms. However, unlike SCARED-C Total scores, the direct effect (c') for generalized and social anxiety were not significant, suggesting that perceived competence completely mediated the relation between maternal overcontrol and these domains of child anxiety.

Discussion

Go to:

The purpose of this study was to empirically examine the mediating role of child perceived competence in the relation between maternal overcontrol and child anxiety. Based on theoretical models (e.g. [2]) it was hypothesized that child perceived competence would mediate the relation between maternal overcontrol and child anxiety. Overall, our data partially supported this model for overall anxiety and fully supported the model for social and generalized anxiety. Mothers that exhibited higher levels of overcontrolling behaviors, such as demanding to know what the child is doing, not allowing the child to decide what they want to do, and watching the child very carefully, had children with lower levels of perceived competence and higher levels of anxiety. Overcontrolling parents may increase levels of worry and social anxiety in children as this parental behavior may communicate to youths that they do not have the skills to successfully navigate challenges in their environment, generally or in social situations, thereby causing the child to worry about his/her abilities. This increased worry may increase avoidance and reduce the opportunities for youth to develop appropriate social or problem-solving skills. Although our inquiry into anxiety subtypes was limited to two domains, it remains an important avenue of further research.

These findings support and build upon previous research. For example, our study, using child report of overcontrol, found significant negative associations between maternal overcontrol and child perceived competence, consistent with research examining parent and child report of parental control [26, 27]. Also, our findings were consistent with studies that have shown low levels of perceived competence in children being related to symptoms of child anxiety [22, 23] in older children (i.e., adolescents). Thus, it appears that this pattern of association can also be found in younger children.

Maternal overcontrol may have a twofold effect on child anxiety. First, it may directly affect the level of anxiety a child experiences, as a parent's overcontrolling behaviors could communicate to the child that his/her environment is threatening or uncontrollable. Second, it appears to affect the child's anxiety through lowering the child's self-perceptions of competence. When the parent intervenes in the child's environment, in an attempt to control it for a beneficial outcome, the child may learn that he/she is not capable of dealing with that environment, thus lowering his/her level of competency. In turn, children's lower perceived competence, may increase their anxiety as they may feel they lack the tools to deal with or master situations they encounter in their daily lives.

Limitations

The present study used correlational analyses and cannot claim causal associations. Thus, it may be that child anxiety leads to reductions in child competence and higher overcontrol in mothers. Furthermore, findings that parental overcontrol may be influenced by levels of child anxiety [15, 17, 39, 40], suggest a reciprocal relation between maternal overcontrol, child perceived competence, and child anxiety. Because child perceived competence accounted for only 10% of the variance in child anxiety, and maternal overcontrol accounted for 15% of the variance in child anxiety, additional variables that help explain the development of anxiety (e.g. locus

of control, coping skills, peer rejection) are worth examining. Examination of anxiety subtypes was limited to generalized and social anxiety because data were skewed, thus limiting our knowledge of whether these patterns hold true for separation or other domains of anxiety not specifically examined in this study.

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Another limitation is that all measures were self-report and completed by the child. While children's perceptions of these constructs are critical, relying on a single reporter can introduce reporter bias and can cause statements to be influenced by a number of other factors (e.g. the child's comprehension, social desirability). Also, the internal consistencies for the measures of maternal overcontrol (EMBU-C) and maternal anxiety (STAI) were low, which may have reduced the reliability and magnitude of findings. Furthermore, the questions on the measure of maternal overcontrol, the EMBU-C, ask about "parents" not specifically about mothers. Thus, it is possible (though unlikely) that children completed the measure in reference to their father rather than mother. Having an independent and objective measure of child anxiety, maternal overcontrol and child perceived competence could strengthen the empirical support for the models examined.

Lastly, characteristics of our sample limited the generalizability of our study. The sample primarily consisted of two-parent upper middle class families of Caucasian descent. A replication using a more diverse sample is imperative to understand how maternal overcontrol affects child anxiety symptoms among families from diverse backgrounds. This sample was also comprised of only non-anxious children. Replication using a wider range of child anxiety levels, including clinical levels, is important in understanding how maternal overcontrol and child perceptions of competence relate to child anxiety at clinical levels. Data were obtained using only one parent and all parents were mothers. Finally, our sample consisted of 6–13 year olds and as such it was impossible to examine age differences in the model. There is some research [41] that the effect of parental control on child perceived competence and child anxiety may change as a result of the child's age. Although we controlled for child gender, future studies with increased samples should investigate the effect of child gender on parental overcontrol and child anxiety, through perceived competence.

