Measuring, understanding and reducing psychotic-like experiences (PLEs) in young people

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Psychotic-Like Experiences (PLEs), youth mental health, CAPE-P15 and subtypes, cross-sectional analysis, screening, suicidal risk, psychological interventions, early intervention, ultra-high risk, randomized-controlled trials, e-based programs
Abstract

Background

Research suggests that psychotic-like experiences (PLEs), odd or unusual thoughts or perceptual experiences (analogous to delusional ideas and hallucinations), are common in the general population and associated with poorer mental health outcomes. Young people with PLEs are much more likely to be psychologically distressed and suffer from mental disorders such as anxiety or depression, and are at greater risk of cannabis misuse, self-injury and suicidal behaviours. This highlights the importance of identifying PLEs in young people, and determining which types of PLEs are most strongly associated with adverse mental health outcomes. However, few reliable measures of PLEs are currently available and the most commonly used measure (The Community Assessment of Psychic Experiences (CAPE) scale), while reliable, only provides a lifetime measure of PLEs and has been found to have an inconsistent factor structure across studies. Instruments available for measuring PLEs need further refinement so they can be of use in studies of psychological treatments for PLEs.

This PhD aims to refine the CAPE to provide a more psychometrically sound measure of PLEs in young people, and to demonstrate how the refined instrument can better inform our current understanding of the subtypes of PLEs and their relationship with mental health problems. The PhD research also pilots a web-based intervention for PLEs among this non-help seeking group of young people, and examines predictors of recruitment.
The thesis is presented as a combination of published and submitted manuscripts and unpublished data. Four papers were designed, implemented and published, or submitted, and form the majority of the thesis. Unpublished supplemental work is provided as context to introduce chapters as well as Chapter 7 that focuses on the outcomes of a pilot study.

**Chapter 1** acts as an introduction to the thesis, providing brief overview of the context of the study.

**Chapter 2** provides part one of the review of the literature on PLEs and their assessment.

**Chapter 3** presents a published manuscript that conducts confirmatory factor analyses (CFA) of the CAPE in order to find an optimal internal structure for a brief screening tool for PLEs – the development of the CAPE-P15.

**Chapter 4** presents an in press manuscript, which is an extension of our understanding of PLEs and examines the relationship between the subtypes of PLEs and impact on adverse mental health outcomes (i.e., suicidal risk).

**Chapter 5** presents an in press manuscript that confirms a current version of the CAPE-P15 and its relationship with psychosocial difficulties.

**Chapter 6** provides part two of the literature review looking at early intervention and presents a submitted manuscript that conducts a systematic review of psychological interventions for PLEs.

**Chapter 7** presents a submitted manuscript of a pilot study exploring the uptake of an online psychological intervention program targeting PLEs.
Chapter 8 provides some clinical observations subsequent to the thesis.

Chapter 9 provides a synthesis of the research findings across the four manuscripts and content in the thesis. Conclusions, clinical implications and discussion of further research are presented.

A key outcome of this thesis is the development of a tool that is both brief and psychometrically robust. The thesis has demonstrated that PLEs are common in the studied samples and can be markers for adverse mental health problems, such as increased suicide risk.

In summary, this thesis by publication contributes to the field of youth psychiatry by

1. Providing a valid and reliable screening measure for PLEs in young people
2. Increasing the current understanding of the relationship between different subtypes of PLEs and adverse mental health outcomes including suicide risk
3. Completing the first systematic review of published literature for psychological treatments for reducing PLEs in youth. and,
4. Identifying predictors of increased recruitment to an e-based treatment program targeting PLEs.
List of Publications related to this thesis


The candidate is first author on all of these papers and was responsible for all aspects of manuscript preparation, including reviewing the literature, study concept and design, data collection, analysing, interpreting the research findings, and writing the manuscript. The second, third and fourth authors are members of the candidate’s supervisory team, and their contribution to the paper has been supportive and supervisory in nature. Professor Kavanagh contributed to the statistical analyses.
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<tbody>
<tr>
<td>PLEs</td>
<td>Psychotic-like Experiences</td>
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<tr>
<td>CAPE</td>
<td>Community Assessment of Psychic Experiences</td>
</tr>
<tr>
<td>CAPE-P</td>
<td>Community Assessment of Psychic Experiences – Positive scale</td>
</tr>
<tr>
<td>CAPE-P15</td>
<td>Community Assessment of Psychic Experiences – Positive scale, 15 questions</td>
</tr>
<tr>
<td>PA</td>
<td>Perceptual Abnormality subscale</td>
</tr>
<tr>
<td>PI</td>
<td>Persecutory Ideation subscale</td>
</tr>
<tr>
<td>BE</td>
<td>Bizarre Experiences subscale</td>
</tr>
<tr>
<td>RESMA</td>
<td>Root Mean Squared Error of Approximation</td>
</tr>
<tr>
<td>YRBS</td>
<td>Youth Risk Behaviour Survey</td>
</tr>
<tr>
<td>K10</td>
<td>10-item Kessler psychological distress scale</td>
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<tr>
<td>UHR</td>
<td>Ultra High Risk</td>
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<tr>
<td>CBT</td>
<td>Cognitive Behaviour Therapy</td>
</tr>
<tr>
<td>RCT</td>
<td>Randomised controlled trial</td>
</tr>
<tr>
<td>F&amp;D</td>
<td>Frequency and distress of CAPE-P15 combined</td>
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<td>F&amp;DPA</td>
<td>Frequency and distress Perceptual Abnormality subscale</td>
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<tr>
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<td>F&amp;DBE</td>
<td>Frequency and distress Bizarre Experiences subscale</td>
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**headspace**  
*headspace* is the National Youth Mental Health Foundation. *headspace* was established and funded by the Commonwealth Government of Australia in 2006. Their focus is the mental health and wellbeing of all young Australians.
Statement of original authorship

The work contained in this thesis has not been previously submitted to meet requirements for an award at this or any other higher education institution. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made.

I declare the above statement is true.

QUT Verified Signature

9/9/2015
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Lastly, thanks needs to go to the three most important people in my life. My husband, Dylan, for his never-ending support, belief in my capabilities and emotional containment when at times I felt I had taken on too much - he was as much a part of this journey as anyone. And, to my two girls, Elise and Freya, who were my motivation to finish this PhD. I hope that I have demonstrated and can instil the same lifelong love of learning to them as I have, and set an example that knowledge and education provides opportunities and options.
Chapter 1: Overview

This thesis is specifically focused on psychotic-like experiences (PLEs) in a non-help seeking community sample of young people. This overview provides an overall rationale for the project, the project plan, aims and an overview of the thesis.

1.1 Psychosis-Like Experiences are common and have negative impacts

There is substantial evidence that PLEs cause distress and confer an elevated risk of further mental health difficulties. While transition to psychosis is rare, frequent PLEs can result in or accompany psychological distress, which when combined with ineffective coping strategies and negative appraisals of the experiences, can impact on broader mental health outcomes and functioning. Therefore, in spite of the often transitory nature of PLEs, it may be important to provide interventions for individuals with persistent PLEs and high levels of distress. However, there is a lack of research on (a) how to best screen for PLEs in populations of non-help seeking youth (b) which types of PLEs are more strongly associated with adverse mental health outcomes and (c) how to best engage and treat non help-seeking young people with PLEs. There is now a large and growing body of research on e-health approaches to mental health promotion, prevention, early intervention and treatment. PLEs are mental health problems that require early accessible acceptable interventions which avoid pathologising. E-health platforms are ideal for providing interventions within these parameters.
1.2 Aims of the research

The aims of the this thesis were to: (i) refine the CAPE assessment of PLEs to provide a more valid and reliable measure of PLEs in non-help seeking youth, (ii) increase current understanding of the subtypes of PLEs and their relationship with mental health problems, and (iii) explore the ability of the refined assessment tool for PLEs to engage this non-help seeking group of young people and identify predictors of utilisation.

Specific research questions to address these aims were:

1. Can the CAPE-Positive scale be refined, using confirmatory factor analysis (CFA), to identify its optimal internal structure in a large sample of young people?

2. What are the associations between the PLE subtypes measured by the CAPE-P15 and lifetime suicidality? Do these associations remain after controlling for confounders of age, sex, family history of mental illness, family of origin income, cannabis, ecstasy and methamphetamine use?

3. Does the factor structure of a current version of the CAPE-P15 differ from the lifetime version?

4. Does a measure combining both frequency and associated distress with PLEs measured on the current CAPE-P15 have a stronger association with psychological distress than the frequency of PLEs only?

5. What is the efficacy of psychological interventions for individuals with PLEs, as demonstrated by existing research?
6. What proportion of non-help seeking young people with PLEs will seek engagement with a targeted e-based program for PLEs, and what predicts this?

1.3 Significance of the thesis

This thesis intends to add to the field of youth psychiatry by providing a reliable and valid measure of different subtypes of PLEs, and increasing understanding of their association with distress and suicide risk. The target group of this thesis was non-help seeking youth.

Appropriate clinical and professional reasoning decisions are dependent on accurate findings from assessments. Enhancing the ability to measure and better understand PLEs in young people could improve screening and identification of young people who might benefit from intervention. This in turn could link them with appropriate treatments aimed at reducing PLEs and associated distressed.

1.4 Thesis overview

This thesis is presented in publication style, except Chapter 7. Each manuscript was written in the publication style for the journal in which it was submitted.

Chapter 2

This chapter is the literature review. The chapter includes a detailed summary of the current literature of PLEs and their assessment. The second part of the literature review is
presented as a publication in Chapter 6. Further relevant literature is also presented in subsequent chapters and within each individual manuscript presented in the thesis.

Chapter 3

This chapter is presented as published manuscript that conducts confirmatory factor analyses to find an optimal internal structure for brief screening tool for PLEs – the development of the CAPE-P15.

Chapter 4

This chapter, presented as a submitted manuscript, is an extension of our understanding of PLEs and examines the relationship between the subtypes of PLEs and impact on adverse mental health outcomes, specifically lifetime suicidal risk.

Chapter 5

This chapter, presented as a submitted manuscript, confirms of a current version of the CAPE-P15 and its relationship with psychosocial difficulties – specifically psychological distress.

Chapter 6

This chapter is the second component of the literature review looking at early intervention and includes a published manuscript that conducts a through a systematic review of psychological interventions for PLEs.
Chapter 7

This chapter is presented as a submitted manuscript and looks at the result of a pilot study to determine the predictors of uptake of a e-based psychological intervention program for PLEs, using the CAPE-P15.

Chapter 8

This chapter reports clinical observations, subsequent to the thesis, that discuss the useability to the tool developed.

Chapter 9

This chapter provides a synthesis of the research findings across the four manuscripts and additional content within the thesis. Conclusions, clinical implications and discussion of further research are presented in this chapter.

1.5 Study design

The design of this thesis involved three cross-sectional surveys at two separate Universities. The target groups were non-help seeking community samples of young people aged 16-25 years. Recruitment took place between June 2011 and July 2012 for Survey 1, between November 2012 and February 2013 for Survey 2, and between December 2013 and April 2014 for Survey 3.
1.6 Ethics approval

Ethics approval for Studies 1 to 3 was obtained from the Queensland University of Technology Human Research Ethics committee (HREC) (refer to Appendix A-1.1). Study 3 was also approved by the University of Queensland HREC. Six variations were applied for and approved by HRECs since initial approval was granted. These variations reflected the need to modify the study design to account for practical issues, mostly recruitment, that arose during the course of the study. Most changes reflected the wording of participant informed consent documents and incentives allocated for participation in the study but a significant change to the original study design for the pilot program (GetReal) needed to occur (Chapter 7).

1.7 Overall Aims of thesis

The overall aim of this thesis was to refine a tool that would be better able to measure PLEs in young people and to identify the predictors of who would engage in a targeted e-based psychological intervention for PLEs. This was achieved by examining;

1. The internal structure of the version of the Community Assessment of Psychic Experiences (CAPE) - positive scale

2. The relationships between subtypes of PLEs and lifetime suicidality.

3. The reliability of a current CAPE-P15 and the association with psychosocial difficulties, specifically psychological distress

4. Predictors of uptake of an e-based psychological intervention for PLEs
These aims are addressed in the following five chapters, each in the form of a published, or under review as a submitted, journal article. Chapter 3 and 4 use data from a large cross-sectional sample of 1610 completed participants. Chapter 5 uses data from a second cross-sectional survey that was collected 18 months after the first. This second survey modified the original CAPE-P tool to better reflect our results presented in Chapter 3. Chapter 6 is a systematic review that looks at the evidence for psychological treatments for PLEs. Finally, Chapter 7 presents the predictors of those who seek participation in an online treatment program designed to reduce the frequency and distress of PLEs.

Chapters are written in the publication style of the targeted journal. An additional full reference list is available at the end of the thesis. The authors listed at the start of each chapter have certified that: (i) they meet the criteria for authorship in that they have participated in the conception, execution or interpretation of at least that part of the publication in their field of expertise, (ii) they take public responsibility for their part of the publication, except for the responsible author who accepts overall responsibility for the publication, (iii) there are no other authors of the publication according to these criteria, (iv) potential conflicts of interest have been disclosed to granting bodies, the editor or publisher of journals or other publications and the head of responsible academic unit, and (v) they agree to the use of the publication in the student’s thesis.
Chapter 2: Literature Review – PLEs and Assessment

Rather than a general overview, the background information of the body of work presented in this thesis is split across two chapters to more clearly reflect the structure of the research program. This chapter begins with an unpublished review of the literature that describes PLEs, their determinants and their association with mental health disorders. The focus then shifts to assessment and measurement of PLEs and reviews the current tool of choice; the CAPE-P. Part two of the literature review (Chapter 6) will focus on early intervention principles related to this target population and on the reduction of serious psychopathology related to PLEs. A comprehensive systematic review on the effectiveness of psychological strategies for PLEs is presented as a submitted manuscript.

2.1 Background

Psychotic-like experiences

Psychotic-like experiences (PLEs) such as unusual and odd thoughts or ideas (including paranoid beliefs) and perceptual experiences (hallucinations or illusions) are common in young people. They differ from actual psychotic disorder in that there is an absence of illness, despite unusual subjective experiences with a degree of affinity with psychotic symptoms, hence they are terms psychotic-like. Because they are unusual in nature (for example hearing voices, paranoia about others, feelings that thoughts in your head are being taken away from you) they are considered to different to the normal spectrum of
experiences. Cross-sectional studies have found that PLEs are experienced by up to 28% of adolescents and young adults in the general community (Armando et al., 2010; Nishida et al., 2008; Scott et al., 2006; van Os et al., 2009). A systematic review of community incidence and prevalence studies and a meta-analysis of risk factors for PLEs has been conducted (van Os et al., 2009). The meta-analysis included 47 articles reporting data from analyses of 35 participant cohorts and yielded 217 estimates of the prevalence (n=195) or 1-year incidence (n=22). The time over which the prevalence of PLEs was measured varied from 1 month to lifetime. PLEs were found to have a median 12-month prevalence rate of 8.4% (25th to 75th interquartile range, 3.4%-20.9%), indicating PLEs are much more common than psychotic disorders. The majority of PLEs are intermittent and infrequent (Scott et al., 2008; van Os et al., 2009) with the meta-analysis by van Os et al (2009) concluding that 75–90% of PLEs are transitory and disappear over time.

However, one of the limitations of most cross-sectional studies is that they examine PLEs at one point in time or average levels over time, thereby failing to fully account for population heterogeneity whereby distinct groups of individuals arrive at the same end point via different pathways. Examining self-reported PLEs during adolescent development provides information about how the trajectories are influenced by specific markers, such as socio-demographic background, childhood adversity, emotional and cognitive development, substance use and the impact of associated distress. A large study of adolescents (N= 7387) from the ALSPAC birth cohort, (Thapar et al., 2012) used four time points (mean ages 11.5, 13, 14 and 16.5 years) to examine the trajectory of self-reported PLEs. PLEs were identified with the Psychotic-like Symptoms Questionnaire (PLIKS-Q) which uses a two point scale if
presence of PLEs is endorsed (“definitely” or “maybe”) and frequency over a 12-month period (“none”, “< once per month”, “>= monthly”). Self-reported PLEs were common over a 12-month period at age 11 (13%) but this decreased with age, with only 5% endorsing such experiences at age 16 (Thapar et al., 2012). Most adolescents (87.4%) had a very low probability of reporting PLEs at any time-point. The second largest group comprised those who reported PLEs intermittently (9.9%). The final two groups were those who reported decreasing PLEs (2.3%) and those who reported persistent PLEs across adolescence (0.5%). Compared to the low group, those who endorsed PLEs had greater psychopathology, such as disturbed emotional and behavioural development. These results were similar to two prior studies that also reported that people with persistent PLEs were more likely to report psychopathology, including increased substance use, behavioural disturbances, functional impairment and distress (Mackie, Castellanos-Ryan, & Conrod, 2011; Wigman et al., 2011).

Modelling trajectories of PLEs could have important implications for prevention and targeting of interventions. However, one of the limitations in modelling PLE trajectories is that most instruments assessing PLEs use items for lifetime experiences (Brenner et al., 2007; N. C. Stefanis et al., 2002), resulting in uncertainty regarding the timing of when the PLEs occurred. An instrument that measures current as well as lifetime PLEs is needed in order to ensure that assessments of trajectories are accurate.

Schizotypy, PLEs and the psychosis continuum

The concept of schizotypy describes a personality continuum of traits which when extreme, have some characteristics in common with psychosis (Međedović, 2014). It contrasts with both a binary diagnostic classification and with a symptom-focused approach. There is a
A relationship between schizotypy and PLEs, with those high in the schizotypy traits more likely to have PLEs (Kline et al., 2012). Indeed measuring schizotypy in the non-clinical population has been suggested as a useful predictor of those who go on to experience PLEs (Barrantes-Vidal, Chun, Myin-Germeys, & Kwapił, 2013). However, the two concepts are not equivalent. PLEs are symptom-like experiences, which can only form a continuum in terms of their number, frequency or severity. In contrast, schizotypy represents a propensity, which may not necessarily be associated with any clinical symptom. It is also important to distinguish schizotypy from psychosis: Even when schizotypy is very high, the person does not necessarily develop a psychotic disorder. A further distinction is that schizotypy is a trait intrinsic to the individual where as PLEs are more a state marker that may fluctuate with external factors such as stress and drug use.

There is continuing debate as to whether PLEs are non-specific markers of psychological distress, represent the milder end of a phenotypic continuum of psychosis, or are a manifestation of schizotypy (Međedović, 2014). The psychosis continuum hypothesis is supported by the shared genetic, sociodemographic, environmental and biological risk factors of PLEs and schizophrenia (Kelleher & Cannon, 2011). For example, PLEs are more common among men, migrants, people with a history of social adversity and psychoactive drug users (Mackie et al., 2011; Saha, Scott, Varghese, Degenhardt et al., 2011; Saha, Varghese et al., 2011). A lifetime history of trauma or diagnosis of PTSD and younger age (18 and under) also increases the risk of PLEs (Janssen et al., 2004.; Sareen, Cox, Goodwin, & Asmundson, 2005; Scott, Chant, Andrews, Martin, & McGrath, 2007), as does a family
history of any mental disorder (Varghese, Scott, & McGrath, 2008). These risk factors are strikingly similar to those of schizophrenia and related psychotic disorders.

Furthermore, longitudinal studies show PLEs are strong predictors of future psychosis risk (Fisher et al., 2013; Poulton et al., 2000; Welham et al., 2008), with up to 25 times the risk of developing a psychotic disorder being noted (Hanssen, Bak, R, Vollebergh, & Van Os, 2005; Poulton et al., 2000). However, epidemiological evidence that supports the continuum hypothesis is hampered by an important limitation. Community samples have used differing methods to identify PLEs and many dichotomise the presence or absence of PLEs, rather than taking a more detailed approach.

It is now apparent that some PLEs are more suggestive of morbid processes than others (Wigman et al., 2011). In particular, bizarre experiences and perceptual abnormalities show more robust associations with distress and functional decline than do other PLEs (Armando et al., 2010; Yung et al., 2009). These observations have stimulated debate on whether these experiences represent a more severe segment of a 'continuum of psychosis' (Kayman & van Os, 2010).

Overall, the view most commonly supported in the literature suggests that some or all PLEs may both lie on a phenotypic continuum with psychotic disorders, and that they are also non-specific markers of a broad range of current and future mental health problems. It is also plausible that some experiences previously included as PLEs, such as grandiosity (Armando et al., 2010), have little or no association with mental health problems. The distinction between PLEs and psychosis is an absence of a disorder (Kelleher & Cannon,
Further research is needed to better identify those PLEs that are the best predictors of current and future mental health problems.

**PLEs and other mental health problems**

The current evidence confirms that PLEs are also an early marker of a broader range of mental health problems in adolescents and young adults (Fisher et al., 2013). The association of PLEs and the presence of other disorders such as anxiety, and high levels of comorbidity have been demonstrated (Mackie et al., 2011; Poulton et al., 2000). Recent evidence has suggested that PLEs are a non-specific marker for later mental health problems and not just subclinical phenotypes of psychotic disorder. One of the first studies that examined the prevalence and longitudinal course of hallucinations in adolescents was conducted by Dhossche et al (2002) using a Dutch population based study. Self-reported auditory and visual hallucinations in adolescence (N=783) were associated with eight times risk of a depressive or substance use disorder, but not psychotic disorder at 8 years follow-up. However, the small sample size may have resulted in a type II error, preventing detection of an association between PLEs and a later low-prevalence psychotic disorder. A 38-year follow-up of the Dunedin birth cohort study reported children who reported PLEs were more likely to develop schizophrenia (Relative Risk (RR); and 95% Confidence Interval (CI) 7.24; 2.17-24.13), post-traumatic stress disorder (RR and 95% CI: 3.03; 1.33-6.89) and were more likely to have made a suicide attempt (RR and 95% CI: 8.82; 1.67-8.75) (Fisher et al., 2013). PLEs have been associated with three times the life time risk of suicidal ideation and four times the life time risk for suicidal attempts in adult and adolescent populations (Nishida et al., 2008; Saha, Scott, Johnston et al., 2011).
While transition to psychosis is uncommon, PLEs are frequently associated with psychological distress. Australian studies indicate 3-10% of the population have moderate to severe psychological distress, measured on the Kessler psychological distress scale (K10), with rural communities reporting rates of psychological distress as high as 31% (Furukawa, Kessler, Slade, & Andrews, 2003; Kilkkinen et al., 2007). High levels of psychological distress have been associated with increased risk of PLEs (Saha, Scott, Varghese, & McGrath, 2011).

A cross-sectional community study involving 8841 participants from Australian households ages 16-85 years confirmed that individuals with general psychological distress were more likely to endorse one or more delusional experiences (subtype of PLEs), even after controlling for other potential confounding factors such as a lifetime history of a CIDI-derived diagnosis of anxiety disorder or major depressive disorder (Saha, Scott, Varghese, & McGrath, 2011). Similar results were reported in a cross-sectional survey of 5073 Japanese school students aged 12-15 (Nishida et al., 2008), where adolescents who reported higher levels of PLEs had more severe psychopathological problems and distress. Distress associated with PLEs may prove to be an important factor in predicting whether people require specific help to manage PLEs (Lovatt, Mason, Brett, & Peters, 2010). A recent longitudinal analysis of 1896 adolescents found those reporting both psychological distress and PLEs were most likely to have a history of self harm and suicide attempts (Martin, Thomas, Andrews, Hasking, & Scott, 2014). Those reporting PLEs without psychological distress were not at increased future risk of self-harm or suicide attempts (Martin et al., 2014).
Cannabis use has been associated as a risk factor for schizophrenia as well as with an increased experience of PLEs (Hides et al., 2009; Stefanis et al., 2004; Stirling et al., 2008). Not only is the frequency of current cannabis use linked to PLEs: so also is a history of past cannabis use (Stefanis et al., 2004). A community survey of 881 adolescents (mean age 15 years) found that 31.4% reported PLEs on the Community Assessment of Psychic Experiences (CAPE) (Hides et al., 2009). Lifetime and recent (past year) cannabis users had significantly more PLEs. However, regular (weekly) cannabis use was not associated with greater PLE endorsement. In contrast, a more recent cross-sectional survey (N = 4552) with adolescents of a similar age (12–16), showed a dose-response relationship of cannabis use and subclinical positive symptoms, even after extensive adjustment for potential confounders (Willemijn et al., 2011). The authors found an enduring association between cannabis use at an early age and PLEs, even after participants abstained from cannabis for at least 1 year.

Secondary cognitions provide one potential explanation for the link between PLEs and mental health problems. A cognitive model of psychosis suggests an individual’s appraisal of PLEs, and the subsequent responses adopted, are responsible for the maintenance of distress and disability associated with PLEs (Taylor, Parker, Mansell, & Morrison, 2013). These appraisals are seen as key mediators in determining the outcomes of anomalous experience. Cognitive models can reflect an interaction between pre-existing beliefs and personality (particularly emotion), reasoning processes, the environment and the development of psychotic-like processes (Broome et al., 2012; Garety & Freeman, 2013).
Studies focussed on at-risk mental state show that those with a higher endorsement of negative metacognitive beliefs (e.g. negative beliefs about uncontrollability of thoughts) are more likely to experience greater psychopathology compared to a non-patient sample (Winton-Brown et al., 2015). However, they are less likely to transition to psychosis, although negative metacognitive beliefs are associated with, and implicated in the development and maintenance of emotional disorders, including anxiety (Brett, Johns, Peters, & McGuire, 2009). An interaction between aberrant salience and self-concept has also been reported with the higher levels of PLEs associated with high aberrant salience and low self-concept (Cicero, Becker, Martin, Docherty, & Kerns, 2014).

Distress combined with ineffective coping strategies and negative appraisals of the PLEs can impact on broader mental health outcomes and developmental trajectories of functioning (Brett, Heriot-Maitland, McGuire, & Peters, 2014). Therefore, in spite of the often transitory natural history, interventions for those with persistent PLEs combined with high levels of distress are important. Research findings suggest that distress is reduced by developing normalising and validating contexts, in which PLEs can be accepted, understood and shared (Brett et al., 2014; Garety & Freeman, 2013).

Interventions that focus on managing faulty appraisals of anomalous or ambiguous experiences, driven by emotional processes and cognitive biases, may be useful and be an important contribution to reducing PLEs. Specific interventions that target problems such as paranoia, grandiosity, hallucinations and anhedonia need to be examined. Recent work on delusions provides an illustration of how targeting self-esteem, worry, insomnia, feelings of
powerlessness, poor belief flexibility and jumping to conclusions can reduce the distress of the delusions (Garety & Freeman, 2013).

Overall, these studies highlight that PLEs are common, and are associated with, but differ from, a broad range of mental health problems. The current data suggest that psychological distress may be a common mediating factor, although the epidemiological studies do not exclude other potential mechanisms (e.g. a general tendency to psychological symptoms, indexed by PLEs). If distress is a key mediating factor, it is conceivable that it may be modifiable. Chapter 6 systematically reviews the published intervention studies, which may help to answer this question.

2.2 The identification and assessment of PLEs

Given the high burden of illness associated with PLEs, there is a need for a valid and reliable measure to identify PLEs in young people (Kelleher et al., 2012; Saha, Scott, Johnston et al., 2011). The CAPE has been advanced as a potential candidate (Armando et al., 2010; Brenner et al., 2007; Stefanis et al., 2002; Yung et al., 2006). It has 42 self-report items, examining both the lifetime frequency of specific PLEs (0=never to 3 = nearly always), and the level of distress associated with the PLEs that are experienced at least sometimes (1=not distressed to 4 = very distressed). The CAPE provides a measure of positive PLEs, negative PLEs and depressive symptoms. In the initial validation study with 932 young men (Mean age = 19) in the Greek air force (N. C. Stefanis et al., 2002), the CAPE demonstrated satisfactory reliability and construct and discriminant validity. Since then, there have been four other
psychometric studies, two of which had small non-clinical European samples (Hanssen et al., 2003; Verdoux, Sorbara, Gindre, Swendsen, & Van Os, 2003) and two had non-clinical samples of 3500 and 2275 people (aged 18-40 years) drawn from European and Canadian (Montreal) populations respectively (Brenner et al., 2007; N. Stefanis et al., 2004). All of these studies were in collaboration from the research group that created the CAPE, with the exception of Brenner et al (2007). Using confirmatory factor analysis (CFA), the latter study found the previously identified positive, negative and depressive symptom three-factor solution had sub-optimal fit indices. To deal with the problem, the authors randomly divided the sample in two. In the first half, they applied exploratory factor analysis, and found that 3, 4 or 5 factors could potentially explain the data structure. In the other half of the sample, they compared these three models using CFA. Neither the 4- nor the 5-factor models substantially improved the structure obtained with the 3-factor model. While the authors argued for retention of the existing 3-factor structure, they did not investigate whether other options, such as the omission of one or more items, would have allowed satisfactory fit to be obtained.

The positive scale of the CAPE (CAPE-P) is currently the most widely used measure of positive PLEs (Brenner et al., 2007; Yung et al., 2009), and this scale has acceptable internal consistency: for example, in Brenner et al. (2007), it had an alpha coefficient of 0.82. Three studies have examined the factor structure of the CAPE-P scale. Yung et al. (2009) found a four-factor structure had the best fit to their data, with a low number of cross-loading items, in a community sample of 875 adolescents (Year 10 students in Melbourne,
Australia). The final factor structure was developed using sensitivity analysis, which examined the impact of placing cross-loading items in different subtypes, and developed the final structure of the subtypes based on those with the highest level of internal consistency. The final four-factor structure was: (i) Bizarre Experiences (BE; e.g. *Have you ever felt as if the thoughts in your head were not your own? Have you ever heard your thoughts being echoed back to you?*), (ii) Persecutory Ideas (PI; e.g. *Have you ever felt as if there is a conspiracy against you? Have you ever felt as if things in magazines or on TV were written especially for you?*), (iii) Magical Thinking (MT; e.g. *Have you ever thought that people can communicate telepathically? Have you ever believed in the power of witchcraft, voodoo or the occult?*), and (iv) Perceptual Abnormalities (PA; e.g. *Have you ever heard voices talking to each other when you were alone?*).

However, consistent with the psychometric studies on the full CAPE, the Yung et al (2009) study did not examine the effect of omitting the cross-loading items. A subsequent cross-sectional multisite survey of 1882 students from high schools and universities in Australia (Armando et al., 2010) confirmed that the CAPE-P had a 4-factor structure. However, the Magical Thinking subscale was deleted, as two of the four questions were considered to be more related to the cultural background of respondents than psychopathology, and the other two cross-loading items had a better fit with an alternative subtype they termed ‘Grandiosity’ (Armando et al., 2010).
Wigman et al (2011) applied exploratory factor analysis (EFA) followed by CFA to the CAPE-P on two large adolescents population samples (N=5422, N= 2230). In sample one (N= 5422), structural equation modeling was used to find the model with the best fit. A 5-factor structure was found to explore the best model fit indices and the dimensions were labeled Hallucinations, Delusions, Paranoia, Grandiosity and Paranormal Beliefs (Wigman et al., 2011). Study 2 (n=2230) attempted to replicate the model observed in Study 1 using CFA and supported that the best fit was obtained with 5 sub-dimensions, splitting the earlier Grandiosity factor in two.

A recurring problem which remains with Magical Thinking/ Grandiosity/Paranormal Beliefs is that experiences relating to voodoo, occult and magical thinking are common, and are not reliably associated with psychopathology, either cross-sectionally or longitudinally (Berenbaum, Boden, & Baker, 2009).

These studies examined associations between the different subscales of the CAPE-P and psychological distress or functioning (Table 2.1). For example, Table 2.1 shows that both Amando et al. (2010) and Yung et al. (2009) found PI and BE were strongly associated with depression and poorer functioning, whereas distress was found to be strongly associated with all three subscales, suggesting an association of all of them with more severe psychopathology (Armando et al., 2010; Wigman et al., 2011; Yung et al., 2009).

Table 2.1 CAPE-P factor structures and relationship with psychopathology.

<table>
<thead>
<tr>
<th>Total sample mean age,</th>
<th>Final factor structure (number of items included)</th>
<th>Relationship of subscales with psychopathology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study</td>
<td>N</td>
<td>Factors</td>
</tr>
<tr>
<td>-------</td>
<td>-----</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>Yung et al (2009)</td>
<td>881</td>
<td>Four Factors</td>
</tr>
<tr>
<td></td>
<td>15.64 (0.46)</td>
<td>Bizarre experiences (BE) (6)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Perceptual abnormalities (PA) (3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Persecutory ideation (PI) (7)</td>
</tr>
<tr>
<td>Armando et al (2010)</td>
<td>1882</td>
<td>Four Factors</td>
</tr>
<tr>
<td></td>
<td>18 (3.5)</td>
<td>Bizarre experiences (BE) (7)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Perceptual abnormalities (PA) (4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Persecutory ideation (PI) (5)</td>
</tr>
<tr>
<td>Wigman et al (2011)</td>
<td>5422, 2230</td>
<td>Five Factors</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Paranoia (P) (5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Delusions (D) (8)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Grandiosity (GR) (2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Paranormal beliefs (PN) (2)</td>
</tr>
<tr>
<td>Overall, there is substantial stability in the internal structure of the CAPE-P, with the exception of the factor/s relating to magical thinking, grandiosity or paranormal beliefs. Additionally the factors relating to “Perceptual Abnormalities/Hallucinations”, “Paranoid Ideation” and “Bizarre Experiences/Delusions” show consistent strong relationships with distress or depression and poor functioning, whereas Magical Thinking is less associated with morbidity. Further examination of the positive scale is needed to obtain a more optimal internal structure. A tool that is psychometrically sound and can demonstrate substantial clinical</td>
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</table>
utility in identifying the PLEs that carry significant risk of current and future mental health problems could allow for timely identification and intervention.

An additional issue is that the timing of the CAPE-P in the literature remains inconsistent. For example, Mossaheb et al. (2012), Wigman et al. (2011) and Armando et al. (2010) all reported on ‘lifetime’ use of the CAPE-P while Yung et al. (2009) and Murphy et al. (2012) used ‘within the past 12 months’. Other scales that have assessed PLEs, but that did not use the CAPE-P, have also had variable time frames ‘ever... lifetime’ (Laurens, Hobbs, Sunderland, Green, & Mould, 2012), “… the past 12 months’ (Thapar et al., 2012) and over the ‘past 6 months’ (Mackie et al., 2011). Having consistency in the time frame of assessment is important to ensure the comparability of observations across studies. Furthermore, no confirmation of the psychometric characteristics of the instrument, other than for a lifetime version, has been completed.

Lifetime reporting of PLEs appears insensitive to change over time, and is therefore of limited utility in interpreting relationships with current psychopathology, or of use in longitudinal or interventional studies. The observed effects of frequency and distress may be difficult to interpret as it is not known when the reported PLEs occurred. Longitudinal studies clearly demonstrate that PLEs decrease over time (Mackie et al., 2011; Thapar et al., 2012), so having transitory PLEs when younger may identify a high reported frequency of PLEs, but not necessarily current experiences. In order to undertake intervention studies, accurate identification of current PLEs has important practical advantages as it allows for
assessment and changes over time. Being able to accurately identify young people with current PLEs, would enable the targeted delivery of preventative and early interventions.
Chapter 3: Brief screening for psychosis-like experiences.

Preamble

A primary aim of this thesis was to establish a reliable and valid screening tool for PLEs in young people. Almost one third of young people experience PLEs and, those with persistent PLEs, are at greater risk of adverse mental health outcomes, (Fisher et al., 2013; Saha, Scott, Johnston et al., 2011; Thapar et al., 2012; Varghese et al., 2011). Refining a psychometrically sound instrument for measuring PLEs would have substantial clinical utility for screening and provision of timely intervention. Previous studies have shown that not all dimensions of the CAPE-P are equally predictive of later psychopathology. There is undoubtedly a risk of over-pathologising PLEs, and it is important that any iatrogenic affects of this are avoided or tracked. The imperative of treating distressed and help-seeking individuals requires that suitable detection and treatments be developed and tested. Chapter 6 in this thesis, discusses the theory and growing body of research about approaches to mental health promotion, prevention, early intervention. Despite the often transitory nature of PLEs, it is important to detect PLEs early and treat individuals with persistent and/or distressing PLEs. Intervening early without pathologising may ameliorate this distress or shorten its duration. It is also possible that some people may be misclassified as experiencing PLEs. However, if the nature intervention is skills-oriented and wellbeing-focused, it may be beneficial even when misclassification does occur.
Therefore, in order to develop an instrument with optimal psychometric properties, further examination of the positive scale of the CAPE was needed. Accordingly, the current study aimed to refine the CAPE-P using confirmatory factor analyses to identify its optimal internal structure in a large sample of young people. Based on previous research we hypothesise that refining the CAPE-P using confirmatory factor analyses will show a 3 factor structure including Persecutory Ideation, Perceptual Abnormalities and Bizarre Experiences subscales while items relating to Magical Thinking/Grandiosity will not contribute to the most optimal fit.

**Paper 1**

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http://dx.doi.org/10.1016/j.schres.2013.05.020
3.3 Commentary

This study has refined the positive scale of the CAPE and provides evidence that the CAPE-P15 is psychometrically sound and has demonstrated good internal consistency and a stable internal structure. While the relationship between the frequency of PLEs and the level of distress associated with them has been examined (Armando et al 2010; Yung et al, 2009), any potential relationship between the CAPE-P subtypes and other measures of poor mental health outcomes (e.g., suicidality) is yet to be examined. In order to increase our current understanding of PLEs in young people, further research is required to determine the relationship between these subtypes and other outcomes of psychopathology in young people. This is the aim of the next Chapter.
Statement of Contribution of Co-Authors for Thesis by Published Paper

The following is the format for the required declaration provided at the start of any thesis chapter which includes a co-authored publication.

The authors listed below have certified* that:

1. they meet the criteria for authorship in that they have participated in the conception, execution, or interpretation, of at least that part of the publication in their field of expertise;
2. they take public responsibility for their part of the publication, except for the responsible author who accepts overall responsibility for the publication;
3. there are no other authors of the publication according to these criteria;
4. potential conflicts of interest have been disclosed to (a) granting bodies, (b) the editor or publisher of journals or other publications, and (c) the head of the responsible academic unit, and
5. they agree to the use of the publication in the student’s thesis and its publication on the QUT ePrints database consistent with any limitations set by publisher requirements.

In the case of this chapter:


<table>
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<tr>
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<tr>
<td>Carina Gapra</td>
<td>wrote the initial draft of the manuscript, wrote the experimental design, conducted the survey and did the data analysis</td>
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<tr>
<td>Prof David Kavanagh</td>
<td>Aided experimental design, supported the data analysis (esp CFA) and reviewed the initial draft of the paper</td>
</tr>
<tr>
<td>Aspro Leanne Hides</td>
<td>aided experimental design, reviewed the paper</td>
</tr>
<tr>
<td>Dr James Scott</td>
<td>aided experimental design, reviewed the paper</td>
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</table>
Principal Supervisor Confirmation

I have sighted email or other correspondence from all Co-authors confirming their certifying authorship.

David Kavanagh

Name

Signature

Date 3/3/2015
Chapter 4: Understanding the relationship between subtypes of PLEs and lifetime suicidality.

Preamble

As previously stated, studies conducted within community samples indicate that PLEs are common in the general population. Our own study (N=1610) indicated that 99% of young people experienced at least one PLE ‘sometimes’ in their lifetime, measured by the CAPE-P15. According to our study the most common PLE by 95% was “Have you ever felt as if some people are not what they seem to be?” followed by “Have you ever felt as if people seem to drop hints about you or say things with a double meaning?” (88%). The PLEs that were least reported included “Have you ever heard voices talking to each other when you are alone?” (6%) and “Have you ever felt as if a double has taken place of a family member, friend or acquaintance?” (8%). Tables presenting the percentages of endorsed items from the CAPE-P15 are reported in Appendix A-4.2. These tables do show that there are some items have a high rate endorsement and the percentages at each score emphasis the fact that low scores are unlikely to have clinical significance, unless the person is distressed about them. However, high probability items are needed, if the measure is to have utility as an assessment of the full continuum of experiences. PLEs are frequent phenomena in young people, and are not necessarily associated with distress, help-seeking or the onset of psychotic disorders. Much has been made about PLEs conferring higher risk for psychosis in clinical and community samples (Poulton et al., 2000; Rossler et al., 2007), but importantly,
PLEs are mostly self-limiting and result in a positive outcome (i.e. transient and undamaging) (J. van Os et al., 2009).

A central question is whether all PLEs are equally indicative of mental health disorders, or if different PLE subtypes are more likely to be associated with psychological difficulties. Recognition that there are degrees of severity and frequency of PLEs and identification of which PLEs are associated with higher distress and poor mental health outcomes—but not necessarily amount to clinical psychosis—is important. Our study suggested that the most commonly reported subscale of PLEs was Persecutory Ideation (PI) where experienced “sometimes” was recorded in one item by 99% of the sample. The Bizarre Experiences (BE) subscale followed with 69% reporting at least “sometimes” and the Perceptual Abnormalities (PA) subscale was reported by 24% of the sample.

The literature varies about which particular PLEs are associated with increased risk. As reported in Chapter 3, Armando et al. (2010) showed that high scores on the BE and PI subtypes of the CAPE-P had significantly higher levels of depression and poorer functioning than those with high scores on the PA scale. Psychological distress was highly correlated with both PI and PA subtypes (Armando et al., 2010; Wigman et al., 2011). These data essentially identify that while PI, BE and PA all are associated with mental health issues, they are not all associated with psychoses or suicidality.
Considering the literature does identify a significant relationship between PLEs at a global level and increased suicide risk (Fisher et al., 2013; Martin et al., 2014; Nishida et al., 2008) it would be important to identify those who do experience PLEs, and who are at increased risk of further poorer mental health outcomes, such as suicidality.

This study aimed to examine which subtypes and factors of self-reported PLE, as measured by the (lifetime) CAPE-P15, confer the highest risk of a severe mental health outcome – suicidal risk.

Paper 2

Capra, C., Kavanagh, D. J., Hides, L., & Scott, J. Subtypes of psychotic-like experiences are differently associated with suicidal ideation, plans and attempts in young adults. Psychiatry Research, 228, 894-898.
Subtypes of psychotic-like experiences are differentially associated with suicidal ideation, plans and attempts in young adults

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Abstract
Objective: Psychotic-like experiences (PLEs) have been associated with increased risk of suicidality, but it is unclear whether the level of risk varies with different types of PLE. A cross-sectional online survey was completed by 1610 university students. Respondents completed the Community Assessment of Psychic Experiences-15 (CAPE-P15) assessing PLEs on three subscales: Perceptual Abnormalities (PA), Persecutory Ideation (PI) and Bizarre Experiences (BE). Lifetime suicidal ideation, plans and attempts, cannabis, ecstasy and methamphetamine use and family history of mental disorder were also assessed. Multinomial logistic regression was used to examine unique determinants of lifetime suicidality, defined as any history of (i) suicidal ideation or plans and (ii) any attempt, relative to no lifetime history of suicidality. A lifetime history of PA and PI provided significant unique contributions to the prediction of suicide risk, after control for other significant predictors. BE were not associated with any suicide variable demonstrating the variation in risk of suicidality with different types of psychotic-like experiences. Perceptual abnormalities and persecutory ideation as measured by the CAPE-P15 are the PLEs associated with a higher risk of lifetime suicidality.

Key words: Psychotic-like experiences, suicidal behaviours, subscales, CAPE-P

Declaration of Interests: none.

Introduction
Suicidal behaviour is one of the leading causes of death worldwide, and is projected to become an even greater contributor to the future global burden of disease (Nock et al., 2008; Pelkonen and Marttunen, 2003). Data reviewed from multiple countries, and on different forms of suicidal risk, demonstrate the complex interaction of biological, psychological, social and environmental factors that contribute to suicidality (Bruffaerts et al., 2011; Nock et al., 2008). In young people, individual static and dynamic factors such as mental illness, substance misuse, impulsiveness and prior suicide attempts are all implicated, as are variables such as parental mental illness and poverty (Bruffaerts et al., 2011; Nock et al., 2008; Pelkonen et al., 2003). Timely recognition and effective treatment of emerging psychiatric disorders provide an important component in the reduction of suicide risk in young populations (De Silva et al., 2013; van der Feltz-Cornelis et al., 2011).

Psychotic-like experiences (PLEs) are subclinical delusional ideas and perceptual disturbances that lie on a phenotypic continuum with psychotic symptoms and disorders. Positive PLEs, such as hallucinations and delusions, are relatively common among healthy children, adolescents and adults with 12-month prevalence rates of 6 to 28% in community samples of adolescents and young adults (Kelleher and Cannon, 2011; van Os et al., 2009). PLEs are risk factors for the emergence of later mental health disorders, including psychosis, depressive, anxiety and substance use disorders (Dhossche et al., 2002; Fisher et al., 2013; Welham et al., 2008).

Several recent studies have shown the presence of subclinical hallucinations and delusions have been associated with an increased risk of suicidal ideation, plans and attempts (Fisher
et al., 2013; Kelleher et al, 2014; Martin et al., 2015; Nishida et al., 2008; Saha et al., 2011). Furthermore, these studies have shown a dose-response relationship, with greater risks of suicidality as more PLEs are endorsed. However, not all types of PLEs have been associated with high levels of distress and mental health problems (Armando et al., 2010; Wigman et al., 2011; Yung et al., 2009). Armando et al. (2010) showed that those with high scores on the Bizarre Experiences (BE) and Persecutory Ideation (PI) subscales of the Community Assessment of Psychic Experiences positive symptom scale (CAPE-P) had significantly higher levels of psychological distress, depression and poorer functioning compared to those with high scores on the Perceptual Abnormality (PA) scale. Furthermore, there was no association between the Grandiosity scale and mental health problems.

Therefore, whilst one study showed that different PLEs are associated with varying levels of mental health problems, to the best of our knowledge, none has examined if different types of PLEs are differentially associated with the level of suicide risk. Accordingly, the current study aimed to examine the relationship between PLE subtypes and lifetime suicidality, and whether any association remains after controlling for other risk factors such as family history of mental illness, age, sex and substance use. While we noted the differential relationship of the subscale scores with distress in Amando et al. (2010), we hypothesised that all forms of PLEs would be associated with suicidal ideas, plans and attempts, even after adjusting for confounding factors.
Method

Sample and Recruitment

Participants were recruited between June 2011 to June 2012 via student emails at the Queensland University of Technology, Australia as well as by snowballing recruitment methods, which involved participants forwarding the survey onto their contacts via multimedia platforms (e.g., facebook, email). All University heads of school were first approached to circulate a student email requesting participation in an online survey of ‘odd or unusual thoughts and experiences’. If they agreed to distribution through their school, an email containing a description of the study, a copy of the consent form and a link to the online survey was sent.

They were required to provide Informed consent and indicate they met the following inclusion criteria via a tick box prior to obtaining access to the online survey: (i) aged over 17 (ii) able to read and understand English; (iii) able to access and navigate the internet; (iv) not diagnosed, or being treated for, a psychotic illness. Participants were offered the chance to go in a random draw to win an iPad2© as an incentive. Ethical approval was obtained from the University’s Human Research Ethics Committee (No. 1100000187).