Conclusions

Go to:

Findings from the current study expand our understanding of the interplay between parenting behaviors, child perceived competence, and child anxiety and provide the first empirical support for the etiological model of anxiety proposed by Chorpita and Barlow [2].

The implications of these findings suggest that the treatment and prevention of anxiety should not only focus on the child's behaviors and cognitions but also on those of the parent. There is growing literature that family-based treatments are quite effective at targeting anxiety symptoms in children (for a review see [42, 43]). As stated above, parental behaviors (e.g. overcontrol) not only are directly associated with anxiety symptoms but are associated with children's self perceptions, which themselves are associated with anxiety. Strategies aimed at reducing parental overcontrol and increasing children's sense of mastery and competence may be important in the prevention and treatment of child anxiety [31].

Summary

Go to:

In support of theory [2], this study showed that child perceived competence partially mediated the relation between maternal overcontrol and child anxiety (and fully mediated this relation for symptoms of generalized and social anxiety). Theoretically, overcontrolling parents may signal to their children that their environment is threatening and that the child does not have the skills to deal with that threat, thereby increasing the child's dependence on the parent for assistance in dealing with their environment and anxiety level. Maternal overcontrol was also found to be directly associated with higher child anxiety. Interventions aimed at reducing and preventing child anxiety should focus on both the behaviors and cognitions of the child as well as those of the parents.

Acknowledgment

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Parental bonding and vulnerability to adolescent suicide

Martin G, Waite S. Parental bonding and vulnerability to adolescent suicide.

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Part of a series of studies into early detection in adolescent suicide, this study investigated relationships between parenting style and suicidal thoughts, acts and depression. Students (mean age 15 years) from 4 randomly chosen high schools completed self-report questionnaires containing the Parental Bonding Instrument (PBI) and the Youth Self Report, which provided information about suicide ideation, deliberate self-harm and depression. Significant differences for mean scores on the PBI subscales were noted between cases and noncases of depression, suicidal thoughts and deliberate self-harm. Assignment by adolescents of their parents to the "affectionless control" quadrant of the PBI doubles the relative risk for suicidal thoughts, increases the relative risk for deliberate self-harm 3-fold and increases the relative risk for depression 5-fold. It seems that the PBI may play a role in identification of vulnerable adolescents; further, it both elucidates aspects of adolescent-parent interaction and points toward areas for intervention with at-risk adolescents. We recommend the use of the PBI in early detection studies of adolescent suicide.

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There has been a worldwide increase in suicide in adolescence (ages 15–19) over the last 30 years, with the rate doubling in the United States (1). In Australia, the rate for girls has remained stable but has doubled for boys (2). Fortunately, completed suicide is still relatively uncommon with a frequency of 16 per 100,000 adolescent population, but suicidal thoughts, attempts and other self-destructive behaviors occur more often.

The rate of adolescent attempts in relation to each death from suicide has been estimated at between 50:1 and 120:1, though these may be underestimates, being derived from special samples (such as those admitted to hospitals) (3). In contrast, school population surveys of suicidal behaviors suggest that attempters make up 10–11% of high school students, few of whom ever seek professional help (3). The frequency of suicidal thinking is higher still (4).

The major goal of studies in non-psychiatric environments is prevention of completed suicide. An underlying assumption is that a continuum exists from suicidal thoughts through wishes to threats, attempts and completion (5, 6) and that early detection of, and intervention with, adolescents who have suicidal thoughts or have made threats or plans may reduce the rate of completed suicide. Support for the assumption comes from psychological autopsies of

suicide, which have shown that most children and adolescents who commit suicide have previously verbalized their wish to die threatened suicide and, in 40% of adolescents who carry out suicide, have previously made a suicide attempt (7, 8).

In the search for possible predictors of suicide, many factors have been discovered to be associated with the spectrum of suicide. These include depression, poor self-esteem, hopelessness, drug and alcohol abuse, risk-taking behaviors, antisocial behavior, experience of another's suicide, locus of control and music preference (2–12). Of these, depression is the most frequently cited accompaniment of both suicidal thinking and acts of deliberate self-harm (5, 13–16). Depression in adolescents may exist separately from suicidal behaviors (17, 18), but it remains the best predictor of recurrence of suicidal thoughts and acts (19). The combination of depression with reported suicidal thoughts and a history of deliberate self-harm indicates serious vulnerability to suicide. One further finding consistently reported as characteristic of suicidal youth is a disturbed family life (20), sometimes in the absence of other signs or symptoms. Stephens (12) suggested that there is a population at risk, characterized by adolescents with greatly disturbed family environment who do not act out, do not get involved in alcohol, drugs and risk-