Materials and method

The Community Assessment of Psychic Experiences—Positive scale (CAPE-P) is a 20-item self report measure of lifetime PLEs including perceptual abnormalities, persecutory ideation, bizarre experiences, magical thinking and grandiosity rated on a 4-point Likert scale (”never” “sometimes” “often” “nearly always”) (Brenner et al., 2007; Yung et al.,
It represents a selection of positive symptom-like features from the original 42-item CAPE (Stefanis et al., 2002)—the subset that was most predictive of later psychosis (Welham et al., 2008). However, the concurrent validity of its Magical Thinking and Grandiosity subscales with other indicators of mental health has been shown to be low in several studies (Armando et al., 2010; Capra et al., 2013; Wigman et al., 2011). To address this issue, a 15-item revision, the CAPE-P15, was recently developed by the authors (Capra et al., 2013). The CAPE-P15 showed high internal consistency ($\alpha = 0.79$) and a stable internal structure comprising three subscales: PI (5 items), BE (7 items) and PA (3 items), which had a more optimal factor structure than the 20-item CAPE-P (Brenner et al., 2007). The revised factor structure is provided in Supplementary Table 1.

Questions from the Australian National Survey of Mental Health and Wellbeing (Australian Bureau of Statistics, 2008) assessed for suicidality. The questions were: “Have you ever (in your lifetime): (i) seriously thought about committing suicide? (ii) made a plan for committing suicide? (iii) attempted suicide? The survey also asked about similar experiences during the previous month.

Substance use was assessed using 7 items from the Youth Risk Behaviour Survey (YBRS; (Brener et al., 2002)). This included items measuring the frequency of lifetime cannabis, ecstasy and methamphetamines use and recent (past 30 days) cigarettes, alcohol, cannabis, ecstasy and methamphetamines use.

Demographic (age, gender, relationships status and income of family of origin) information was also obtained. Four categories for relationship status included (i) single (ii) partnered (iii) married (iv) divorced and the four categories for family of origin income included (i)
Family history of treated mental health problems was assessed by a single question requiring a dichotomous ‘yes/no response, ‘Has anyone in your family ever been treated for a mental illness?’.

The study also included the Kessler Distress Scale (K10; Kessler et al., 2002), but it was not included in the analyses below, because of its focus on current distress.

Data Analysis

Analyses used IBM SPSS 22©. The frequency of recent suicidal ideation, plans and attempts (Table 1) were too low for predictive analyses, so the primary analyses in the study focused only on lifetime risk. Given potential problems with distinguishing retrospectively between ideation and suicide plans, in the primary analyses the lifetime suicidality was indexed as an ordinal variable with three categories: (i) no suicidality, (ii) suicidal ideation or a plan (but no attempt) and (iii) suicide attempt. In doing so, we do not imply the presence of a single underlying continuum, but merely order the severity of the reported phenomena.

Lifetime cannabis, ecstasy and methamphetamine use was divided into six categories from no use, 1-2 times, 3-9 times, 10-19 times, 20-39 times and ≥ 40 times. The correlations between lifetime suicidality and age, sex, years of education, relationship status, family history of mental illness, family of origin income, lifetime drug use and the CAPE-P15 total and subscale scores were examined using Spearman rank for continuous variables and phi for categorical variables. A multinominal logistic regression was then conducted to determine whether the variables which were significantly correlated with lifetime suicidality made an independent contribution to the level of lifetime suicide risk. All variables were entered
simultaneously into the multivariate analysis. No lifetime suicide risk was used as the reference variable. Nagelkerke Pseudo-$R^2$ was used to indicate the extent that the model improves the prediction in comparison with estimating scores from the mean of the predicted variable (‘null’). It varies from 0 (no improvement) to 1 (perfect prediction).

**Results**

**Demographics**

Of the 1791 who consented to undertake the survey, 1610 (90%) provided suicidality data. The mean age was 22.1 (SD = 5.1) years, and 76% (1218) were female. Nearly all (1583, 99%) had completed 12 years of education and just over half said they had a partner (815, 52%). Lifetime suicidal ideation, plan or attempts were reported in a third of the sample, but only 1.5% (24) reported any of these experiences in the previous 30 days (Table 1). Table 2 identifies the reported amount of lifetime use of cannabis, ecstasy and methamphetamines, highlighting that 11-35% of the sample had used illicit substances, with cannabis being the most frequent.

<table>
<thead>
<tr>
<th>Variable</th>
<th>M (SD) or n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family history of mental health disorder</td>
<td>741 (46%)</td>
</tr>
<tr>
<td>Annual family income (AUD)</td>
<td></td>
</tr>
<tr>
<td>&lt;$50K</td>
<td>483 (27%)</td>
</tr>
<tr>
<td>$50-100K</td>
<td>601 (37%)</td>
</tr>
<tr>
<td>$100-150K</td>
<td>348 (22%)</td>
</tr>
<tr>
<td>&gt;$150K</td>
<td>211 (13%)</td>
</tr>
<tr>
<td>CAPE-P15</td>
<td></td>
</tr>
<tr>
<td>Total scale</td>
<td>6.80 (4.31)</td>
</tr>
<tr>
<td>PA subscale</td>
<td>0.46 (.934)</td>
</tr>
<tr>
<td>PI subscale</td>
<td>4.27 (2.17)</td>
</tr>
<tr>
<td>BE subscale</td>
<td>2.08 (2.38)</td>
</tr>
</tbody>
</table>
Lifetime suicidality

None 1108 (69%)
Ideation or Plan, no attempt 385 (24%)
Attempt 117 (7%)

30-day suicidality

None 1587 (99%)
Ideation or Plan, no attempt 19 (1.2%)
Attempt 5 (0.3%)

Table 2: Numbers of lifetime cannabis, ecstasy and methamphetamine use

<table>
<thead>
<tr>
<th>How many times</th>
<th>Cannabis N (%)</th>
<th>Ecstasy N (%)</th>
<th>Methamphetamines N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No use</td>
<td>1040 (65%)</td>
<td>1292 (80%)</td>
<td>1460 (89%)</td>
</tr>
<tr>
<td>1-2</td>
<td>199 (12%)</td>
<td>107 (7%)</td>
<td>84 (5%)</td>
</tr>
<tr>
<td>3-9</td>
<td>182 (11%)</td>
<td>86 (5%)</td>
<td>41 (3%)</td>
</tr>
<tr>
<td>10-19</td>
<td>62 (4%)</td>
<td>48 (3%)</td>
<td>24 (2%)</td>
</tr>
<tr>
<td>20-39</td>
<td>44 (3%)</td>
<td>33 (2%)</td>
<td>12 (1%)</td>
</tr>
<tr>
<td>&gt;40</td>
<td>83 (5%)</td>
<td>44 (3%)</td>
<td>17 (1%)</td>
</tr>
</tbody>
</table>

Correlations

Most of the tested variables had significant but small correlations with lifetime suicidality (See Table 3). The CAPE-P15 and its subscales, specifically PA and PI had the highest correlations with lifetime suicidality. Sex, education and relationship status were not significant univariate correlates, and the latter two predictors were omitted from further analysis. However, because of the frequent association of sex with suicidality in previous research, it was retained as a predictor in the multivariate prediction.

Table 3: Correlations with lifetime suicidality

<table>
<thead>
<tr>
<th></th>
<th>Spearman’s rho</th>
<th>Phi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>.05*</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>-.04</td>
<td>-.04</td>
</tr>
<tr>
<td>Years of education</td>
<td>-.04</td>
<td>.07</td>
</tr>
<tr>
<td>Relationship Status</td>
<td>.15**</td>
<td></td>
</tr>
<tr>
<td>Family history of mental illness</td>
<td>.06*</td>
<td></td>
</tr>
<tr>
<td>Family income</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Lifetime cannabis use  | .15**
Life time ecstasy use  | .17**
Lifetime methamphetamine use | .16**
CAPE-P15 Total  | .24**
   BE subscale  | .12**
   PA subscale  | .21**
   PI subscale  | .26**

1. Coded as an ordinal variable, from no suicide ideation, plan or attempt, through ideation or plan, to suicide attempt.

Multinomial prediction of lifetime suicidality

A multinominal logistic regression entering age, sex, family history of mental illness, family or origin income, lifetime cannabis, ecstasy and methamphetamine use and BE PA and PI CAPE-P15 subscales gave a Nagelkerke R-squared of 17.6% ($p < .001$). As Table 4 shows, having an immediate family history of mental illness, higher PA and PI gave the strongest independent predictions. Lifetime cannabis or ecstasy use also contributed to the multivariate prediction of risk, as did being female (despite a lack of univariate prediction from sex).

Coefficients for the prediction of lifetime ideation or a plan and for a lifetime attempt (versus no suicidality, in each case) are also shown in Table 4. For each unit increase in PA and PI, the odds of being in the group with suicidal ideation or a plan (vs. no suicidality) increased by 30% and 26%, respectively. In the case or predicting an attempt, each unit increase in PA and PI scores increased the odds by 61% and 34% respectively. Lifetime cannabis use contributed significantly to the equations predicting both ideation or plans and an attempt, but being female only increased the risk of an attempt, while ecstasy use and family history of mental illness only contributed to ideation and plans. Family income, age,
methamphetamines use, and bizarre experiences on the CAPE-P15 were not associated with an increased risk of lifetime suicidal ideation, plans or attempts.
Table 4: Tests of significance and parameter estimates from a multinomial logistic regression predicting lifetime suicidality

<table>
<thead>
<tr>
<th></th>
<th>Suicidal ideation and/or plan</th>
<th>Suicidal Attempt</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\chi^2$</td>
<td>df</td>
</tr>
<tr>
<td>Intercept</td>
<td>-3.01 (0.42)</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>1.43</td>
<td>2</td>
</tr>
<tr>
<td>Sex (female)</td>
<td>8.01</td>
<td>2</td>
</tr>
<tr>
<td>Family History of mental illness (yes)</td>
<td>19.99</td>
<td>2</td>
</tr>
<tr>
<td>Family income</td>
<td>12.12</td>
<td>6</td>
</tr>
<tr>
<td>&lt;50K</td>
<td>0.16</td>
<td>0.22</td>
</tr>
<tr>
<td>50-100K</td>
<td>0.27</td>
<td>0.21</td>
</tr>
<tr>
<td>100-150K</td>
<td>0.11</td>
<td>0.23</td>
</tr>
<tr>
<td>&gt;150K (reference)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lifetime use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cannabis</td>
<td>9.34</td>
<td>2</td>
</tr>
<tr>
<td>Ecstasy</td>
<td>6.56</td>
<td>2</td>
</tr>
<tr>
<td>Methamphetamine</td>
<td>0.65</td>
<td>2</td>
</tr>
<tr>
<td>CAPE-P15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BE subscale</td>
<td>25.55</td>
<td>2</td>
</tr>
<tr>
<td>PA subscale</td>
<td>69.37</td>
<td>2</td>
</tr>
</tbody>
</table>

Overall model: $\chi^2$ (24) = 223.12, p < .001; Nagelkirkre Pseudo R$^2$ = .176.

B: estimated multinomial logistic regression coefficient. SE: standard error of the individual regression coefficient OR: odds ratio

1. Coded as an ordinal variable, from no suicide ideation, plan or attempt, through ideation or plan, to suicide attempt.

IBM SPSS 22\textsuperscript{11} syntax: NOMREG Suicidality (BASE:FIRST ORDER:ASCENDING) BY Sex FamilyIncome FamilyHistory WITH Age Cannabis Ecstasy Meth CAPE15BE CAPE15PA CAPE15PI /CRITERIA CIN(95) MXITER(100) MXSTEP(5) CHKSEP(20) LCONVERGE(0) PCONVERGE(0.000001) SINGULAR(0.00000001) /MODEL /STEPWISE:PIN(.05) POUT(0.1) MINEFFECT(0) RULE(SINGLE) ENTRYMETHOD(LR) REMOVALMETHOD(LR) /INTERCEPT:INCLUDE /PRINT:FIT PARAMETER SUMMARY LRT CPS STEP MFI.

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Discussion

This study demonstrated significant associations between psychotic-like experiences of perceptual abnormalities and persecutory ideation and lifetime suicidality and showed that those relationships remained after adjusting for age, sex, family history of mental illness, family of origin income and lifetime drug use. Contrary to our hypothesis that all forms of PLEs would be associated with suicidal ideas, plans and attempts even after adjusting for confounding factors, bizarre experiences did not contribute to suicide risk.

The current study’s results were consistent with those of previous research into PLEs using previous versions of the CAPE (Armando et al., 2010; Wigman et al., 2011; Yung et al., 2009), in showing that individual subscales differ in their relationships with outcomes, and extended this finding from distress or functioning to suicidality. However, the subscale relationships were not consistent with those in past research: For example, both Amando et al. (2010) and Yung et al. (2009) found PI and BE were associated with depression and poorer functioning, whereas this study found that high scores on the CAPE-P15’s PI and PA subscales were associated with lifetime suicide risk.

Our study did not assess the time course of PLEs and suicidality, so it is not possible to make any conclusions about whether there is a causal relationship between PLEs and suicidality, or about the direction of any such relationship. However, there is evidence from previous longitudinal research that PLEs are associated with increased suicide risk, particularly when they co-occur with psychological distress, other psychopathology and/or pre-existing
suicidality (Kelleher and Cederlof et al., 2014; Kelleher and Corcoran et al., 2013; Martin et al., 2015). The Swedish Twin Study of Child and Adolescent Development (TCHAD; N= 2263) found that those at 16- to 17 years who reported persistent suicidal ideation and co-occurring psychotic experiences were at almost six times the risk of persistent suicidal ideation at three years follow up, compared to those who did not report co-occurring PLEs (Kelleher et al., 2014). Similarly, a prospective cohort study of 1112 school based students found that 34% of those who endorsed psychotic experiences and psychopathology at baseline reported a suicide attempt in the subsequent 12 months (OR 32.67; 95% CI, 10.43-102.41) (Kelleher et al., 2013). While another recent longitudinal study of 1896 adolescents found that PLEs alone did not increase risk of future suicidality at 1 year follow up, adolescents who reported both PLEs and psychological distress were at significantly more risk of making a suicide attempt (OR: 12.81, 95% CI 4.02, 40.88).

Since our distress measure (the K10) focused on current distress, we were unable to determine the contribution of distress to the prediction of lifetime suicide risk. Perhaps high levels of distress may lead to both suicidality and PLEs. It is also possible that the different relationships in this study may have been due to different CAPE-P15 subscales being differentially associated with distress. Distress was found to be strongly associated with all three subscales (BE, PI and PA) in previous research and these subscales have been associated with more severe psychopathology compared with the other subscale in the original CAPE-20 (magical thinking/ grandiosity/ paranormal beliefs) (Armando et al., 2010; Wigman et al., 2011; Yung et al., 2009). Examining associated distress with PLEs appears to be an important consideration when assessing for suicide risk, but this also would require
current assessment of PLEs and distress, not lifetime. Future research should focus on a current version of the CAPE-P15 tool and the relationships between current PLEs and current distress.

The study used a large community sample of young adults, but participants were self-selected, and the recruitment methods meant that response rates (and therefore representativeness of the sample) are unknown. Most participants were derived from a single university and were female, and almost all had at least 12 years of education, reflecting a bias to higher educational and socioeconomic status. Replication in a sample that was more demonstrably representative of the general community would therefore increase confidence in the results. Furthermore, the current study’s methodology did not offer any formal validation of the online responses, although there is no reason to suspect that this presented a greater issue than in any self-report study. Concerns that may be raised by these limitations are mitigated by the consistency of the current results with those of other recent studies in the area (Kelleher et al., 2014; Martin et al., 2015).

A number of studies have now demonstrated a robust association between PLEs and suicidal ideation and behaviours (Fisher et al., 2013; Nishida et al., 2008; Saha et al., 2011). In a clinical sample of young people, those who reported psychotic experiences were found to be at high risk of suicidal behaviours, including suicidal plans and attempts, even when controlling for levels of multimorbidity (Kelleher and Devlin et al., 2014). Psychotic experiences seem to be an important marker of risk for suicidal behaviour in young people who attend mental health services. These results, in combination with the current community-focused study, suggest that thorough risk assessments for suicidality be
undertaken in those individuals who endorse PLEs. Conversely, when assessing suicide risk in young people, screening for PLEs should also be routinely undertaken. The current study suggests that the CAPE-P15 is well suited to this purpose.

Supplementary Table 1. CAPE-P15 questions and corresponding subscales (from Capra et al., 2013).

<table>
<thead>
<tr>
<th>Question</th>
<th>Subscale in CAPE-P15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you ever felt as if people seem to drop hints about you or say things with a double meaning?</td>
<td>PI</td>
</tr>
<tr>
<td>Have you ever felt as if some people are not what they seem to be?</td>
<td>PI</td>
</tr>
<tr>
<td>Have you ever felt that you are being persecuted in any way?</td>
<td>PI</td>
</tr>
<tr>
<td>Have you ever felt as if there is a conspiracy against you?</td>
<td>PI</td>
</tr>
<tr>
<td>Have you ever felt that people look at you oddly because of your appearance?</td>
<td>PI</td>
</tr>
<tr>
<td>Have you ever felt as if electrical devices such as computers can influence the way you think?</td>
<td>BE</td>
</tr>
<tr>
<td>Have you ever felt as if the thoughts in your head are being taken away from you?</td>
<td>BE</td>
</tr>
<tr>
<td>Have you ever felt as if the thoughts in your head are not your own?</td>
<td>BE</td>
</tr>
<tr>
<td>Have your thoughts ever been so vivid that you were worried other people would hear them?</td>
<td>BE</td>
</tr>
<tr>
<td>Have you ever heard your thoughts being echoes back at you?</td>
<td>BE</td>
</tr>
<tr>
<td>Have you ever felt as if you are under the control of some force or power other than yourself?</td>
<td>BE</td>
</tr>
<tr>
<td>Have you ever felt as if a double has taken the place of a family member, friend or acquaintance?</td>
<td>BE</td>
</tr>
<tr>
<td>Have you ever heard voices when you are alone?</td>
<td>PA</td>
</tr>
<tr>
<td>Have you ever heard voiced talking to each other when you are alone?</td>
<td>PA</td>
</tr>
<tr>
<td>Have you ever seen objects, people or animals that other people can’t see?</td>
<td>PA</td>
</tr>
</tbody>
</table>

PI: persecutory ideation; BE: bizarre experiences; PA: perceptual abnormalities.
<table>
<thead>
<tr>
<th></th>
<th>Suicidality N/Total (%)</th>
<th>$\chi^2$</th>
<th>df</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No plan or attempt</td>
<td>Ideation or plan</td>
<td>Attempt</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>279/1108 (25%)</td>
<td>92/385 (24%)</td>
<td>21/117 (18%)</td>
<td>3.06</td>
</tr>
<tr>
<td>Female</td>
<td>829/1108 (75%)</td>
<td>293/385 (76%)</td>
<td>96/117 (82%)</td>
<td></td>
</tr>
<tr>
<td>Family History of Mental illness</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>439/1074 (41%)</td>
<td>219/385 (57%)</td>
<td>65/117 (56%)</td>
<td>34.02</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>559/1092 (51%)</td>
<td>195/375 (52%)</td>
<td>61/114 (54%)</td>
<td>5.63</td>
</tr>
<tr>
<td>Partnered</td>
<td>445/1092 (41%)</td>
<td>153/375 (41%)</td>
<td>45/114 (40%)</td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>81/1092 (7%)</td>
<td>21/375 (6%)</td>
<td>8/114 (7%)</td>
<td></td>
</tr>
<tr>
<td>Divorced</td>
<td>7/1092 (1%)</td>
<td>6/375 (2%)</td>
<td>0/114 (0%)</td>
<td></td>
</tr>
<tr>
<td>Family income</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; $50K</td>
<td>286/1099 (26%)</td>
<td>105/383 (27%)</td>
<td>47/116 (41%)</td>
<td>14.37</td>
</tr>
<tr>
<td>$50-100K</td>
<td>411/1099 (37%)</td>
<td>151/383 (39%)</td>
<td>39/116 (34%)</td>
<td></td>
</tr>
<tr>
<td>$100-150K</td>
<td>252/1099 (23%)</td>
<td>81/383 (21%)</td>
<td>15/116 (13%)</td>
<td></td>
</tr>
<tr>
<td>&gt; $150K</td>
<td>150/1099 (14%)</td>
<td>46/383 (12%)</td>
<td>15/116 (13%)</td>
<td></td>
</tr>
<tr>
<td>Lifetime use</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cannabis</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No use</td>
<td>685/1036 (66%)</td>
<td>202/364 (56%)</td>
<td>47/104 (45%)</td>
<td>50.11</td>
</tr>
<tr>
<td>1-2 times</td>
<td>135/1036 (13%)</td>
<td>49/364 (14%)</td>
<td>15/104 (14%)</td>
<td></td>
</tr>
<tr>
<td>3-9 times</td>
<td>117/1036 (11%)</td>
<td>51/364 (14%)</td>
<td>14/104 (14%)</td>
<td></td>
</tr>
<tr>
<td>10-19 times</td>
<td>40/1036 (4%)</td>
<td>14/364 (4%)</td>
<td>8/104 (8%)</td>
<td></td>
</tr>
<tr>
<td>20-39 times</td>
<td>19/1036 (2%)</td>
<td>19/364 (5%)</td>
<td>6/104 (6%)</td>
<td></td>
</tr>
<tr>
<td>≥ 40 times</td>
<td>40/1036 (4%)</td>
<td>29/364 (8%)</td>
<td>14/104 (14%)</td>
<td></td>
</tr>
<tr>
<td>Ecstasy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No use</td>
<td>904/1074 (84%)</td>
<td>282/385 (73%)</td>
<td>72/117 (62%)</td>
<td>61.92</td>
</tr>
<tr>
<td>1-2 times</td>
<td>60/1074 (6%)</td>
<td>32/385 (8%)</td>
<td>15/117 (13%)</td>
<td></td>
</tr>
<tr>
<td>3-9 times</td>
<td>46/1074 (4%)</td>
<td>29/385 (8%)</td>
<td>11/117 (9%)</td>
<td></td>
</tr>
<tr>
<td>10-19 times</td>
<td>27/1074 (3%)</td>
<td>15/385 (4%)</td>
<td>6/117 (5%)</td>
<td></td>
</tr>
<tr>
<td>20-39 times</td>
<td>22/1074 (2%)</td>
<td>5/385 (1%)</td>
<td>6/117 (5%)</td>
<td></td>
</tr>
<tr>
<td>≥ 40 times</td>
<td>15/1074 (1%)</td>
<td>22/385 (6%)</td>
<td>7/117 (6%)</td>
<td></td>
</tr>
<tr>
<td>Methamphetamine</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No use</td>
<td>987/1074 (92%)</td>
<td>324/385 (84%)</td>
<td>87/117 (74%)</td>
<td>66.46</td>
</tr>
<tr>
<td>1-2 times</td>
<td>43/1074 (4%)</td>
<td>31/385 (8%)</td>
<td>10/117 (9%)</td>
<td></td>
</tr>
<tr>
<td>3-9 times</td>
<td>20/1074 (2%)</td>
<td>13/385 (3%)</td>
<td>8/117 (7%)</td>
<td></td>
</tr>
<tr>
<td>10-19 times</td>
<td>13/1074 (1%)</td>
<td>5/385 (1%)</td>
<td>6/117 (5%)</td>
<td></td>
</tr>
<tr>
<td>20-39 times</td>
<td>5/1074 (1%)</td>
<td>7/385 (2%)</td>
<td>0/117 (0%)</td>
<td></td>
</tr>
<tr>
<td>≥ 40 times</td>
<td>6/1074 (1%)</td>
<td>5/385 (1%)</td>
<td>6/117 (5%)</td>
<td></td>
</tr>
</tbody>
</table>
Statement of Contribution of Co-Authors for Thesis by Published Paper

The following is the format for the required declaration provided at the start of any thesis chapter which includes a co-authored publication.

The authors listed below have certified* that:

1. they meet the criteria for authorship in that they have participated in the conception, execution, or interpretation, of at least that part of the publication in their field of expertise;
2. they take public responsibility for their part of the publication, except for the responsible author who accepts overall responsibility for the publication;
3. there are no other authors of the publication according to these criteria;
4. potential conflicts of interest have been disclosed to (a) granting bodies, (b) the editor or publisher of journals or other publications, and (c) the head of the responsible academic unit, and
5. they agree to the use of the publication in the student’s thesis and its publication on the QUT ePrints database consistent with any limitations set by publisher requirements.

In the case of this chapter:

Chapter 4 – paper 2. ‘Subtypes of psychotic-like experiences are differently associated with suicidal risk in young adults’.

<table>
<thead>
<tr>
<th>Contributor</th>
<th>Statement of contribution*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carina Capra</td>
<td>wrote the initial draft of the manuscript, wrote the experimental design, conducted the survey and did the data analysis</td>
</tr>
<tr>
<td></td>
<td>![Signature]</td>
</tr>
<tr>
<td></td>
<td>![Date 3/3/2011]</td>
</tr>
<tr>
<td>Prof David Kavanagh</td>
<td>aided experimental design, supported the data analysis and reviewed the manuscript</td>
</tr>
<tr>
<td>Aspro Leanne Hides</td>
<td>aided experimental design, supported the data analysis and reviewed the manuscript</td>
</tr>
<tr>
<td>Dr James Scott</td>
<td>aided experimental design, supported the data analysis and reviewed the manuscript</td>
</tr>
</tbody>
</table>
Principal Supervisor Confirmation

I have sighted email or other correspondence from all Co-authors confirming their certifying authorship.

Name  Signature  Date

3/3/2015
4.3 Commentary

This is the first study to examine the association between PLE subtypes and suicide risk. The study found that subtypes of PLEs may offer some additional information for suicide risk, especially among individuals with Persecutory Ideation and Perceptual Abnormalities. Recognising that PLEs are associated with suicide risk highlights the importance of identifying and addressing PLEs in young people.

This work furthers our understanding of the subtypes of PLEs. Work by others outlined previously, found that while PI, BE and PA were all associated with mental health issues longer term, they were not necessarily associated with suicidality. Chapter 3 has already refined the original CAPE-P to the CAPE-P15, which removed the subtype that demonstrated the least association with mental health problems. Now we have been able to further our understanding of possible clinical utility of the CAPE-P15. This refinement has meant that associations actually present may have been masked by the lack of precision in the instrument. Our study has removed this problem.

When writing this paper, a limitation was an inability to determine the precise nature of the relationship between suicide risk and PLEs, because of the lifetime focus of the CAPE-P15. For example, did PLEs occur prior to suicidal ideation and contribute to an increased risk? Were PLEs a result of extreme distress, as indicated by the suicide risk variable? Or was another factor involved? If a current version of the CAPE-P15 tool were as robust as the
lifetime version, then the identification of current PA and PI PLEs could be important for identifying young people with increased current suicidal risk.

A recent longitudinal study of 1896 adolescents (Martin et al., 2015) attempted to predict suicide attempts and non-suicidal self-injury (NSSI) over a 1-year period, using a 4-item self-report measure of hallucinatory and delusional like experiences, and generalised distress on the GHQ-12 (Goldberg & Williams, 1988; Goldberg et al., 1997). The occurrence of PLEs without distress did not predict either suicide attempts (OR: 1.65, 95% CI 0.33-8.26) or NSSI (OR: 1.63, 95% CI 0.73-3.64). However, those who had PLEs together with distress had substantially increased odds of both a suicide attempt (OR: 12.81, 95% CI 4.02-40.88) and NSSI (OR: 11.45, 95% CI 5.70-23.00). That study suggested that generalised distress may also increase the risk of suicidality from PLEs. It also raised the question of whether the key factor was distress that was associated with the PLEs, or whether more pervasive, generalised distress was responsible for the increased risk.
Chapter 5: Measuring PLEs using the current CAPE-P15

Preamble

Chapters 3 and 4 have demonstrated that the CAPE-P15 is a reliable tool to identify and measure PLEs in youth and that specific PLEs subtypes are associated with a higher risk of adverse outcomes—specifically suicidal risk. However, the limitation highlighted across both chapters is the need to assess the frequency of PLEs, their associated distress and relationship to current psychological distress and other mental health issues.

Psychological distress has a strong association with PLEs (Varghese et al., 2011; Wigman et al., 2011). Similarly, our results show that participants who scored highly on the K10 (17 and above) tended to also report a high frequency of PLEs (75th percentile and above) (Table 5.1). A bivariate correlation showed this relationship to be highly significant ($r = .27$, $p<.001$). With distress and PLEs being so strongly associated, being able to identify and understand current PLEs and their association with distress would further enhance the ability to screen and detect those who may benefit from immediate support. Using a current version of the CAPE-P15 would, therefore, allow for not only an accurate assessment of current frequency of PLEs but of the current associated distress.
Table 5.1: Numbers of reported high and low psychological distress and CAPE-P15 scores.

<table>
<thead>
<tr>
<th></th>
<th>Low CAPE-P15 (&lt;75%)</th>
<th>High CAPE-P15 (≥75%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low K10 (&lt;17)</td>
<td>101</td>
<td>8</td>
</tr>
<tr>
<td>High K10 (≥ 17)</td>
<td>240</td>
<td>138</td>
</tr>
</tbody>
</table>

**Aim and scope of the chapter**

We sought to: (i) reconfirm the fit of the original lifetime version of the CAPE-P15 to the current (past 3 months) version of the measure, (ii) Establish the relationship between the lifetime and current responses to the CAPE-P15 and subscales across the same sample, and (iii) determine if the frequency of PLEs or the frequency of PLEs combined with the level of distress associated with them were more strongly associated with other mental health issues (substance use, general psychological distress).

We hypothesise that (i) confirmatory factor analysis of the current CAPE-P15 will identify the same 3-factor structure as the CAPE-P15 lifetime version, (ii) Combining the frequency and associated distress from PLES will significantly increase the association between PLES and overall psychological distress”.

**Paper 3**

The Current CAPE-15: A measure of recent psychotic-like experiences and associated distress

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Text: 2426 words (plus abstract, references, tables)  Abstract: 250 words.

Key words: Psychotic-like experiences, suicidal behaviours, assessment
Abstract

Objective: Psychotic-like experiences (PLEs) are common in young people and are associated with both distress and adverse outcomes. The Community Assessment of Psychic Experiences Positive Scale (CAPE-P) provides a 20-item measure of lifetime PLEs. A 15-item revision of this scale was recently published (CAPE-15). While the CAPE-P has been used to assess PLEs in the last 12 months, there is no version of the CAPE for assessing more recent PLEs (e.g. 3 months). This study aimed to determine the reliability and validity of the Current CAPE-P15 and assess its relationship with current distress.

Method: A cross-sectional online survey of 489 university students (17-25 years) assessed lifetime and current substance use, current distress and lifetime and 3-month PLEs on the CAPE-P15.

Results: Confirmatory factor analysis indicated that the Current CAPE-P15 retained the same 3-factor structure as the Lifetime version consisting of persecutory ideation, bizarre experiences and perceptual abnormalities. The total score of the Current version was lower than the Lifetime version, but the two were strongly correlated ($r = .64$). The Current version was highly predictive of generalised distress ($r = .52$) and indices that combined symptom frequency with associated distress did not confer greater predictive power than frequency alone.

Discussion: This study provided preliminary data that the Current CAPE-P15 provides a valid and reliable measure of current PLEs. The Current CAPE-P15 is likely to have substantial practical utility if it is later shown to be sensitive to change, especially in prevention and early intervention for mental disorders in young people.
Declaration of Interests: none.

Highlights

- The Current CAPE-P15 has the same internal structure as the Lifetime version and strongly predicts psychological distress
- A 3-month assessment of PLEs has important practical advantages in assessing current status and changes over time.
- Adding questions about distress associated with PLEs does not increase predictive power.
Introduction

Psychotic-like experiences (PLEs)—odd or unusual thoughts or ideas including paranoid beliefs and perceptual experiences—are common in young people. Community surveys have found the prevalence of PLEs in young adults to be 6-20% [1, 2] and in adolescents is up to 28% [3]. Unlike clinical psychotic symptoms, 75–90% of PLEs are transitory [2] and most are infrequent and cause little distress. However, PLEs are associated with an increased risk of future mental disorders [4-6] and suicidal behaviors [7] [5]. Given this increased risk, screening for PLEs assumes importance within mental health assessments of adolescents and young adults [8]. While young people may actively ignore or be unable to recognize PLEs [9], their identification provides opportunities for targeted preventative strategies [10].

The Community Assessment of Psychic Experiences—Positive scale (CAPE-P) is a 20-item measure of lifetime PLEs, consisting of perceptual abnormalities, persecutory ideation, bizarre experiences, magical thinking and grandiosity [11, 12]. However, the concurrent validity of its Magical Thinking and Grandiosity subscales with other indicators of mental health has been shown to be low in several studies ([8, 13, 14]). We recently developed a 15-item revision, the CAPE-P15, in a community sample of young people, which omitted these subscales [8]. The CAPE-P15 showed high internal consistency (α = 0.79) and a stable internal structure with three subscales – Perceptual Abnormalities (PA), Persecutory Ideation (PI) and Bizarre Experiences (BE). It was concluded that the CAPE-P15 provided a brief, valid and reliable screening tool for PLEs in young people.
Both the CAPE-P and CAPE-P15 provide lifetime measures of PLEs, and the majority of PLE research has focused on lifetime PLEs [13-15]. While this approach maximises the chance of detecting individuals with any history of PLEs, it does not discriminate more recent from past PLEs that may no longer be present or causing distress. While the CAPE-P has been used to assess PLEs in the last 12 months [12] [16] a more recent version of the CAPE is needed. A 3-month version of the CAPE focus would have greater clinical relevance and could be used to screen for PLEs, to identify individuals in need of a more comprehensive psychiatric assessment, as well as monitor PLEs over time.

While the CAPE-P has been used to assess PLEs in the last 12 months [12] [16], this remains too wide a window and there is a need for a more recent version of the CAPE. A 3-month focus would have greater clinical relevance. Having a tool that can easily identify young people who are currently experiencing more than usual PLEs could be useful to monitor symptoms over time, screen for a further comprehensive assessment or even provide a way to monitor the impact of interventions over time.

This study aimed to determine the reliability and validity of the Current CAPE-P15 and assess its relationship with current distress, by (i) determining the internal consistency of the Current CAPE-P15 and whether the internal structure of the Lifetime CAPE-P15 provided good fit for the Current CAPE-P15; (ii) examining the relationship between the Lifetime and Current versions of the CAPE-P15; and (iii) determining whether weighting the CAPE-P items
by their associated distress produces a stronger correlation with generalized distress than does an unweighted sum of PLE frequencies.

Method

Sample and Recruitment

Participants were recruited between December 2012 and April 2014 via student emails at the University of Queensland (UQ) and the Queensland University of Technology (QUT), Australia. Inclusion criteria were: (i) aged 16-25 years; (ii) able to read and understand English; and (iii) not diagnosed, or being treated for, a psychotic illness. Participants were asked to complete an online survey after providing informed consent. Ethical approval was obtained from both universities’ Human Research Ethics Committees (UQ Nos.:2013001417, 2013001418 & QUT Nos.: 1100000187, 1100000663).

Materials and method

*Lifetime and Current CAPE-P15.* The CAPE-P15 [8] is a self-report instrument measuring the lifetime frequency of positive PLEs. An example is: “*In your lifetime, have you ever felt as if the thoughts in your head are not your own*”. Each item uses a 4-point Likert scale from 0, ‘never’, through ‘sometimes’ and ‘often’ to 3, nearly always. A three-factor structure comprising PI (5 items), BE (7 items) and PA (3 items) had a more optimal fit than the four-factor structure using the CAPE-P [11]. The Current version of the CAPE-P15 was created by modifying the items to read: “*In the past 3 months, have you ....*”. If a participant endorsed a PLE (at least ‘sometimes’), they were also asked how distressed they were about the
experience using a 4-point Likert scale from 0, ‘not distressed’ through ‘a bit distressed’ and ‘quite distressed’ to 3, ‘very distressed’, which produced a total score of 0-45.

**Lifetime and recent substance use** was assessed using 7 items from the Youth Risk Behaviour Survey (YBRS; [17]), which assessed the frequency of lifetime and 30-day use of cannabis, ecstasy and methamphetamines, together with recent tobacco use.

**Psychological distress.** The 10-item Kessler scale (K10) [18] assessed depressive and anxious symptoms in the past month on a scale from 1, ‘none of the time’, to 5, ‘All of the time’ [18], giving a potential total score of 10-50. The K10 has high reliability and validity for detection of depressive and anxiety disorders in general population surveys [18, 19].

**Family history of mental health problems** was assessed by a single question (‘Has anyone in your family ever been treated for a mental illness?’ Yes/No). **Demographic** (age, gender, income of family of origin) information was also obtained.

Participants went into a random draw to win a small monetary voucher as an incentive.

Two separate surveys were conducted. The first survey collected demographic information relating to family income and drug and alcohol use in addition to the Current version of the CAPE-P15. The second survey asked participants to complete both the Current CAPE-P15 and the Lifetime CAPE-P15 within the same survey. As both surveys included the same materials, other than the Lifetime version of the CAPE-P15, they were combined to provide a larger sample size. The second survey was used to compare the Lifetime version with the Current version of the CAPE-P15.
Heads of the university schools were approached to distribute a student email requesting participation in an online survey of ‘odd or unusual thoughts and experiences’. If they agreed to distribution through their school, an email containing a description of the study, consent and a link to the online survey was sent via that school’s administration account. The research team was not involved in the distribution, and it is not known how many students were initially approached to participate.

**Analyses**

Analyses used IBM SPSS 22 and AMOS 22. Cases with missing data were excluded from confirmatory factor analyses, which examined whether the 3-factor structure obtained on the Lifetime CAPE-P15 [8] also gave good fit for the Current version. Good fit was indicated by a Root Mean Squared Error of Approximation (RMSEA) of < .05 and other fit indices of > .90. Relationships between the Lifetime and Current CAPE-P15 were examined using Pearson correlations and Repeated Measures ANOVA.

To test whether the addition of items pertaining to distress associated with PLEs added to the prediction of psychological distress from the total CAPE-P15 Frequency score, a Frequency x Distress variable was created by multiplying the frequency of the PLE (0-3) with the reported associated distress (0-3). Thus, a PLE that was experienced frequently but had no associated distress would score 0, and maximum ratings of frequency and distress across the CAPE-15 would produce a total Frequency x Distress score of 135. Pearson correlations and non-parametric Spearman rho (for non-continuous variables) were used to assess
relationships of the Current CAPE-P15, Current CAPE-P15 Frequency x Distress and their respective subscales, with psychological distress (K10), as well as age, gender, family income, family history of mental illness, current cannabis use and harmful use of alcohol (> 5 drinks in a day). Secondary analyses also examined relationships with demographic characteristics, family history of mental disorder and current alcohol and cannabis use.

Results

Demographics

A total of 489 participants completed the surveys, with 362 participants completing survey one and 127 participants completing survey two. The mean age across both surveys was 20.8 years and 81% (396) were female. Table 1 presents a summary of sample characteristics collected from survey two including: family of origin annual income and whether they reported (yes/no) family history of mental disorder, alcohol use in the previous 30 days, reported recent harmful alcohol use and cannabis use. The majority of participants reported their family of origin annual income fell in the AUD 50-100k range. In comparison, the average family income for Brisbane in the 2011 census ranged from AUD 78-104k, and Australian incomes rose about 10.5% between 2011 and 2014.

Table 1: Sample Demographics

<table>
<thead>
<tr>
<th></th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family of origin annual income (AUD)</td>
<td></td>
</tr>
<tr>
<td>&lt; $50K</td>
<td>102 (27)</td>
</tr>
<tr>
<td>$50-100K</td>
<td>146 (39)</td>
</tr>
<tr>
<td>$100-150K</td>
<td>83 (22)</td>
</tr>
<tr>
<td>&gt; $150K</td>
<td>46 (12)</td>
</tr>
<tr>
<td>*Family history of mental disorder</td>
<td>238 (49)</td>
</tr>
</tbody>
</table>
Alcohol use past 30 days 292 (82)
Alcohol binge past 30 days 172 (49)
Cannabis use past 30 days 46 (12)

*Average of combined surveys (N= 489), remaining demographics were only collected in Survey one (n=362)

Confirmatory factor analysis of the current CAPE-P15

The three-factor Lifetime CAPE-P15 model [8] performed well with the Current CAPE-P15. While the initial fit approached satisfactory levels without correlating errors, good fit was achieved on all criteria when some error terms were allowed to correlate (Table 1). The total Current CAPE-P15 had high internal consistency (α = 0.84; Corrected item-total correlations ranged .37-.55) (Table 2).

Table 2. Results of confirmatory factor analyses on the current CAPE-P15.

<table>
<thead>
<tr>
<th></th>
<th>RMSEA</th>
<th>CFI</th>
<th>NFI</th>
<th>RFI</th>
<th>IFI</th>
<th>TLI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial three subscales as per lifetime CAPE-P15</td>
<td>.065</td>
<td>.892</td>
<td>.849</td>
<td>.817</td>
<td>.893</td>
<td>.870</td>
</tr>
<tr>
<td>Correlated errors in three subscale CAPE-P15(^{1,2})</td>
<td>.048</td>
<td>.944</td>
<td>.901</td>
<td>.872</td>
<td>.945</td>
<td>.928</td>
</tr>
</tbody>
</table>

The solution allowed intercorrelations between error terms for CAPE-P15 items 10/13, 12/15, 9/4, 14/4, 2/5. RMSEA: Root Mean Square Error of approximation; CFI: Comparative Fit Index; NFI: Normed-fit index; RFI: relative fit index; IFI: incremental fit index; TLI: Tucker-Lewis index.
Table 3. The current CAPE-P15 - 15 questions, 3 subscales

<table>
<thead>
<tr>
<th>Subscales</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perscutatory Ideation</td>
<td>1. *...felt as if people seem to drop hints about you or say things with a double meaning?</td>
</tr>
<tr>
<td></td>
<td>2. ...felt as if some people are not what they seem to be?</td>
</tr>
<tr>
<td></td>
<td>3. ...felt that you are being persecuted in anyway?</td>
</tr>
<tr>
<td></td>
<td>4. ...felt as if there is a conspiracy against you?</td>
</tr>
<tr>
<td></td>
<td>5. ...felt that people look at you oddly because of your appearance?</td>
</tr>
<tr>
<td>Bizarre Experiences</td>
<td>6. ...felt as if electrical devices such as computers can influence the way you think?</td>
</tr>
<tr>
<td></td>
<td>7. ...felt as if the thoughts in your head are being taken away from you?</td>
</tr>
<tr>
<td></td>
<td>8. ...felt as if the thoughts in your head are not your own?</td>
</tr>
<tr>
<td></td>
<td>9. ...ever been so vivid that you were worried other people would hear them?</td>
</tr>
<tr>
<td></td>
<td>10. ...heard your thoughts being echoes back at you?</td>
</tr>
<tr>
<td></td>
<td>11. ...felt as if you are under the control of some force or power other than yourself?</td>
</tr>
<tr>
<td></td>
<td>12. ...felt as if a double has taken the place of a family member, friend or acquaintance?</td>
</tr>
<tr>
<td>Perceptual Abnormalities</td>
<td>13. ...heard voices when you are alone?</td>
</tr>
<tr>
<td></td>
<td>14. ...heard voiced talking to each other when you are alone?</td>
</tr>
<tr>
<td></td>
<td>15. ...seen objects, people or animals that other people can’t see?</td>
</tr>
</tbody>
</table>

*All questions “In the past 3 months, have you.....”

Lifetime and Current versions of the CAPE-P15

A total of 127 participants completed both the Lifetime and Current versions of the CAPE-P15. The mean Lifetime CAPE-P15 total score was greater than the mean Current CAPE-P15 total score. Similarly, the Lifetime PI, BE and PA subscales scores were also higher than the Current subscale scores (Table 4). The Current and Lifetime CAPE-P15 showed strong, positive correlations (Table 5). The strongest relationship was between the Lifetime and Current PI subscales, where more than 50% of the variance was shared.
Table 4. Mean and standard deviations of lifetime and current CAPE-P15 and subscales.

<table>
<thead>
<tr>
<th></th>
<th>Lifetime Mean (SD)</th>
<th>Current Mean (SD)</th>
<th>F (1, 126)</th>
<th>p</th>
<th>$\eta^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total CAPE-P15</td>
<td>23.40 (5.08)</td>
<td>20.56 (4.51)</td>
<td>120.08</td>
<td>&lt; .001</td>
<td>.488</td>
</tr>
<tr>
<td>(range 0 – 45)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceptual Abnormalities</td>
<td>3.52 (1.25)</td>
<td>3.38 (1.00)</td>
<td>12.95</td>
<td>&lt; .001</td>
<td>.093</td>
</tr>
<tr>
<td>(range 0 – 9)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Persecutory Ideation</td>
<td>9.85 (2.23)</td>
<td>8.48 (2.16)</td>
<td>179.14</td>
<td>&lt; .001</td>
<td>.587</td>
</tr>
<tr>
<td>(range 0 - 15)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bizarre Experiences</td>
<td>10.03 (2.88)</td>
<td>8.69 (2.29)</td>
<td>64.73</td>
<td>&lt; .001</td>
<td>.339</td>
</tr>
<tr>
<td>(range 0 - 21)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Wilks’ Lambda = .512, F (1, 126) =120.08 p < .001.

Table 5. Correlations of lifetime and current CAPE-P15, distress and subscales

<table>
<thead>
<tr>
<th>Lifetime CAPE-P15</th>
<th>Current CAPE-P15</th>
<th>C-PA</th>
<th>C-PI</th>
<th>C-BE</th>
</tr>
</thead>
<tbody>
<tr>
<td>L-PA</td>
<td>.640***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L-PI</td>
<td>.664***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L-BE</td>
<td>.720***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>.620***</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

***p < .001 L-PA, C-PA: Lifetime, Current Perceptual Abnormalities; L-PI, C-PI: Lifetime, Current Persecutory Ideation; L-BE, C-BE: Lifetime Current Bizarre Experiences.

Correlates of the Current CAPE-P15 Frequency and Frequency x Distress Scores

As expected, CAPE-P15 Frequency was closely correlated with its total Frequency x Distress score ($r = .842, p < .001$), as were the respective subscale scores (Perceptual Abnormalities: $r = .915$; Persecutory Ideation: $r = .875$; Bizarre Experiences: $r = .900$; p’s < .001). Correlations of the Current CAPE-P15 Frequency and Frequency x Distress scores with psychological distress on the K10 were moderate to strong. The highest correlations were between the K10 score and the CAPE-P15 Total and Persecutory Ideation, and the weakest on Perceptual Abnormalities (Table 6). While the absolute value of the correlation of the K10 with CAPE-
P15 Frequency was slightly less than with its Frequency x Distress Total, that apparent difference was not significant (Fisher’s $Z = 1.43, p = 0.15$).

Weak correlations between higher total scores and both younger age and more frequent alcohol binges were also seen (Table 6). Bizarre Experiences was the only CAPE-15 subscale to have a significant correlation with recent cannabis use, but even after weighting by associated distress, it only accounted for 2.4% of the variance in consumption. No significant relationships of Current CAPE-P15 scores with sex, family history of mental illness or family income were obtained.
Table 6. Correlations for Current CAPE-P15, CAPE-P15F&D and subscales.

<table>
<thead>
<tr>
<th></th>
<th>CAPE-P15 Frequency Scores</th>
<th>CAPE-P15 Frequency and Distress Scores (F&amp;D)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>PA</td>
</tr>
<tr>
<td>Psychological distress (K-10)</td>
<td>.519***</td>
<td>.314***</td>
</tr>
<tr>
<td>Age</td>
<td>-.141***</td>
<td>-.050</td>
</tr>
<tr>
<td>Sex</td>
<td>-.042</td>
<td>-.025</td>
</tr>
<tr>
<td>Recent alcohol binge</td>
<td>.149***</td>
<td>.059</td>
</tr>
<tr>
<td>Recent cannabis use</td>
<td>.072</td>
<td>-.004</td>
</tr>
<tr>
<td>Family History mental illness</td>
<td>-.017</td>
<td>.004</td>
</tr>
<tr>
<td>Income of family of origin</td>
<td>-.061</td>
<td>-.066</td>
</tr>
</tbody>
</table>

* p < .05 (2-tailed)  **  ***p < .001
Discussion

This paper aimed to determine the reliability and validity of a current version of the CAPE-P15 in order to determine if the measure has potential as a screening tool for current PLEs in young people. Confirmatory factor analysis found that the 3-factor structure of the Lifetime CAPE-P15 [8] provided a good fit to the Current CAPE-P15. Correlations between the Lifetime and Current CAPE-P15 and subscales were very high, although (as expected) lifetime scores were higher than those over the previous 3 months.

Although most PLEs are transitory, adverse life events can render individuals vulnerable to persistent PLE as cumulative and high distress can lead to increased emotional reactivity and psychotic experiences [20]. Previous studies have consistently found that the CAPE-P and subscales equivalent to PI, PA and BE demonstrate a strong association with poorer mental health outcomes, including psychological distress and depression and functional impact [12-14, 21, 22]. It was therefore not surprising that the Current CAPE-P15 showed strong relationships with psychological distress and increased alcohol use.

This is the first study to determine whether additional items pertaining to distress associated with PLEs are more strongly associated with psychological distress. All questions had a positive and significant correlation between the CAPE-P15 questions and their associated distress. Using Pearson correlation, the top three questions with the strongest relationship to overall distress were (i) Hearing thoughts being echoed back at you ($r=.598$, $p<.001$) (ii) Feeling as if the thoughts in your head are not your own ($r=.587$, $p<.001$) and (iii) Hearing voices when you were alone ($r=.583$, $p<.001$). Interestingly, combining frequency and associated distress from PLEs did not significantly increase the associations with psychological distress—despite the shared content focus on distress. This effect may be due
to either: (i) generalised distress presenting a risk for more frequent PLEs; or (ii) that generalised distress and PLEs both provide indices of disturbance; or (iii) that indirect influences from PLEs via other variables such as social functioning may contribute to psychological distress. This current study is unable to clarify whether these or other hypotheses account for the negative results.

Large epidemiological surveys have found that up to half the general population meet criteria for one or more lifetime mental health disorders, but only one-fifth carry the diagnosis at any point in time [19]. While this is not the first study to show relationships between PLEs and psychological distress [12-14], it is the first to examine the relationship between recent PLEs and current psychological distress, as previous research only assessed lifetime or past-year PLEs. Lifetime reporting of PLEs is insensitive to change over time and is, therefore, of limited utility in interpreting relationships with current distress or of use in longitudinal or interventional studies.

Substance misuse has also been associated with PLEs that persist and increase over time [20]. The current paper examined the relationships of both a Current CAPE-P and its subscales with recent substance use. While significant relationships in the predicted direction were obtained with alcohol binges, the predicted variance was small and the relationship with cannabis use only reached statistical significance for the BE subscale. These results indicated that, within this sample, both the frequency of current PLEs and the combination of frequency and associated distress were primarily being driven by other factors. This of course does not exclude the likely presence of substantial individual variation in vulnerability to PLEs when using substances. It is difficult to interpret why substance use was more significantly related with the BE subscale than with PA and PI.
Regardless, we would argue that the small absolute differences in correlation values should not be over-interpreted.

The small negative relationships of PLEs with age were consistent with previous longitudinal studies that observed reductions of self-reported PLEs with increasing age [23]. The lack of a relationship of PLEs with a family history of mental disorder was surprising, although that variable was assessed only by a single self-report question, which was subject to the participant’s awareness and willingness to report it. An absence of relationship with family income should also be interpreted with caution, given that the sample was skewed towards higher incomes than the general population.

Limitations of the study include recruitment of a sample that was self-selected and derived only from a university population. Most were female and their family income confirmed a bias to higher socioeconomic status. Because the survey was conducted online, response rates are unable to be estimated. It is also possible that some respondents may have completed the survey more than once, or that they participated in both studies although the studies were conducted in different universities. However, a check on email addresses that were entered by respondents did not find any identical addresses either within or between studies. While rates of PLEs were similar to those from other cross-sectional samples of young people, replication in a sample that is more clearly representative of the general community would increase confidence in the results.

In order to detect people with current PLEs and measure changes in PLEs over time, a sound current measure is essential. This study provides important preliminary data on the robust internal structure of the Current CAPE-P15 and its relationship to generalised distress. Further support for the utility of the measure will be obtained by replication of the current
results in a representative sample, examination of the measure’s sensitivity to change and further data on its predictive validity, including its relationship to social and educational or vocational functioning. This study provides a sound basis for such a research program.
Statement of Contribution of Co-Authors for Thesis by Published Paper

The following is the format for the required declaration provided at the start of any thesis chapter which includes a co-authored publication.

The authors listed below have certified* that:

1. they meet the criteria for authorship in that they have participated in the conception, execution, or interpretation, of at least that part of the publication in their field of expertise;
2. they take public responsibility for their part of the publication, except for the responsible author who accepts overall responsibility for the publication;
3. there are no other authors of the publication according to these criteria;
4. potential conflicts of interest have been disclosed to (a) granting bodies, (b) the editor or publisher of journals or other publications, and (c) the head of the responsible academic unit, and
5. they agree to the use of the publication in the student's thesis and its publication on the QUT ePrints database consistent with any limitations set by publisher requirements.

In the case of this chapter:

Chapter 5- paper 3 "The current CAPE-P15: A measure of recent psychotic-like experiences and associated distress".

<table>
<thead>
<tr>
<th>Contributor</th>
<th>Statement of contribution*</th>
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<tbody>
<tr>
<td>Carina Capra</td>
<td>wrote the initial draft of the manuscript, wrote the experimental design, conducted the survey and did all the data analysis</td>
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<td>3/3/2015</td>
<td>Date</td>
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<tr>
<td>Prof David Kavanagh</td>
<td>aided experimental design, reviewed the data analysis and reviewed the manuscript and discussion section.</td>
</tr>
<tr>
<td>Aspro Leanne Hides</td>
<td>aided experimental design, reviewed the data analysis and reviewed the manuscript</td>
</tr>
<tr>
<td>Dr James Scott</td>
<td>aided experimental design, reviewed the data analysis and reviewed the manuscript</td>
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</table>
Principal Supervisor Confirmation

I have sighted email or other correspondence from all Co-authors confirming their certifying authorship.

[Signature]

Name: David Kavanagh

Date: 3/3/2015
5.3 Commentary

The current CAPE-P15 was found to have a high level of internal consistency and a stable internal structure. Current PLEs were significantly associated with the overall level of psychological distress. There is substantial evidence to support the contention that PLEs cause great distress and confer an elevated risk of further mental health difficulties. However, our results would suggest that assessing the level of distress associated with PLEs in addition to the frequency of PLEs did not strengthen the association with overall psychological distress. That is, if there is a high frequency of experiencing PLEs, then there is a high likelihood of being psychologically distressed, when measured by the CAPE-P15. It is not necessarily the associated distress of the specific PLEs that effects overall psychological distress.

A screening tool can be used to engage people with PLEs to seek further support. Intervention for those with a high frequency of PLEs may reduce their distress however there has been no previous research into the use of screening tool linked with suitable PLE interventions. Intervening early without pathologising could be useful – especially if it reduces a poorer developmental trajectory. In order to develop this platform, we need to first understand which psychological interventions may be useful in this non-help seeking group. A systematic review of targeted psychological interventions to reduce PLEs and distress for young people would address this question.
Chapter 6: Psychological treatments for PLEs

Preamble

Chapter 6 is a continuation of the literature review. Chapters 3-5 have outlined the psychometric properties of the CAPE-P15 and demonstrated a strong significant association between psychological distress and suicidal risk, especially in the PA and PI subscales. The next application for research would be: (i) could the CAPE-P15 be used as a tool to detect and engage those reporting frequent PLEs with intervention? and (ii) would early intervention be effective?

Context and Foci of Early Interventions

Epidemiological data indicates 75% of people suffering from a psychiatric-disorder have experienced its onset by 24 years of age (Kessler, Berglund et al., 2005). In Australia, the prevalence of mental health among adolescents aged 13-17 years is 19%, rising up to 27% among young adults aged 18-24 years (Australian Bureau of Statistics, 1997; Statistics, 2008). Thus, up to one in four of Australia’s youth are likely to be suffering from mental ill health at some stage in their lives. Increasing rates of drug abuse, drug-related offending and the increasing contribution of substance abuse to suicide are special sources of concern (Cecil, Viding, Barker, Guiney, & McCrory, 2014). Mental illness is a serious life event that can threaten self and identity, valued goals and roles, and social status. Its occurrence during adolescence and young adulthood has particularly important implications for later life, because these goals and social roles are at a critical stage of formation, and interference
with education can have long-term effects on employment and related earnings and social status. Associated with mental health disorders among youth are unemployment and interruptions to education and work experiences and school failure, as well as poor family and social functioning (McGorry, Purcell, Hickie, & Jorm, 2007). An obvious approach to reduce the profound and wide-ranging impacts of psychological disorders is to identify affected or at-risk individuals at an early age, and provide prompt, effective (and non-stigmatizing) treatment.

Developmental growth is best viewed as the result of ongoing interactions among biological, psychological and sociocultural variables, the effect of which may be direct or indirect (Mendes, de Souza Crippa, Souza, & Loureiro, 2013). For example, experiences provided by the environment are not independent of the child. The child’s behaviour is a strong determinant of their subsequent context. Prevention and early intervention is informed by developmental epidemiology, which aims to incorporate the principles of developmental psychopathology into epidemiology (Costello, Foley, & Angold, 2006): that is, to understand the mechanisms by which developmental processes affect the risk of developing specific psychiatric disorders and to propose preventative strategies appropriate to the various stages of that risk (McGorry et al., 2007). This approach requires that attention is given to the timing of the onset of disorders and recognition that the relationship between causes and outcomes vary across the span of development.

Strong evidence supports this multifactorial causation of mental disorders in young people (Kieling et al., 2011). Risk factors are defined as any influences that increase the probability
of onset, regression to a more serious state or maintenance of a problem condition (Cecil et al., 2014; Kieling et al., 2011). Risk processes refer to the mechanisms whereby a risk factor contributes over time to heightened vulnerability (Mendes et al., 2013). Risk factors can be classified into risk traits, contextual risks and stressful life events (Cecil et al., 2014; Kieling et al., 2011; McGorry et al., 2007; Mendes et al., 2013). Genetic markers are often thought of as risk traits. Contextual effects are environmental conditions, such as poverty, that have both direct and indirect effects on overall risk. Contextual effects often appear to be mediated by variables at the family and individual levels. As argued above, no single factor is typically responsible for a negative outcome. Rather, interactional processes shape behaviours and problems over time (Cecil et al., 2014; Mendes et al., 2013).

In contrast to risk factors, protective factors refer to conditions that improve a person’s resistance to risk factors and disorders (Hemphill, Tollit, & Herrenkohl, 2014; Tanner, Hasking, & Martin, 2013). Developmental psychologists have long been interested in the possible links between early and later social, emotional and intellectual behaviours (Ahmed & de Jesus Mari, 2014). While both change and continuity can be anticipated throughout an individual’s life, specific outcomes probably vary with the behaviour observed, as well as other variables such as gender and environmental demands for change or stability. It is anticipated that there are multiple contributors to disordered outcomes in any individual and that the contributors vary among individuals who have a specific disorder, despite the fact that there may be homogeneity in the features of the disturbance. A direct correlation between the number of risk factors accumulated and the number of psychiatric diagnoses has been found (Mendes et al., 2013). Specific forms of dysfunctions are typically
associated with many different risk factors rather than with a single risk factor and the salience of risk factors may fluctuate developmentally.

Early intervention for PLEs

Early intervention in mental disorders is a proactive process of screening, case identification (that is, early detection) and the provision of effective and early interventions (Rickwood & d’Espaignet, 1996; Rickwood, Deane, & Wilson, 2007), which aim to address risk factors for disorders and amplify protective factors. It contrasts with interventions for early signs of recurring mental disorder, best referred to as ‘relapse prevention’ or ‘relapse reduction’. Early interventions need to be tailored for early phases of disorder, rather than being an attempted translation of treatments developed for later stages or for persistent disorder (McGorry et al., 2007). Early intervention for PLEs has the potential to arrest the progression of mental health and substance use disorders and to prevent further functional decline adversely impacting relationships, key educational, psychosocial and developmental milestones (McGorry & Yung, 2003; Rickwood et al., 2007). As we later argue, it may also have the aim of reducing current distress, and have potential to address the risks of non-psychotic disorders and suicidality.

An issue in the delivery of indicated prevention for mental disorders is that young people tend to be poorly informed about mental illness, including depression, anxiety and psychosis (Davis, Martin, Kosky, & O'Hanlon, 2000). Less than a third of young people with mental health or substance use problems seek professional help, instead turning to their peers and
key adults in their lives (parents and teachers) for help, despite evidence of poor mental health literacy amongst these groups (Jorm, Wright, & Morgan, 2007).

Barriers to seeking mental health treatment in young people include the stigma associated with mental disorders, particularly psychosis, together with young people’s perception that these services are not culturally appropriate or youth-friendly (Davis et al., 2000). Young people seeking help for subclinical PLEs are also likely to be turned away from mental health services as their problems may not be seen as serious enough (Rickwood et al., 2007).

While the establishment of headspace, the Youth Mental Health Foundation’s nation-wide primary care service, has done much to increase young people’s access to treatment, the pathway to effective care may not be clear for young people and their families.

Despite the large body of work that has emerged in the past 10 years linking PLEs to a broad range of mental health problems (Saha, Scott, Varghese, & McGrath, 2011; J van Os et al., 2009; Welham et al., 2008), our initial literature search showed that studies focusing on psychological interventions for PLEs were limited.

Most existing publications on this general area have examined people who meet criteria for ultra high risk (UHR). However patients in the UHR group differ from those with PLEs by being a help seeking group, with more frequent and distressing symptoms and associated impairment. A systematic review of psychological interventions for the UHR group concluded that more sophisticated interventions (such as controlled CBT) did not show substantial additional benefit over control treatments other than a more rapid resolution in positive psychotic symptoms (Hutton & Taylor, 2014). Distress caused by PLEs and any associated poor functioning was not improved with CBT. Apparent improvements in UHR
studies from both intervention and control treatments may reflect spontaneous recovery but are more likely to suggest that a range of mental health interventions may reduce psychotic-like symptoms and distress. However, studies on UHR to date have primarily focused on the outcome of transition to psychosis rather than distress or functioning: with a greater focus on the latter outcomes, different results may be seen. In fact, simple psychological support offering components, such as psychoeducation, stress management and problem solving, were as effective as CBT.

Despite the large number of publications on the incidence and prevalence of PLEs, few studies have examined psychological interventions to address them and no review exists of these interventions. This thesis undertook to fill this gap in the literature by conducting a comprehensive review of psychological interventions for PLEs to identify which interventions may be effective for reducing PLE frequency and distress. This chapter offers the first body of work that has examined the effectiveness of psychological interventions for PLEs.

Paper 4

Capra, C., Kavanagh, D. J., Hides, L., & Scott, J. Systematic Review of Psychological Interventions for Psychotic-Like Experiences (PLEs). In Submission.
Systematic Review of Psychological Interventions for Psychotic-Like Experiences (PLEs)

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Text: 2444
Abstract: 196
Abstract

Objective: Psychotic-like experiences (PLEs) in young people are common, and are important markers for current and future mental disorders. There is substantial research on the epidemiology of PLEs, and on their demographic and clinical correlates, environmental risk factors and clinical outcomes. However, there did not appear to be existing reviews of interventions for PLEs. Accordingly, this paper describes a systematic review of studies addressing interventions for PLEs and their associated distress.

Method: A search was conducted using Medline, Pubmed, PsychoINFO and CINAHLplus electronic databases from 2000 to June 2014, and a critical review of psychological interventions for PLEs was undertaken.

Results: There is a lack of evidence-based interventions that specifically target psychological interventions for PLEs, with only two published studies identified. Results suggested that mindfulness and cognitive-behavioural therapy (CBT) may reduce distress associated with PLEs, but neither study offered the methodological rigour of a high-quality, randomised controlled trial.

Conclusions: There is insufficient evidence to make definitive conclusions about specific psychological interventions for PLEs. The paucity of relevant trials represents an important unmet need in mental health research. We propose that research now shift its primary focus from describing the epidemiology of PLEs to trials of interventions for PLEs and their associated distress.

Key words: psychotic-like experiences/ interventions/early intervention/
Summations

- Despite the robust body of evidence demonstrating the association of PLEs to a broad range of mental health problems, there is little research on interventions for PLEs.
- No study to date has used rigorous methodology to demonstrate the effective of interventions for people with PLEs.

Considerations

- The lack of high-quality trials to address PLEs and associated distress represents an important unmet need in mental health research.
- Addressing distress in people with persistent PLEs may prevent the poor mental health outcomes often seen in that group.
- Simple approaches involving psychoeducation and problem solving may have promise in reducing distress associated with PLEs.
Introduction

Psychotic-like experiences (PLEs)—odd or unusual thoughts or perceptual experiences (analogous to delusional ideas and hallucinations) (Scott et al., 2006; Wigman et al., 2011)—are commonly reported by adolescents and young adults, with community surveys typically finding rates of 6-20% (Nishida et al., 2008; Scott et al., 2008; Yung et al., 2006). Unlike clinical psychotic symptoms, most PLEs are intermittent, infrequent and cause little distress (Armando et al., 2010; Kendler, Gallagher, Abelson, & Kessler, 1996; R. Kessler, Birnbaum et al., 2005; Scott et al., 2008). In fact, a meta-analysis by van Os et al (2009) concluded that 75–90% of PLEs are transitory.

There is debate as to whether PLEs are non-specific markers of psychological distress, or represent the milder end of a phenotypic continuum of psychosis (Saha, Varghese et al., 2011; N. Stefanis et al., 2004; J van Os et al., 2009; Varghese et al., 2008). PLEs do share genetic, sociodemographic, environmental and biological risk factors with schizophrenia (Kelleher & Cannon, 2011), and longitudinal studies suggest they are predictors of future psychosis risk. The Dunedin birth cohort study reported a 16-fold greater risk of adult schizophreniform disorder (Odds Ratio (OR) and 95% Confidence Interval (CI): 16.4 ; 3.9-67.8) (Poulton et al., 2000) for those that reported childhood PLEs and Welham et al. (Welham et al., 2008) reported that hallucinations at 14 years significantly increased the risk of non-affective psychosis at age 21 (OR and 95% CI: Males 5.09; 2.18-11.8; Females 2.27; 1.01-5.12).
However, it is now clear that PLEs are also risk factors for a broad range of current and future mental health problems other than psychosis. Those who report PLEs are more likely to be distressed, suffer from anxiety or depressive disorders, misuse cannabis, and be at increased risk of self-injury and suicidal behaviour (Dhossche et al., 2002; Saha, Scott, Johnston et al., 2011; Saha, Scott, Varghese, & McGrath, 2011; J van Os et al., 2002a). For example, a 38-year follow-up of the Dunedin birth cohort study found that children who reported PLEs were at increased risk of developing not only schizophrenia (relative risks (RR) and 95% CI: 3.03; 1.33-6.89), but also post-traumatic stress disorder (8.82; 1.67-8.75) and suicide attempts (RR and 95% CI: 8.82; 1.67-8.75) (Fisher et al., 2013).

Treatment research has typically focussed on ‘identified’ clinical populations, where participants meet specific criterion for “ultra-high risk” (UHR) for psychosis. PLEs overlap with the attenuated psychotic symptoms, however, patients in the UHR group differ from those with PLEs by being a help seeking group, with more frequent and distressing symptoms and associated impairment. A recent systematic review and meta-analysis of six trials on cognitive-behavioural therapies (CBT) for psychosis prevention in UHR samples (Hutton & Taylor, 2014; Stafford, Jackson, Mayo-Wilson, Morrison, & Kendall, 2013) found significant benefits over control conditions at both 6 months (using fixed effects, RR = .47, p = .008), and 12 months (RR = .40, p = .0001). Critically, the studies on UHR to date have primarily focussed on transition to psychosis rather than associated distress or functioning. However, Hutton and Taylor (Hutton & Taylor, 2014) further reported a secondary analysis of UHR studies that reviewed the impact on distress and functioning as well as symptom frequency. Reductions in the symptom frequencies and distress of patients enrolled in UHR
studies were found in both intervention and control treatments. These apparent improvements may reflect spontaneous recovery, but also may be a result of mental health interventions mitigating distress.

Reductions in distress and symptom frequency may be especially important in PLEs, where the risk of frank psychosis is lower than in UHR. However, we were unable to locate an existing systematic review of the impact of treatments on either the frequency of PLEs or associated distress. Given the emerging evidence supporting the association of PLEs with current and future mental health outcomes, we aimed to systematically review the current evidence on the efficacy of psychological interventions targeting reduction in PLEs and associated distress and functional impairment.

Method

Data Collection

A literature search was conducted in June 2014, in accordance with PRISMA guidelines (Liberati et al., 2009). The search aimed to identify all studies on interventions for clinical or community samples of people experiencing PLEs with any form of non-pharmacological treatment modality, delivered to a non-clinical sample (defined as participants who were not seeking help, who had symptoms that were not as intense or frequent as in clinical samples). The search terms were: ('hallucination*' or 'delusion*' or 'psychotic-like experience*' or 'subthreshold psychotic symptoms') AND (treatment* or intervention* or therapy* or therapies).
Full text and Medical Subject Headings (MeSH) terms were searched in Pubmed, PsychINFO, Medline and CINAHLplus. The search was then refined to the years 2000-2014. Backward and forward search strategies were used to identify any other relevant publications. Abstracts of identified papers were screened for satisfaction of inclusion criteria, and the full text of potentially included studies was then reviewed before a final decision on inclusion. The literature search was undertaken by the first author (CC), and decisions on final inclusion of studies were reached by consensus between all authors.
Figure 1 – PRISMA flow diagram showing process of study selection for inclusion of interventions for PLEs.

- **Identification**: records identified through database searching (n = 615) & additional records identified through other sources (n = 1)

- **Records after duplicates removed**: (n = 585)

- **Screening**: records screened (n = 300)
  - Records excluded (n = 309)

- **Eligibility**: full-text articles assessed for eligibility (n = 17)
  - Studies included in qualitative synthesis (n = 2)
  - Studies included in quantitative synthesis (meta-analysis) (n = 0)

- **Included**: full-text articles excluded, with reasons (n = 15)
  - No interventions: Either assessment of PLEs or description of interventions but no trial or cross sectional data (n = 7)
  - Not PLEs, rather UHR group or long term symptoms (i.e., chronic hallucinations) (n = 7)
  - Only a biological intervention (n = 1)
Results

Psychological interventions for PLEs

The search strategy yielded 615 abstracts, of which 17 were retained for further examination. Seven did not describe any intervention, another seven met UHR criteria or were long term hallucinations (i.e. not a PLEs group) and one was excluded as they only used pharmacotherapy. Only two papers reported outcomes of an intervention for people with PLEs (Figure 1). One study focused on hallucinatory experiences (Langer, Cangas, & Gallego, 2010) and the other described a cognitive-behavioural therapy (CBT) intervention for PLEs in children (Maddox et al., 2013). Since the number of studies did not allow for formal quantitative analysis, a narrative review is presented.

Langer, Cangas and Gallego (Langer et al., 2010) examined a sample of Spanish university students who ‘scored positive’ on hallucinatory experiences (not defined) and reported a score ≥ 5 on Revised Hallucinations Scale (RHS) (Morrison, Well, & Nothard, 2000). Anxiety, perceptual disturbances, distress and intrusive thoughts were measured at Baseline, Post Intervention (8 weeks) and at 24 weeks post-Baseline, using the RHS. Participants enrolled in the study for university course credit. Sixty-three students met inclusion criteria, and 38 completed the entire study, including follow-up data. No CONSORT diagram was presented (Liberati et al., 2009). Participants were allocated in a quasi-random procedure, alternating allocation to experimental (n = 18 completers) and control groups (n = 20 completers). No procedure for blinding of participants or raters was reported. The control group attended eight 1-hour sessions where they viewed and discussed an educational video on a social or cultural topic. The intervention group attended eight 1-hour sessions of mindfulness-based
cognitive therapy, which included body scanning, mindful breathing, stretching exercises, and sitting meditation. They were given a CD on body scanning and sitting meditation. While homework sheets were given, no details of requested or completed home practice were reported.

At post-intervention, there was a differential reduction in hallucination-related anxiety (rated on a 1-10 severity scale) in the intervention group \( (p = .022; d = .88) \), which was maintained at 6 months \( (p = .048; d = .91) \). No differential effects on distress ratings, vivid daydreams, visual perceptual disturbances or intrusive thoughts were observed. However, it is likely that baseline scores on the PLEs were low, if (as it appears) a participant could be included if they checked only one PLE item: The resultant floor effect may have inhibited opportunities to differentiate improvements in PLEs between the intervention and control groups.

This study did not meet minimum methodological criteria for a randomised controlled trial. Its inclusion criteria were poorly defined, it relied on alternating allocation, and had unknown rates of session completion and homework practice. It did not appear to have blind assessment, only analysed results on completers, and did not report mean scores on each occasion of measurement. The only significant effect was on self-reported anxiety, using items with unreported rating endpoints and unknown psychometric characteristics. While the intervention and control groups had equal contact time, the intervention involved significant participation during sessions, and provided handouts, audio materials of the
intervention components and a recording sheet for home practice, whereas the control group was limited to viewing and discussing videos.

The other paper (Maddox et al., 2013) reported a case series on manualised individual CBT intervention (maximum 20 x up to 45 minute sessions) in four children aged 10-12 years (median = 11). Children were selected from a convenience sample identified from a larger community survey of PLEs in school children conducted in the United Kingdom, specific information on the intervention site was not provided. The children had reported at least one PLE and a distress score on the Strengths and Difficulties Questionnaire (SDQ) (Goodman, 2001) in the highest 20% in a school survey conducted 4-14 months previously. The focus was on improving mood and reducing emotional distress, as well as enabling children to develop an understanding of, normalize and cope with PLEs. Additional baseline information such as the student’s academic performance and IQ were not provided. The intervention also trained problem solving skills aimed at enhancing resilience. Sessions focused on engagement and assessment, psychoeducation about PLEs and distress, goal setting, cognitive and behavioural coping strategies, problem solving, normalizing PLEs, and maintaining treatment effects. Therapists addressed the issue of stigma and attempted to create a delicate balance between providing information to reduce distress with having PLEs, while avoiding a focus on explicit information regarding the future risk of poor mental health outcomes.

The intervention was delivered over 6-15 sessions, and the study measured outcomes at baseline, mid-therapy (undefined) and post-therapy, using an independent assessor (it is
unclear if they were blinded). No formal statistical analyses were undertaken, but effect sizes for each outcome measure and individual reliable change indices were reported for each participant, in addition to a descriptive case report. Outcomes for all participants were positive, with effect sizes for reductions in emotional distress on the SDQ ranging from 1.64 to 3.28 (M = 1.73). The fall in PLEs (over the 9 items, from 0, not true, to 2, certainly true) and in distress or interference (from 0, no distress or interference to 2, both) had average effect size of 1.20 and 1.89 respectively. The impact of PLEs by the endpoint was reported as zero for all four cases, but all reported some continuing presence of the PLEs themselves (Range: 1-6, Median = 1.5). These results were consistent with the intervention’s primary focus on distress and functioning associated with the PLEs. Consistent with the quantitative results, two participants said that the intervention was useful, in reassuring them they weren't "going crazy".

Overall, this pilot study demonstrated strong clinical results, and the fact that none of the children had previously discussed experiencing PLEs with anyone supports the need for a focused intervention. However, the study had no control treatment, allowing effects to potentially be attributed to spontaneous recovery or nonspecific effects. The treatment also required a significant commitment from a caregiver, to volunteer and attend a lengthy treatment program, and in fact, families and participants were described by the authors as "enthusiastic". A larger sample that included some participants with weaker initial engagement would be required to demonstrate the practicality of opportunistic delivery to populations experiencing PLEs.
Discussion

This paper aimed to review the evidence for psychological interventions that reduced symptom severity and distress for individuals with PLEs. Publications that specifically focussed on current evidence for interventions targeting PLEs were limited, despite the large body of work that has emerged in the past 10 years linking PLEs to a broad range of mental health problems (Saha, Scott, Varghese, & McGrath, 2011; J van Os et al., 2009; Welham et al., 2008). There is a lack of evidence-based interventions that specifically target PLEs, with only two published studies using CBT and mindfulness based approaches identified. Neither study offered the methodological rigor of a high-quality, randomized controlled trial. This paucity of published intervention studies for people with PLEs represents an important unmet need in youth mental health.

There are several reasons why this area of research is so meagre. Notably, PLEs are mostly benign and transitory thus they may resolve quickly. Thus, people experiencing PLEs may be seen to be at lower priority for receipt of mental health interventions, and related research may be seen as lacking sufficient applied significance. However, community youth surveys show at least 40% of people with PLEs report emotional problems in the clinical range (Laurens et al., 2012) suggesting a need for evidence-based interventions. Relevant samples may also be difficult to obtain for research trials. While PLEs are common in adolescents and young adults, less than a third of this age group with mental health or substance use problems seek professional help (Jorm et al., 2007). Stigma remains an ongoing barrier to help seeking. The experiences of paranoia and perceptual disturbances
are intricately linked with diagnostic labels of schizophrenia and it is likely that many people with PLEs are concerned that they may be found to suffer from a severe disorder.

The same factors that may be inhibiting research may also be operating to inhibit people with PLEs from receiving services. Those who overcome stigma sufficiently to seek professional help from mental health services are unlikely to be eligible due to the transient nature of PLEs. For example, while a recent community study (n=7266) found people with PLEs were 2-3 times more likely to seek emotional support or treatment than those without them, only 13% were able to access counselling or other therapy (Murphy et al., 2012). Given the risk of significant distress and suicidal ideation, such results are of concern, and further substantiate the need for intervention trials that both demonstrate the efficacy and treatment and highlight the benefits of delivering it.

PLE research has rapidly evolved, with numerous studies published within the last decade. However, these publications have mostly described the epidemiology, demographic and clinical correlates, environmental risk factors and clinical outcomes for PLEs (Saha, Scott, Varghese, & McGrath, 2011; J van Os et al., 2009; Welham et al., 2008). Effective interventions for those with PLEs that are persistent or associated with distress are required. Whether it is beneficial to specifically target PLEs and/or the mental heath symptoms often associated with them is yet to be determined.
Given that most PLEs are transitory, and there are intervention barriers pertaining to access and stigma for youth experiencing PLEs, any intervention needs to be affordable, accessible and acceptable to young people. Those who meet a UHR criteria have been shown to benefit from non-specific psychological support and specialised and targeted CBT in reducing frequency of positive psychotic symptoms and distress (24, 25). In light of this information, we propose that computers or mobile electronic devices may be used to deliver an intervention incorporating psychoeducation, and components such as psychological support and mindfulness whilst screening for suicidality and other serious psychopathology. Online-based treatments provide an accessible alternative to mainstream health services for young people. They are mostly anonymous, less stigmatizing and readily available and disseminate preventative mental health programs (Burns, Webb, Durkin, Hickie, & . 2010; Christensen, Griffiths, & Korten, 2002). Seventy-one percent of Australian youth (N= 3746) report online and mobile services more helpful than mental health services, though not as helpful as counselling (Oh, Jorm, & Wright, 2009). An online program targeting PLEs would provide a non-stigmatising, low-cost option for reducing the frequency of PLEs and associated distress, which would be accessible anywhere, and at any time that it was needed (Scott et al., 2006; J van Os et al., 2009). The development and examination of effectiveness of such an intervention is a logical step to progress this area of research.

An important limitation of the current review was that the literature search was undertaken by only one author (CC), however, strict search guidelines were adhered to in identifying the articles. Furthermore, consensus was reached by three authors (CC JS and DK) as to which articles should be included for in-depth critical analysis. This systematic review of
psychological interventions for community samples of people experiencing PLEs only focused on research conducted between 2000 and 2014. While the body of work on psychosis proneness dates back to the 1980s, community based studies on PLEs did not emerge until the new millennia (Hanssen, Bijl, Vollebergh & van Os, 2003). The seminal work of Escher and Romme, provided some important insights into interventions for chronic hallucinations (Romme& Escher, 1989; Romme, Honig, Noorthoorn & Escher, 1992). However, interventions studies on PLEs only began to emerge in 2009, as indicated by the current review.

Conclusions

Despite advances in understanding the epidemiology, risk factors and outcomes of PLEs and in particular, their relationship with current and future mental health problems, no intervention studies with methodological rigour have been undertaken to date. There is an urgent need for research to shift from observational to interventional studies in order to capitalise on the appreciation of the psychopathological significance of psychotic-like experiences.
Statement of Contribution of Co-Authors for Thesis by Published Paper

The following is the format for the required declaration provided at the start of any thesis chapter which includes a co-authored publication.

The authors listed below have certified* that:

1. they meet the criteria for authorship in that they have participated in the conception, execution, or interpretation, of at least that part of the publication in their field of expertise;
2. they take public responsibility for their part of the publication, except for the responsible author who accepts overall responsibility for the publication;
3. there are no other authors of the publication according to these criteria;
4. potential conflicts of interest have been disclosed to (a) granting bodies, (b) the editor or publisher of journals or other publications, and (c) the head of the responsible academic unit, and
5. they agree to the use of the publication in the student's thesis and its publication on the QUT ePrints database consistent with any limitations set by publisher requirements.

In the case of this chapter:

Chapter 6 – paper 4 “Systematic Review of Psychological Interventions for Psychotic-Like Experiences (PLEs)”

<table>
<thead>
<tr>
<th>Contributor</th>
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<tr>
<td>Carina Capra</td>
<td>wrote the initial draft of the manuscript, conducted the systematic review and read the literature</td>
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<td>Prof David Kavanagh</td>
<td>Reviewed the analysed papers and reviewed/ revised the manuscript</td>
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Principal Supervisor Confirmation

I have sighted email or other correspondence from all Co-authors confirming their certifying authorship.

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Date: 3/3/2015

Name
6.3 Commentary

While significant advances in our understanding of PLEs and their relationship with current and future mental health problems have been made in the past decade, a systematic search of the literature identified few studies that examined suitable interventions for PLEs. This represents an important unmet need in youth mental health. Simple psychological interventions for reducing PLEs need to be developed and trialled to determine whether they reduce PLEs and their associated distress, as well as the risk of other adverse behaviours, such as increased substance use and suicidal risk (Chapter 4) and associated psychological distress (Chapter 5).

Enabling young people to identify PLEs and then seek appropriate treatments remains an unmet service need. Engaging young people is important with stigma remaining an ongoing barrier, especially in relation to PLEs. The experiences of paranoia and perceptual disturbances are intricately linked with diagnostic labels of schizophrenia and it is likely that many of those who experience PLEs are reluctant to seek help. PLEs are mostly benign and transitory and may therefore resolve quickly, negating the need for intensive or assertive mental health intervention. However, community youth surveys show that while the majority who report PLEs are not currently distressed nor impaired by them, at least 40% report emotional problems in the clinical range (Laurens et al., 2012).

While PLEs are common in adolescents and young adults, less than a third of young people with mental health or substance use problems seek professional help (Jorm et al., 2007).
Those with PLEs that seek professional help from mental health services are unlikely to be eligible due to the transient nature of these experiences. For example, while a recent community study (n=7266) found that people with PLEs were 2-3 times more likely to seek emotional support or treatment than those without them, only 13% were able to access counselling or another therapy (Murphy et al., 2012). Even if PLE interventions can be shown to be effective, there will be significant challenges in engaging young people with PLEs. While the studies reviewed in this paper showed that young participants did find the interventions acceptable, no study to date has demonstrated large-scale effective opportunistic engagement of community members with PLEs.
Chapter 7: Feasibility study of high risk PLEs and engagement in an e-based trial for reducing PLEs –GetReal

Preamble

Chapter 7 is looking towards the next application of the current CAPE-P15, that is the useability of the CAPE-P15 tool to enable those with the highest reported frequency of PLEs to participate in a program aimed to reduce the frequency of PLEs and associated distress.

An online program targeting psychological interventions to reduce PLEs has been developed. GetReal is a free online treatment program for people who are having odd or unusual experiences (access to GetReal, for both users and clinicians can be found at: https://www.ontrack.org.au/web/ontrack/programs/get-real). GetReal has, as a main objective, to teach coping strategies for managing stress, PLEs and psychological distress and facilitate appropriate help seeking (see Appendix for a small selection of screen shots from the GetReal program that focus on: (i) normalising PLEs, (ii) identifying triggers, (iii) video clips to look at things that may help, (iv) strategies to reduce stress and (v) help seeking options).

As Chapters 3-5 have demonstrated, there is an association between those with higher reported frequency of PLEs and their increased risk of adverse outcomes. In the context of
this thesis, the question is now raised - Would this higher risk group self-select to participate in an early intervention program?

Paper 5

Capra, C., Kavanagh, D. J., Hides, L., & Scott, J. (2015). The uptake of an online psychological intervention program targeting Psychotic-like Experiences (PLEs). *In Submission*
The utilisation of an online psychological intervention program targeting Psychotic-like Experiences (PLEs)

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Text: Abstract: 267 words.

Key words: Psychotic-like experiences, on-line interventions, CAPE-P15, psychological interventions
Abstract

Objective: Psychotic-like experiences (PLEs) are common in young people and are associated with both distress and adverse outcomes. This was a feasibility study to determine if non-help seeking young people with frequent PLEs would volunteer to engage in an online e-based health program (GetReal) designed to reduce PLEs.

Method: Two cross-sectional online surveys of university students (17-25 years) completed the Community Assessment of Psychic Experiences-15 (CAPE-P15) assessing PLEs. The 90th percentile and above was defined as the target “high” group. Chi-square test for independence was used to determine if interest in GetReal was associated with those reporting more symptoms and if this differed between the University samples.

Results: 359 participants completed Survey 1 and 127 completed Survey 2 (n= 486 in total). The mean age was 20 years across both surveys and 80% and 84% of participants were female, respectively. Fifty-seven participants met the criteria for the ‘high’ category of the CAPE-P15 across both samples. Two-thirds of the target high group across both samples who reported PLEs in the top 10% indicated an interest in the program.

Discussion: This study supports using the CAPE-P15 to screen high risk young people to self-select to participate in a trial of GetReal. Those reporting both a high frequency of PLEs and high distress were much more likely to volunteer their participation into the intervention program targeting PLEs. The results suggest young people most in need of an intervention tool would select to participate. Strategies focussed on attracting a large population of young people to use the screening tool could result in a large uptake of an e-based treatment program.
Introduction

Psychotic-like experiences (PLEs)—odd or unusual thoughts or ideas including paranoid beliefs and perceptual experiences—are common in young people. Community surveys have found the prevalence of PLEs in young adults to be 6-20% (Nishida et al., 2008; Scott et al., 2008; Wigman et al., 2011). Unlike clinical psychotic symptoms, 75–90% of PLEs are transitory (van Os et al., 2009) and most are infrequent and cause little distress. However, those with more frequent and persistent PLEs have been associated with poorer mental health outcomes, including anxiety or depression, and are at greater risk of cannabis misuse, self-injury and suicidal behaviours (Fisher et al., 2013; Saha, Scott, Johnston et al., 2011; Thapar et al., 2012; Varghese et al., 2011).

Targeted early intervention programs may reduce the frequency of PLEs and the level of distress of symptoms, as well as their associated morbidity (McGorry & Yung, 2003). Many young people find mental health services are not culturally or youth friendly and may not see them as relevant to their needs. Web and mobile phone-based programs provide an accessible alternative to mainstream mental health services for addressing PLEs in young people. Mental health services do not have the capacity to provide care for all young people with PLEs, nor would this be appropriate. There is now a large and growing body of research about e-health approaches to mental health promotion, prevention, early intervention and treatment. These have the potential to be anonymous, less stigmatizing and readily and conveniently accessible, with information available 24 hours a day and able to be self-paced. The internet provides an excellent way of disseminating preventative mental health programs (Christensen et al., 2002). An Australian survey found that 71% of
respondents (3,746, 12-25 years old) reported websites and books more helpful than mental health services, though not as helpful as counselling (Oh et al., 2009). Web-based self help and interactive cognitive based therapy treatment programs provide useful and appropriate information to help young people, improve their mental health literacy, reduce psychological distress and improve problem solving and help-seeking behaviours (Burns et al., 2010; Christensen et al., 2002)

An online program targeting PLEs would provide the large number of young people experiencing PLEs with an accessible, non-stigmatising, and cost-effective option for reducing the frequency of PLEs and any distress associated with them (Scott et al., 2006; van Os et al., 2009). Hides and Kavanagh recently developed the Ontrack GetReal program, a free, accessible and brief e-health program targeted at young people who are having odd or unusual experiences. The program uses a variety of psychological techniques aimed at reducing frequent PLE's and associated distress. As a main objective, GetReal aims to teach coping strategies for managing stress, PLEs and psychological distress, as well as facilitate appropriate help seeking. The targeted population could be seen as those who report a higher frequency of PLEs and a higher frequency of distress.

However, it is not known if such a web-based program is more acceptable to the target population compared to conventional mental health delivery methods. Furthermore, questions remain - would using a screening tool and providing feedback assist in engaging young people with reported PLEs? Would those with the higher reported frequency of PLEs,
who are the target of an early intervention program, choose to engage in a web-based program?

A reliable and valid screening tool for PLEs, the CAPE-P15, has recently been developed. It is psychometrically sound, demonstrates good internal consistency and has a stable internal structure (Capra et al., 2013). Using this instrument for screening and measuring PLEs could have substantial clinical utility for the provision of timely intervention.

It is hypothesised that this feasibility study will find that those participants who report both the highest frequency of PLEs and highest distress will be more likely to engage in a web-based treatment program.

Method

Participants were recruited through two surveys conducted by student emails: (i) the first, between November 2012 and February 2013 (referred to hereafter as Study 1) at the Queensland University of Technology (QUT), Australia, and (ii) the second, between December 2013 and April 2014 (referred to hereafter as Study 2) at The University of Queensland (UQ), Australia. Participants were required to provide informed consent and indicate that they met the following inclusion criteria via a tick box prior to obtaining access to the online survey: (i) aged between 16 and 25; (ii) able to read and understand English; (iii) not diagnosed, or being treated for, a psychotic illness. Participants were offered the chance to win one of six $100 vouchers as an incentive. Ethical approvals were obtained from UQ and QUT University Human Research Ethics Committees (No. 2013001417, 2013001418 & 1100000187, 1100000663).


**Materials and method**

Psychotic-like experiences were measured using the current version of the self-report instrument CAPE-P15 (Capra et al., 2013). The current CAPE-P15 was created by modifying the items to read: “In the past 3 months, have you ...”. If a participant endorsed a PLE (at least ‘sometimes’), they were also asked how distressed they were about the experience, using a 4-point Likert scale: from 0, ‘not distressed’, through ‘a bit distressed’ and ‘quite distressed’ to 3, ‘very distressed’.

Psychological distress: The 10-item Kessler scale (K10; Kessler et al., 2002) assessed depressive and anxious symptoms in the past month, on a scale from 1, ‘none of the time’, to 5, ‘all of the time’ (Kessler et al., 2002), giving a potential total score of 10-50. The K10 has high reliability and validity for detection of depressive and anxiety disorders in general population surveys (Kessler, Birnbaum et al., 2005; Kessler et al., 2002).

A final question was written at the end of each cross-sectional survey inviting participates to register interest in participating in a further study (not the focus of this paper) of an online program for psychological intervention to reduce the frequency and distress of PLEs.

**Study 1**

The final question within the survey asked to participants was phrased,

*Thank you for your time.*

*We may like to invite you to participate in our future project of an online program to help young people who may have any odd or unusual experiences (www.ontrack.org.au/web/ontrack/programs/get-real).*

*Get Real is a free online program for people who are having odd or unusual experiences. This program uses techniques that have been shown to be helpful with odd or unusual*
experiences as well as strategies to assist with anxiety and depression. We may be interested in contacting you. Please tick that you are happy for this to occur and ensure your email is provided. Some participants who complete the online program may also be eligible to win an iPad-2. Responses: Yes, (asked to leave email address) or No, I am not interested

Study 2

The final question within this survey was phrased different and offered feedback on the CAPE-P15. It was phrased,

Thank your for your time.

Please leave an email contact to find out how you scored on the Weird Stuff Quiz.

You will also be asked to consider participating in a trial of a new online intervention program (GetReal) targeting weird stuff in young people. Responses: Yes, (asked to leave email address) or No, I am not interested

Data Analysis

SPSS version 22 was used for all analyses. The CAPE-P15 was divided into two categories, renamed “high” and “low”. The high category was defined as those participants who scored at the 90th percentile or above and the low category defined as the 89th percentile and below on the current CAPE-P15. A new variable was created where those who scored in the top 10th percentile on the CAPE-P15 and K10 (both “high” groups) were included. Chi-square test for independence was used to determine whether the interest in the GetReal program was associated with the defined high group and if there were any differences between the two samples.
Results:

Sample Characteristics:

359 participants completed Survey 1 and 127 completed Survey 2 (n= 486 in total). The mean age of Survey 1 was 19.5 (SD= 2.2) years and 80% were female, while the mean age of Survey 2 was 20.6 (SD=2.2) years and 84% were female.

Those reporting high CAPE-P15 score

Of the 486 who completed this survey, 234 (48%) registered interest in accessing GetReal. A score of 26 or above on the CAPE-P15 resulted in top 10\textsuperscript{th} percentile placement and was renamed the ‘high’ category. Fifty-seven participants met the criteria for the ‘high’ category of the CAPE-P15 across both samples, with 50 in Study 1 and 7 in Study 2. Ten percent of males (N=10) and 12% of females (N=47) were defined in the high category for the CAPE-P15.

The high category of the CAPE-P15 and interest in GetReal

Seventy-four percent (N=37) from Study 1 and 71% (N=5) from Study 2 who were in the top 10\textsuperscript{th} percentile (High CAPE-P15) sought access to GetReal. A Chi-square test for independence (with Fisher’s exact test) indicated no significant association between Study 1 and Study 2 and interest in GetReal, $\chi^2 (1, n=57) = .021$, p=.886, phi = .019.
The combined high category of the CAPE-P15 & K10 and interest in GetReal

There were 26 participants who reported both a high CAPE-P15 and high K10. Of these participants, 85% (N=22) indicated that they would volunteer to participate in GetReal. A Chi-square test for independence confirmed a significant difference between the group who reported both a high CAPE-P15 score and a high K10 score and requesting access to GetReal, $\chi^2 (1, n=486) = 11.48, p=.001, \phi = -.146$.

7.4 Discussion

This was a feasibility study to determine if a non-help seeking group reporting higher PLEs on the CAPE-P15 would volunteer to participate in an e-based health intervention program for reducing PLEs, GetReal. Two-thirds of those across both studies who reported PLEs in the top 10th percentile indicated an interest in the program. Although slightly different recruitment methods were used to register interest in the program, the uptake from this high risk group remained the same. Those reporting both a high frequency of PLEs and high distress across both samples were much more likely to volunteer their participation into GetReal than those in the low groups. These results suggest that young people most in need of an intervention tool (i.e. higher frequency and higher distress) would select to participate. However, a much larger community sample would be required to enhance the uptake and participation in an e-based health interventions program targeting PLEs.

GetReal was designed as an alternative to mainstream mental health services by improving engagement with those experiencing PLEs. To date, no study has demonstrated large-scale, effective, opportunistic engagement of community members with PLEs. A
useful component of the CAPE-P15 is the screening and identification of those reporting a high frequency of PLEs and linking into such a program. Incorporating the CAPE-P15 into the marketing of GetReal and giving immediate feedback on an individual’s score could be an important strategy to engage young people directly into a program. Strategies looking at integration of web, mobile phone or tablet interventions into mass marketing of early detection and intervention for PLEs may be critical to their ability to have a widespread impact. E-health interventions appear and change so quickly that they challenge the way we conduct research (Baker, Gustafson, & Shah, 2014). By the time a randomised trial of a new intervention is published, technological improvements and clinical discoveries may make the intervention dated and unappealing. Rigorous evaluation of the participants’ needs is a key starting point for intervention development. This feasibility study provides support that the group targeted for such programs would be likely to engage. An alternative is to also focus on a help seeking group, those already seeking support through primary care youth-oriented services (such as the Australian headspace service), which could result in a larger uptake of an e-based treatment program.

Both samples were from university populations. However, there were some important differences found between the samples. Study 1 had significantly more participants scoring in the defined “high” category (90th percentile and above) compared to Study 2 (14% vs 6%). Perhaps this was due to the different methods of recruitment and time of year when recruitment occurred (before exam time compared to the end/start of semester – “summer holidays” in Study 2), or it may have been a result of a smaller sample size and less circulation through university students for Study 2. Regardless, it raises the issue of whether the 90th percentile cut off on the CAPE-P15 is too high. It is still unknown
if a non-help seeking target group, even at the 90\textsuperscript{th} percentile, experience a frequency of symptoms great enough to utilise a program. The 90th percentile was chosen arbitrarily as it was hypothesised that benefits from the e-based intervention program would require a high enough frequency of PLEs. Predictive data from a longitudinal study is required to know what where the ‘high-risk level’ is on the current CAPE-P15.

The study used a large community sample of young adults (18-25years), but participants were self-selected and derived from universities only. Most were female and almost all had at least 12 years of education, reflecting a bias to higher educational and socioeconomic status. Because the survey was conducted online, response rates were unable to be measured and the representativeness of the sample is, therefore, unknown. However, the snowballing effect used as part of the study’s method may have improved the representativeness of the sample. While rates of PLEs were similar to those from other cross-sectional samples of young people, replication in a sample that is demonstrably representative of the general community would increase confidence in the results. Also, this sample was drawn from volunteer university students only and it is unclear if those young people not in the tertiary education sector would behave in the same way.

This is the first study to examine the feasibility of the CAPE-P15 as a screening and gateway tool for an online intervention for PLEs. The results suggest that those who report a higher frequency of PLEs and experience high distress would self-select to participate in targeted intervention. To date, there is a dearth of interventional studies for PLEs (Capra \textit{et al}, submitted 2014). We plan to examine the efficacy of the online intervention \textit{Get Real} for reducing the frequency and distress associated with PLEs in youth.
Statement of Contribution of Co-Authors for
Thesis by Published Paper

The following is the format for the required declaration provided at the start of any thesis chapter which includes a co-authored publication.

The authors listed below have certified* that:

1. they meet the criteria for authorship in that they have participated in the conception, execution, or interpretation, of at least that part of the publication in their field of expertise;
2. they take public responsibility for their part of the publication, except for the responsible author who accepts overall responsibility for the publication;
3. there are no other authors of the publication according to these criteria;
4. potential conflicts of interest have been disclosed to (a) granting bodies, (b) the editor or publisher of journals or other publications, and (c) the head of the responsible academic unit, and
5. they agree to the use of the publication in the student's thesis and its publication on the QUT ePrints database consistent with any limitations set by publisher requirements.

In the case of this chapter:

Chapter 7 – paper 5 “The uptake of an online psychological intervention program targeting Psychotic-like Experiences (PLEs)”

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<th>Contributor</th>
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<tr>
<td>Carina Capra</td>
<td>wrote the initial draft of the manuscript, wrote the experimental design, conducted the survey and did all the data analysis</td>
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<tr>
<td>Prof David Kavanagh</td>
<td>Supported experimental design, data analysis and reviewed the paper</td>
</tr>
<tr>
<td>Aspro Leanne Hides</td>
<td>Supported experimental design and will review the paper</td>
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<tr>
<td>Dr James Scott</td>
<td>Supported experimental design and will review the paper</td>
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Principal Supervisor Confirmation

I have sighted email or other correspondence from all Co-authors confirming their certifying authorship.

Name  Signature  Date

D. Kavanagh  3/3/2015
7.3 Commentary

This was the first study to look at the uptake of a web intervention program designed to reduce PLEs. The focus of this study was a non-help seeking group, but perhaps this group did not experience a threshold of symptoms severe enough to seek intervention (even in the top 10th percentile), or perhaps the frequency of PLEs are not causing enough functional decline or distress. A program, such as GetReal, may be only used by a minority of this target group as they are not yet seeking help. It may be that a non-help seeking group are pre-contemplative about accessing help, and the target group for GetReal should instead be those who report higher frequencies of PLEs, experience more distress and are help-seeking.

An attempt was made to test the impact of the web treatment using the sample in this paper. However, attrition rates were high, and follow up with a repeated survey was difficult. From an initial sample of 127 volunteers, only 10 completed the final survey – despite incentives and assertive email follow up. A paired-samples t-test was conducted to evaluate the impact of an online intervention on CAPE-P15 scores (both for frequency and distress) for the 10 participants. There was no significant change in CAPE-P15 frequency or distress scores from the time of pre-test (frequency: M(SD) = 5.80 (4.51); distress: M(SD) = 3.90 (3.63)) to the follow up survey (frequency: M(SD) = 6.30 (8.61)), t(9)= -0.25, p=.809; distress: 4.30 (7.53) t(9) = -0.17, p=.866). No conclusions can be drawn from this part of the study due to the high level of attrition, and it was not included in the paper.
Future studies and recruitment could consider including the help seeking group with PLEs into the sample. Primary care mental health friendly services, such as headspace, would seem a suitable option through which to deliver this programme.
Chapter 8: Reflections from a clinical perspective

This chapter aims to articulate clinical observations and implications subsequent to the thesis. The thesis candidate is a clinician who works for an Early Psychosis (EP) service in a large metropolitan centre (Brisbane, Queensland, Australia). In the absence of ethical approval, specific details from cases cannot be provided. However, information regarding the learning’s from a clinical application of the CAPE-P15 and anecdotal evidence are presented. It is envisaged that further work, in the format of post-doctorate studies, could continue and formally research these observations.

Some of the key functions of an EP service are to: (i) improve early detection of young people at risk of psychotic illness, (ii) facilitate access to age-appropriate assessment for young people with EP, (iii) provide meaningful interventions that are based on assertive outreach principles that promote functional recovery, and (iv) develop capacity, capabilities and skills of staff working in the field of EP. Clear pathways of care and clinical governance are defined by local protocols, ensuring the locally defined clinician/team structure is efficient and effective in its intentions. The inclusion criteria for acceptance into such a service is not purely based on diagnostic symptoms, but additionally:

- “the young person displays marked signs indicative of a possible first episode psychosis such as increasing social withdrawal, sustained deterioration in
performance at school or at work and increasing unexplained signs of distress or agitation”.

In the local geographical catchment area of this EP service being described, two Australian headspace services were co-located at the time of writing this thesis. There are currently 85 headspace centres operational across Australian states and territories and, with additional national funding being secured, a further 15 were announced in October 2014, with 100 centres operational by 2015 (headspace National Youth Mental Health Foundation Ltd, 2014). A national approach is now being used to implement this initiative by building on and enhancing headspace services. In 2013, the Enhanced headspace services were announced across Australia, at least one in each state and territory. These Enhanced headspace services aim to provide not only a mental health service for any young person aged 12-25 years, but will also provide community outreach and targeted programs for young people with psychotic illnesses.

Over the past 12 months, the thesis candidate has been working in the local headspace services in a clinical-liaison role on behalf of the EP service. Over the past 8 months, there have been 1489 occasions of service through this headspace with 415 young people currently (at the time of writing this thesis) being open. The CAPE-P15 has been implemented into these headspace services (within a particular geographical catchment area), where intake staff can ask a young person to complete the CAPE-P15 if concerns are raised about PLEs during the assessment. If the young person scores at the 90th percentile or above, then a comprehensive clinical assessment is carried out by the clinical liaison
position (see protocol in figure 8.1). The purpose of implementing the CAPE-P15 has been to provide early detection for those who may meet the inclusion criteria of the EP team or the enhanced headspace service (described above).

Figure 8.1 - Currently used protocol for headspace staff.
(Note – service specific details have been blacked out to protect privacy)

<table>
<thead>
<tr>
<th>Process for review by the Early Psychosis (EP) Team</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The intake team</strong></td>
</tr>
<tr>
<td>• To coordinate referrals to the EP clinical liaison (CL) position</td>
</tr>
<tr>
<td>• To <strong>complete</strong> the CAPE-P15 on any young person raising concerns or mentioning “weird stuff” as part of the initial intake assessment</td>
</tr>
<tr>
<td>• To score the CAPE-P15 and if scoring 26* or above book an appointment with the EP CL position</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Who can be referred and accepted in the EP Team?</th>
</tr>
</thead>
<tbody>
<tr>
<td>• A young person aged 17-25 years (although an assessment for a younger youth may occur with discussion and support of CYMHS)</td>
</tr>
<tr>
<td>• Catchment area of <strong>XXX</strong> Suburbs (i.e. not the <strong>xxx</strong> side of Brisbane)</td>
</tr>
<tr>
<td>• Facilitation of “Out of Area” young people can be discussed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How can a referral be arranged?</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Wednesday morning clinics are 9.15 a.m. -2.15 p.m. Bookings can be made with headspace reception staff</td>
</tr>
<tr>
<td>• Email sent to EP CL position (<a href="mailto:xxxxxxx@health.qld.gov.au">xxxxxxx@health.qld.gov.au</a>) to confirm appointment and provide summary information.</td>
</tr>
<tr>
<td>• Discussions, queries and clinical support can occur at weekly CL team review – Wednesday mornings.</td>
</tr>
</tbody>
</table>
What to expect

- Following a referral to the EP CL position an assessment will occur. From this assessment feedback will be provided to the intake service and clinical team leader. The following outcomes may occur
  - There is evidence of psychosis or at-risk mental state and they will be accepted into the EP XXX team for ongoing assessment/ review by the multidisciplinary team
  - At presentation, if they do not meet the criteria for the EP PAH team further discussions and plans to continue with headspace support will be developed. A young person can be offered a reassessment should a change in mental state occur or the private practitioner or GP requests it.

There have been three major outcomes observed from implementation of the CAPE-P15:

1. Adding the CAPE-P15 tool to the intake assessment has resulted in several young people with increased distress and PLEs being rapidly identified and linked in for a more comprehensive assessment.
2. The *headspace* intake staff, through shared discussions and training, have become more aware of the association between PLEs and suicidal risk and appear to be more proactive in completing further risk assessments.
3. Using a structured tool (CAPE-P15) seems to be an intervention in itself. Staff share the results of the tool with the young person and provide psychoeducation explaining PLEs are common. Young people surprised that they are not alone in these experiences and this knowledge relieves some of their distress.

The above points require formal research. However, the intake staff at the two participating *headspace* services report they have grown in confidence with identifying youth with PLEs. At least ten young people who have high levels of PLEs have been supported by a
specialised EP clinician following identification using the CAPE-P15 tool. This has resulted in avoiding more adverse entry into the service (e.g. via acute care teams or emergency departments), enhanced support and improved connections between the primary and tertiary services for youth health. Broader applications need to be explored.
Chapter 9: Summary and Discussion

9.1 Summary and Strengths

This thesis has demonstrated that PLEs are common in youth and are associated with psychological distress and suicide risk. The studies presented in this thesis have resulted in:

(i) development of a brief screening tool to identify PLEs within a youth population, (ii) furthering the understanding of the significance of PLE subtypes and their relationship with adverse mental health outcomes (suicide), (iii) providing the first systematic review on psychological treatments for reducing PLEs, and (iv) highlighting that those who report more PLEs are likely to participate in an e-based health tool targeting PLEs.

Chapters 3 and 4 report studies that were based on a large cross-sectional survey (N=1610) and demonstrated that refining the original CAPE-P to the CAPE-P15 provided meaningful associations with adverse mental health outcomes. PLEs were found to be extremely common, with 99% of 16-25 year olds reporting at least one PLE and 95% reporting at least two. However, not all PLEs were equal in adverse impact. This thesis provided the first study to examine the relationship between suicidality and specific subtypes of PLEs. The findings suggested that PA and PI subtypes were more strongly associated with suicide risk. Clinicians working in youth psychiatry may be well advised to assess scores on those subscales as part of a risk assessment.

Chapter 5 used a second cross-sectional sample (N= 489) and confirmed that a 3-month version of the CAPE-P15 remained a psychometrically reliable tool. This chapter also found that the current CAPE-P15 had strong associations with current psychological distress.
Indeed, just the frequency of PLEs was shown to be strongly related to psychological distress: adding reports of distress associated with PLEs did not add to the prediction. This result suggests PLEs are one expression of being psychologically distressed and a ‘marker’ for further mental health difficulties. Perhaps intervening early to reduce the frequency of PLEs would positively contribute to reducing general psychological distress.

Developing a useable assessment tool was important. Having a tool that can easily identify young people who are experiencing more than usual PLEs could be useful to: (i) monitor symptoms over time, (ii) screen for a further comprehensive assessment, (iii) provide a way to monitor the impact of interventions over time, and (iv) provide useful information for determining suicide risk. The implementation of this tool in a meaningful way needs to be considered. Recommendations on how to expand its usability to better support clinical care is provided in the Clinical Impact and Future Direction section of this summary.

Chapter 6 provided the first published review of the impact of psychological treatments for PLEs. Previous publications that focused on interventions targeting PLEs were limited, despite the large body of work in the past 10 years that has linked PLEs to a broad range of mental health problems (Saha, Scott, Varghese, & McGrath, 2011; J van Os et al., 2009; Welham et al., 2008). The paucity of published psychological intervention studies for PLEs was the major conclusion, and looking at filling this gap in the literature was considered the logical next step. Given the adverse mental health outcomes associated with PLEs, this was considered an important step to take. The limited available evidence suggested that exposure to a range of psychologically-oriented interventions may reduce the severity of
positive symptoms and the degree of distress. The impact on improving functional outcomes and comorbidities was explored, but not conclusive.

The e-health program “GetReal” was developed to offer an alternative option to standard services. Its psycho-education and brief cognitive behavioural therapy for distress and for testing the accuracy of experiences, together with its stress management techniques and encouragement of help-seeking, were considered very appropriate to the challenges being faced by young people with PLEs. Its primary target of reducing distress rather than transition to psychosis also seemed appropriate. However, we needed to understand if young people who reported a high frequency of PLEs would seek engagement in such a program.

Our pilot of GetReal showed that two-thirds of those in the top 10% on the CAPE-P15 volunteered to participate. Although the limited size of our total sample meant that these numbers were low, this was a very encouraging result. While several barriers to recruitment and retention of young people in e-based health programs are reported in the literature (Christensen et al., 2011), the National Survey of Youth Mental Health Literacy demonstrated that mental health awareness and literacy among young people is improving (Jorm, 2009; Yap, Reavley, & Jorm, 2012). Knowledge of signs, symptoms and possible treatment options relating to anxiety, depression and suicidal thoughts and behaviours, as well as the services that target these, such as youth beyondblue, headspace, kids help line and lifeline, have all risen (Jorm, 2009; Yap et al., 2012). However, an understanding of PLEs
and of treatment options for them is less widespread (Yap et al., 2012). Embedding an assessment tool at the start of an intervention program and giving a participant an immediate visual representation of their score compared to other young people may have an improved effect in engagement with the program. In particular, it is recommended that the CAPE-P15 be routinely administered in mental health services for young people, in order to increase the awareness of them and prompt interventions to address their occurrence and associated distress.

Reviewing who the target group/s are for an e-based intervention program for PLEs and determining the recruitment strategies would be suitable. The focus of the GetReal study was to look at an intervention program to reduce PLEs. However, the program may be better targeted at reducing distress of young people, with which PLEs are correlated. Attaching the program to a national ‘platform’ of e-health programs for young people and marketing the programs as a tool to assist with reducing distress may increase usage. However, just focusing on e-health interventions for this target group may limit uptake due to larger community numbers required in order to target the most at risk. Looking at ways to include e-health programs into primary care settings that target young people with mental health concerns could act as an important approach to intervention.

9.2 Limitations

It is important to note the overall limitations and challenges with this thesis. Firstly, several studies relied on cross-sectional assessment. This design allowed a “snapshot” of the
population to review the prevalence of PLEs and associated factors. However, as all variables were simultaneously assessed, the data could not definitively show a causal relationship between exposure and adverse outcomes. Also, the participants were self-selected and derived from a single university sample. Most were female and almost all had at least 12 years of education, reflecting a bias to higher educational and socioeconomic status. As these studies were conducted online, response rates were unable to be measured and the representativeness of the sample is therefore unknown.

Although we were able to better identify those with more frequent PLEs and associated distress, evaluation of an offered psychological intervention program, GetReal, needs to occur. Completion of large-scale randomised controlled trials of psychological interventions to reduce PLEs remains a focus for further research and indeed a trial is planned to shortly commence (separate to this thesis). Future research needs to consider linking the program with other youth mental health activities or targeting a help-seeking group.

**9.3 Clinical Impact and Future Directions**

This thesis has made a novel contribution to the field of youth psychiatry by being able to better identify young people who experience frequent PLEs and assess the frequency and range of their experiences.

Two potential options for clinical application of the research conducted in this thesis are recommended. The first is to incorporate the CAPE-P15 tool as part of an ongoing assessment of psychological interventions in a specifically targeted e-health program. The
second is to use the tool in primary care settings (with a help seeking population) as a way to better support health professionals to deal with the complex issues of youth psychiatry.

The CAPE-P15 can be used to measure the frequency of PLEs in young people, providing them with normative feedback and identifying those who may require further support. As PLEs are common in this age group, it will be important to also reassure young people that their ‘odd and unusual thoughts’ are similar to many others of their age, while encouraging those who are experiencing higher frequency of PLEs and associated distress to use e-health programs, such as GetReal, together with other services. The CAPE-P15 also offers the ability to provide an assessment of changes after use of the program or other services.

Since the pilot trials described in this thesis, several modifications to the original GetReal program have been made. The program is now called “Keep it Real” and is targeting cannabis users who experience PLEs. The rationale includes: (i) cannabis users report concerns with PLEs (Hides et al., 2009), (ii) cannabis use may be a modifiable risk factor – that is, a reduction of cannabis use may result in a reduction of PLEs. The current CAPE-P15 has been included within the Keep it Real program as a baseline measure, as well as at 3 month follow-up. A planned randomised controlled trial is due to start shortly.

A key potential application of the CAPE-P15 is within youth psychiatry services, such as the Australian headspace services. As reported in Chapter 8, headspace services are growing across Australia and reports suggest youth are accessing the service (Lee & Murphy, 2013). Chapter 8 also described how the CAPE-P15 has been implemented in two headspace
services. This represented an expanded focus from this thesis, where the target group was non-help seeking. Both the systematic review of the literature, as well as challenges faced with attracting a large number non-help seeking participants with CAPE-P15 scores above the 90th percentile, suggest that also assessing young people who start to seek help may be important. A staged pyramid model of the risk of psychosis (Preti, Cella, Raballo, & Vallante, 2012) suggests that the degree of certainty of distress raised by the experience or belief distinguishes between broadly and narrowly defined psychotic-like experiences. Clinically relevant distress prompts help seeking and arrival at a treatment setting, while antipsychotic treatment are generally prescribed when sub-threshold psychotic experiences are recognised as causing disability. So, once distress from symptoms is deemed great enough to seek help, there is an increased rationale for intervention and therapy (Preti et al., 2012). It is recommended that further research on a help-seeking target group should be undertaken to determine the effectiveness of using the CAPE-P15 in that context. Anecdotally, the implications of using the CAPE-P15 in a focussed primary care setting has resulted in important positive clinical outcomes.

The clinical translation of the CAPE-P15 tool may be very valuable within the enhanced headspace services and possibly in other primary care services. A Queensland enhanced headspace service is expected to open in February 2015. Currently, protocols and clinical pathways are being developed to ensure that the CAPE-P15 tool is used to help identify those that may be more suitable for the enhanced model of care on offer (i.e. outreach and a more comprehensive multidisciplinary outreach focus).
There is also significant potential for the use of e-health tools, including a modified GetReal program, in conjunction with the care provided by both standard and enhanced headspace services. Currently, the model of headspace provides 10 individual psychological treatment sessions (or up to 20 sessions for suicidal behaviours) with a private practitioner. Due to high demand on these services, a wait of 2-4 weeks often occurs between the initial assessment and the time when sessions become available. There is potential to trial an e-health intervention as a way to offer services within that period that may alleviate the need for care, or at least offer interim support. For example, screening using the CAPE-P15 could flag a young person with a high frequency of PLEs for supported access to the e-health program and, at headspace, could be a useful intervention for that young person.

Continuation and further research on the psychometric properties of the CAPE-P15 tool is required. When the CAPE-P15 is used within the Keep It Real program as a baseline measure and then at 3 months, the CAPE-P15’s ability to detect sensitivities over the intervention period can be determined. If the tool does become embedded as a tool of choice within enhanced headspace services, then additional validation of the CAPE-P15 and its ability to predict psychosis would be required. Detailed clinical interviews need to be carried out with the same sample of young people that the CAPE-P15 is administered to and who are accepted, based on a threshold of symptoms, into the enhanced (i.e. at-risk/psychosis) care group. Comprehensive analysis would need to occur to determine the sensitivity and specificity of the CAPE-P15 compared to a clinical interview. These and other related questions will form the focus of my postdoctoral research.
References


Mededović, J. (2014). Should the space of basic personality traits be extended to include the disposition toward psychotic-like experiences? PSYHOLOGIJA, 47, 169-184.


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Appendix 1

A-1.1 Ethics and Approvals

University Human Research Ethics Committee
HUMAN ETHICS APPROVAL CERTIFICATE
NHMRC Registered Committee Number EC00171

Date of Issue: 16/10/13 (supersedes all previously issued certificates)

Dear Ms Carina Capra

A UHREC should clearly communicate its decisions about a research proposal to the researcher and the final decision to approve or reject a proposal should be communicated to the researcher in writing. This Approval Certificate serves as your written notice that the proposal has met the requirements of the National Statement on Research Involving Human Participation and has been approved on that basis. You are therefore authorised to commence activities as outlined in your proposal application, subject to any specific and standard conditions detailed in this document.

Within this Approval Certificate are:

* Project Details
* Participant Details
* Conditions of Approval (Specific and Standard)

Researchers should report to the UHREC, via the Research Ethics Coordinator, events that might affect continued ethical acceptability of the project, including, but not limited to:

(a) serious or unexpected adverse effects on participants; and
(b) proposed significant changes in the conduct, the participant profile or the risks of the proposed research.

Further information regarding your ongoing obligations regarding human based research can be found via the Research Ethics website http://www.research.qut.edu.au/ethics/ or by contacting the Research Ethics Coordinator on 07 3136 2091 or ethicscontact@qut.edu.au

If any details within this Approval Certificate are incorrect please advise the Research Ethics Unit within 10 days of receipt of this certificate.

Project Details

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Investigator Details

Chief Investigator: Ms Carina Capra

Other Staff/Students:

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<tr>
<th>Investigator Name</th>
<th>Type</th>
<th>Role</th>
</tr>
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<tr>
<td>Prof David Keaneagh</td>
<td>Internal</td>
<td>Supervisor</td>
</tr>
<tr>
<td>Dr Louise Hides</td>
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<td>Supervisor</td>
</tr>
<tr>
<td>Dr James Scott</td>
<td>External</td>
<td>Associate Investigator</td>
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Participant Details

Participants: Approximately 3000
Dear Ms Carina Capra

A UHREC should clearly communicate its decisions about a research proposal to the researcher and the final decision to approve or reject a proposal should be communicated to the researcher in writing. This Approval Certificate serves as your written notice that the proposal has met the requirements of the National Statement on Research involving Human Participation and has been approved on that basis. You are therefore authorised to commence activities as outlined in your proposal application, subject to any specific and standard conditions detailed in this document.

Within this Approval Certificate are:

* Project Details
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* Conditions of Approval (Specific and Standard)

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(a) serious or unexpected adverse effects on participants; and
(b) proposed significant changes in the conduct, the participant profile or the risks of the proposed research.

Further information regarding your ongoing obligations regarding human based research can be found via the Research Ethics website http://www.research.qut.edu.au/ethics/ or by contacting the Research Ethics Coordinator on 07 3138 2091 or ethicscontact@qut.edu.au

If any details within this Approval Certificate are incorrect please advise the Research Ethics Unit within 10 days of receipt of this certificate.

### Project Details

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### Investigator Details

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<th>Ms Carina Capra</th>
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<td>Prof David Kavanagh</td>
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<td>External</td>
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### Participant Details

Participants: 100
The University of Queensland
Institutional Human Research Ethics Approval

Project Title: A Cross-Sectional Study To Confirm The Factor Structure For The Community Assessment Of Psychotic Experiences (CAPE-Positive Scale) Of young People And Their Reported Experience Of Distress Associated With Psychotic Like Experiences (PLES)

Chief Investigator: Ms Carolina Capra

Supervisor: Prof David Kavanagh, Dr Leanne Hides, Dr James Scott

Co-Investigator(s): Dr James Scott

School(s): Institute of Health and Biomedical Innovation, QUT; School of Psychology, UQ

Approval Number: 201301417

Granting Agency/Degree: Doctor of Philosophy

Duration: 18th April 2014

Expedited Review on the basis of approval from the Queensland University of Technology HREC dated 3/04/2011

Note: This approval is for research only. Any commercial activity is not permitted. Any alteration of the research protocol must be approved by the Ethics Committee. The principal investigator will be held responsible for maintaining the ethics safeguards.

Name of responsible Committee: Behavioural & Social Sciences Ethical Review Committee

This project complies with the provisions contained in the National Statement on Ethical Conduct in Human Research and complies with the regulations governing experimentation on humans.

Name of Ethics Committee representative:
Associate Professor John McLean
Chairperson
Behavioural & Social Sciences Ethical Review Committee

Signature [ Signature] Date 29/10/2013

161
THE UNIVERSITY OF QUEENSLAND
Institutional Human Research Ethics Approval

Project Title: An Internet-Based Treatment Program For Young People With Odd Or Unusual Thoughts And/or Experiences

Chief Investigator: Ms Carina Capra

Supervisor: Prof David Kavanagh, Dr Leanne Hider, Dr James Scott

Co-Investigator(s): Dr James Scott

School(s): Institute of Health and Biomedical Innovation, QUT; School of Psychology, UQ

Approval Number: 2013001415

Granting Agency/Degree: Doctor of Philosophy

Duration: 3rd October 2014

Comments:

Expedited Review on the basis of approval from the Queensland University of Technology HREC dated 03/10/2014 and 24/01/2013

With this approval, an investigator may undertake research that involves minimal risk to individuals or human subjects. If it is determined that the research involves more than minimal risk to individuals or human subjects, the investigator will be required to obtain and submit an Application for Full Review to the Queensland University of Technology HREC.

Name of responsible Committee: Behavioural & Social Sciences Ethical Review Committee

This project complies with the provisions contained in the National Statement on Ethical Conduct in Human Research and complies with the regulations governing experimentation on humans.

Name of Ethics Committee representative:
Associate Professor John McLean
Chairperson
Behavioural & Social Sciences Ethical Review Committee

Signature Date 09/10/2013

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Appendix 2

A-2.1 Approved Recruitment Materials

PARTICIPATE IN RESEARCH

Information for Prospective Participants

The following research activity has been reviewed via QUT arrangements for the conduct of research involving human participation.

If you choose to participate, you will be provided with more detailed participant information, including who you can contact if you have any concerns.

Survey of odd or unusual experiences in young people

Research Team Contacts

Principal Researcher: Carina Capra, PhD student, School of Psychology and Counselling
Associate Researchers: Dr Leanne Hides, Prof David Kavanagh, Dr James Scott

Please contact the researcher team members to have any questions answered or if you require further information about the project.

What is the purpose of the research?

The purpose of this research is to help us understand how many young people have odd or unusual experiences and how much these experiences may, or may not, distress a young person.

Are you looking for people like me?

The research team is looking for any young person aged between 18 and 25 years who has access to; and can use the internet.
This survey is only for people who are not in treatment for a serious mental disorder (such as Schizophrenia, Bipolar Disorder, Schizo-Affective Disorder).

What will you ask me to do?

Your participation will involve completing a 20 min on-line survey. It is confidential. Our research aims to understand more about these odd or unusual experiences and how they can be detected. We would also like to better understand if any experiences are distressing (or not) for a young person. To do this we will ask you to complete some questions on how any thoughts, feelings or actions you may have had, made you feel – that is, were they upsetting to you and if so, how much.
We will ask you to read a statement of confidentiality before the survey and, if you agree, you can proceed with the survey. At the end of the survey, we will invite anyone who is interested to leave a contact email address so that we can invite you to participate in a future study.

Are there any risks for me in taking part?
Risks may include feeling distressed from the questions in the survey and triggering thoughts and worries relating to these experiences. Participants are offered the ability to contact the research team if they feel concerned about any content within the survey or feel they require assistance. There are three separate prompts within the survey to leave details so that a member of the research team can contact you (via email) within 3 days to offer support and information.

At the end of the survey there is also an option to link people with the OnTrack GetReal website. This website has evidenced-based information and assists people to access help as required (ie phone numbers to key services such as Lifeline, Beyondblue, Local Mental Health services etc).

These are all free and include:

- **headspace**: [www.headspace.org.au](http://www.headspace.org.au) which supports young people with mental health and related problems
- Youth **beyondblue**: [www.youthbeyondblue.com](http://www.youthbeyondblue.com) for information on depression and related problems
- Reach Out: [www.reachout.com.au](http://www.reachout.com.au) interactive forum for young people to access support and assistance

### Are there any benefits for me in taking part?

This research may or may not directly benefit you, but will benefit indirectly by helping us determine how to increase help seeking for mental health problems in young people. You may find access to the resources useful.

### Will I be compensated for my time?

We would very much appreciate your participation in this research and welcome your email address so that we can add you into the random draw to win an iPad.

### I am interested – what should I do next?

If you would like to participate in this study, please Click this link  [https://www.surveymonkey.com/s/DMLSN9H](https://www.surveymonkey.com/s/DMLSN9H)

**Thank You!**

QUT Ethics Approval Number: 1100000187
The following research activity has been reviewed via QUT arrangements for the conduct of research involving human participation.

If you choose to participate, you will be provided with more detailed participant information, including who you can contact if you have any concerns.

An internet-based program for young people with odd or unusual thoughts and/or experiences

Research Team Contacts

Principal Researcher: Carina Capra, PhD student, School of Psychology and Counselling, QUT
Associate Researchers: Dr Leanne Hides, Prof David Kavanagh, Dr James Scott

Please contact the researcher team members to have any questions answered or if you require further information about the project.

What is the purpose of the research?

The purpose of this research is to find acceptable and successful youth based treatments for young people and their mental health, especially focused on psychological distress and accompanying odd or unusual thoughts or experiences.

We know that around a quarter of young people experience a psychological problem and 10-30% report having an odd or unusual experience. We also know that by getting the right information early and using a few strategies these experiences may improve.

To gain more understanding about these experiences an online self-help program called GetReal has been developed.

GetReal is a free online program for people who are having psychological distress with odd or unusual thoughts or experiences. The program may also help people in the early stages of psychosis, where they may be hearing voices or feel suspicious of other people. The program uses targeted evidence based therapy techniques that have been shown in research to be helpful with managing distress. GetReal is primarily for young people and participants must be aged 18 years or over and live in Australia to register for the program.

Are you looking for people like me?

The research team is looking for any young person aged between 18 and 25 years who may, at times, be experiencing high levels of psychological distress and accompanying odd or unusual thoughts. The GetReal program may offer you some useful suggestions on how to better understand and manage any of these experiences that you find distressing. The program will also provide you with feedback about any distress you may have and offer you support for this.

What will you ask me to do?
This project involves a few background questions to help us understand your current mental wellbeing and an accompanying treatment program for psychological distress, especially looking at odd or unusual thoughts and experiences. It involves signing up to and completing online questions about distress and your experiences, getting immediate feedback on your responses, and then accessing the GetReal program.

If you agree to participate in this study you will be asked to log on to the GetReal program site. Carefully read the information and consent to participate for this study, and then, if you agree, start the survey.

Your participation is voluntary, and you can withdraw consent at any time prior to completing the program. Once the initial questions are completed you will be given immediate feedback on your results and then asked to further participate in the treatment program GetReal. You may use this program as little or as much as you would like. At 3 months we would like to see how you are going and to ask you to re-do the initial questions. We’d also like to ask you a few questions about what you thought about the GetReal program. This should take no more than 15 minutes.

All comments and responses to this program are confidential to the research team, and any identifiable information (including your email address) will be deleted once the study is completed, unless you elect to obtain information about future studies. Decisions about participation in this program will have no bearing on your current or future relationship with QUT. You are able to contact the research team at any point, should you want further information or find any aspects of the program.

Examples of the questions you would see include:

**Have you ever felt as if some people are not what they seem to be?** With the response being one of these four; “Never” “Sometimes” “Often”, “Nearly always”

**During the last 30 days, about how often did you feel so restless you could not sit still?** With the response being one of these five “None of the time” “A little of the time” “Some of the time” “Most of the time” “All of the”

**Are there any risks for me in taking part?**

Risks may include feeling distressed from the program and triggering thoughts and worries relating to these experiences. You may contact the research team if you feel concerned about any content within the program or feel you require assistance.

This website is a program that has information and resources on how to get further help and support if required. It also has evidence-based information and assists people to trial strategies that support psychological wellbeing as well as access help as required (ie phone numbers to key services such as Lifeline, Beyondblue, Local Mental Health services etc).

These are all free and include:

- **headspace**: [www.headspace.org.au](http://www.headspace.org.au) which supports young people with mental health and related problems
- **Kids Help Line**: for telephone or online ([www.kidshelp.com.au](http://www.kidshelp.com.au)) counselling and referrals
- **Youth beyondblue**: [www.youthbeyondblue.com](http://www.youthbeyondblue.com) for information on depression and related problems
- **Reach Out**: [www.reachout.com.au](http://www.reachout.com.au) interactive forum for young people to access support and assistance

QUT also provides for limited free counselling for research participants of QUT projects who may experience discomfort or distress as a result of their participation in the research. Should you wish to access this service please...
contact the Clinic Receptionist of the QUT Psychology Clinic on 3138 0999. Please indicate to the receptionist that you are a research participant.

**Are there any benefits for me in taking part?**

This research may or may not directly benefit you, but will benefit indirectly by helping us determine how to increase help seeking for mental health problems in young people. You may find access to the resources useful. You may potentially benefit by receiving information on help-seeking for mental health problems. Those who take part in the trial of the GetReal program may obtain reduced distress and reassurance about your experiences or (in the case of those with more severe symptoms) better information about rapid and appropriate care than you might otherwise receive.

**Will I be compensated for my time?**

We would very much appreciate your participation in this research and hope that the program is useful to you. However we will not be compensating you for your time.

**I am interested – what should I do next?**

*If you would like to participate in this study, please follow this link to the study site:*

https://www.surveymonkey.com/s/DMLSN9H

Thank You!  

QUT Ethics Approval Number: 1100000663
An internet-based program for young people with odd or unusual thoughts and/or experiences

QUT Ethics Approval Number 1100000663

RESEARCH TEAM
Principal Researcher: Carina Capra, PhD Student, School of Psychology and Counselling, QUT
Associate Researchers: Dr Leanne Hides, Prof David Kavanagh, Dr James Scott

DESCRIPTION
This project is being undertaken as part of a PhD for Carina Capra who is from Queensland University of Technology (QUT), School of Psychology and Counselling. This project is designed to look at young people and their mental health, especially focused on psychological distress and accompanying experience of odd or unusual thoughts or experiences.

Around a quarter of young people experience a psychological problem and 10-30% report having an odd or unusual experience.

To gain more understanding about these experiences an online self-help program called Get Real has been developed.

GetReal is a free online program for people who are having psychological distress with odd or unusual thoughts or experiences. The program may also help people in the early stages of psychosis, where they may be hearing voices or feel suspicious of other people. The program uses targeted evidence based therapy techniques that have been shown in research to be helpful with managing distress. GetReal is primarily for young people and participants must be aged 18 years or over and live in Australia to register for the program.

PARTICIPATION
This project involves a few background questions to help us understand your current mental well-being and an accompanying treatment program for psychological distress, especially odd or unusual experiences. It involves signing up to and completing online questions about distress and your experiences, getting immediate feedback on your responses, and then accessing the GetReal program. If you agree to participate in this study you will be asked to log on to the GetReal program site, carefully read the consent information and further information on this study, and then, if you agree, start the program. Your participation is voluntary, and you can withdraw consent at any time prior to completing the program. Once the initial questions are completed, you will be given immediate feedback on your results and then directed to participate in the program GetReal. You may use this program as little or as much as you would like. At 3 months we would...
like to see how you are going and to ask you to redo the questions completed at the beginning of the program. We’d also like to ask you a few questions about what you thought about the GetReal program. This should take no more than 15 minutes.

All comments and responses to this program are confidential to the research team, and any identifiable information (including your email address) will be deleted once the study is completed, unless you elect to obtain information about future studies. Decisions about participation in this program will have no bearing on your current or future relationship with QUT. You are able to contact the research team at any point, should you want further information or find any aspects of the program.

Examples of the questions you would see, include:

*Have you ever felt as if some people are not what they seem to be?* With the response being one of these four: “Never” “Sometimes” ”Often”, “Nearly always”

*During the last 30 days, about how often did you feel so restless you could not sit still?* With the response being one of these five: “None of the time” “A little of the time” “Some of the time” “Most of the time” “All of the”

**EXPECTED BENEFITS**

This research may or may not directly benefit you, but will benefit indirectly by helping us determine how to increase help seeking for mental health problems in young people. You may find access to the resources useful.

You may potentially benefit by receiving information on help-seeking for mental health problems. Those who take part in the trial of the GetReal program may obtain reduced distress and reassurance about your experiences or (in the case of those with more severe symptoms) better information about rapid and appropriate care than you might otherwise receive.

**RISKS**

Risks may include feeling distressed from the program and triggering thoughts and worries relating to these experiences. Participants may contact the research team if they feel concerned about any content within the program or feel they require assistance. The program has information and resources on how to get further help and support if required. It also has evidenced-based information and assists people to trial strategies that support psychological wellbeing as well as access to help as required (ie phone numbers to key services such as Lifeline, Beyondblue, Local Mental Health services etc).

These are all free and include:

*headspace:* [www.headspace.org.au](http://www.headspace.org.au) which supports young people with mental health and related problems


*Youth beyondblue:* [www.youthbeyondblue.com](http://www.youthbeyondblue.com) for information on depression and related problems

*Reach Out:* [www.reachout.com.au](http://www.reachout.com.au) interactive forum for young people to access support and assistance
QUT also provides for limited free counselling for research participants of QUT projects who may experience discomfort or distress as a result of their participation in the research. Should you wish to access this service please contact the Clinic Receptionist of the QUT Psychology Clinic on 3138 0999. Please indicate to the receptionist that you are a research participant.

PRIVACY AND CONFIDENTIALITY

All comments and responses to this program are confidential to the research team, and any identifiable information (including your email address) will be deleted once the study is completed. Decisions about participation in this program will have no bearing on your current or future relationship with QUT. Confidentiality will be maintained using appropriate security, including password-protection, separation of consent information from other responses, and security against hacking.

Any publication and/or presentation or information from this study will be provided in such a way that you cannot be identified, except with your permission. This is a study that is interested in the overall effect of this program and it’s acceptability across young people.

CONSENT TO PARTICIPATE

We would like to ask you to read all the statements on consent and then to “tick” that you agreement to participate prior to starting the GetReal program.

Participation in this research is voluntary. If you don’t wish to take part, you don’t have to. You need to agree that you understand the process involved in this research project and that you understand that it involves an online self-directed treatment program for odd or unusual experience. Knowing what is involved will help you decide if you want to take part in the research.

If you decide you want to take part in the research project, you will be asked to sign the consent section.

By signing it you are telling us that you:

- Understand what you have read.
- Consent to take part in the research project and know that you will be allocated to one of two groups (A or B).
- Consent to complete the online surveys involved in this study; initially and again at 12 months.

QUESTIONS / FURTHER INFORMATION ABOUT THE PROJECT

If have any questions or require any further information about the project please contact one of the research team members below. If have any questions or require any further information about the project please contact one of the research team members below.

Carina Capra – PhD student
Institute of Health & Biomedical Innovation (IHBI)
QUT School of Psychology & Counselling

Dr Leanne Hides – Senior Research Fellow & Clinical Psychologist
Deputy Director, Centre for Youth Substance Abuse Research (CYSAR)
Institute of Health & Biomedical Innovation (IHBI)
QUT School of Psychology & Counselling
CONCERNS / COMPLAINTS REGARDING THE CONDUCT OF THE PROJECT

QUT is committed to research integrity and the ethical conduct of research projects. However, if you do have any concerns or complaints about the ethical conduct of the project you may contact the QUT Research Ethics Unit on 3138 5123 or email ethicscontact@qut.edu.au. The QUT Research Ethics Unit is not connected with the research project and can facilitate a resolution to your concern in an impartial manner.

Thank you for helping with this research project. Please keep this sheet for your information.
Appendix 3

A-3.1 Survey monkey collection documents

Cross sectional survey #1
Survey of odd or unusual experiences in young people

1.

RESEARCH TEAM
Professor David Kavanagh, School of psychology and counselling & Institute of Health and Biomedical Innovation, Queensland University of Technology (QUT); Contact (07) 3138 8140 or david.kavanagh@qut.edu.au

Dr Leanne Hides, Senior Research Fellow and Clinical Psychologist, Deputy Director for Youth Substance Abuse and Research (CYGAR), School of psychology and counselling; Contact (07) 31386144 or leanne.hides@qut.edu.au

Dr James Scott, Psychiatrist and Senior Research Fellow, Royal Brisbane and Women’s Hospital, Herston, Queensland, 4020, Contact (07) 3385 9669 or James_G_Scott@health.qld.gov.au

Ms. Carina Capra, PhD Student, Queensland University of Technology (QUT), School of psychology and counselling, Contact, c7026408@qut.edu.au

DESCRIPTION OF THE PROJECT
This project is designed to look at young people and their mental health, especially focused on odd or unusual experiences that we know young people may have.

Around a quarter of young people experience a psychological problem and 10-30% report odd or unusual experiences.

To gain more understanding about these experiences an online survey has been developed. Completion of the survey is voluntary, and has no relationship with your courses or assessments. It will take about 20 mins., and your responses would be confidential.

This survey is only for people aged 13 or over up to 25 years and who are not in treatment for a serious mental disorder (such as Schizophrenia, Bipolar Disorder, Schizo-Affective Disorder).

The research team requests your assistance because we are interested in the thoughts and views of young people aged 10-25 years. The more young people we have complete this survey the better understanding we feel we will have.

PARTICIPATION
This project involves an online survey about odd or unusual experiences. Your participation is voluntary, and you can withdraw consent at any time. To participate in this survey, we will need you to carefully read a statement on confidentiality, below, and then tick that you agree to participate.

EXPECTED BENEFITS
It is expected that this project may or may not directly benefit you, but will benefit indirectly by helping us determine how to increase help seeking for mental health problems in young people. You may find access to the resources useful.

To recognise your contribution, should you choose to participate; the research team is offering participants an opportunity to go into a random draw to win an iPad.

RISKS
Risks may include feeling distressed from the questions in the survey and triggering thoughts and worries relating to these experiences. Participants are offered the ability to contact the research team if they feel concerned about any content within the survey or feel they require assistance. There are three separate prompts within the survey to leave details so that a member of the research team can contact you (via email) within 3 days to offer support and information relating to services.

At the end of the survey there is also an option to link you with the OnTrack GetReal website. This website has evidenced-based information and assists people to access help as required (e.g. phone numbers to key services such as Lifeline, Beyondblue, Local Mental Health services etc).

QUESTIONS / FURTHER INFORMATION ABOUT THE PROJECT
Please contact one of the research team members named above if you have any questions or if you require further information about the project.
Survey of odd or unusual experiences in young people

2.

CONCERNS / COMPLAINTS REGARDING THE CONDUCT OF THE PROJECT
QUT is committed to research integrity and the ethical conduct of research projects. However, if you do have any concerns or complaints about the ethical conduct of the project you may contact the QUT Research Ethics Unit on 07 3130 5123 or email ethicscontact@qut.edu.au. The QUT Research Ethics Unit is not connected with the research project and can facilitate a resolution to your concern in an impartial manner. Thank you for helping with this research project.

This study has been approved by the QUT Human Research Ethics Committee (approval number 1100000187).

CONFIDENTIALITY
To participate in this survey, we need you to carefully read the statement below, and then tick that you agree to participate.

This project involves an online survey about odd or unusual experiences. Your participation is voluntary, and you can withdraw consent at any time.

You can complete the survey without providing your email address, but if you do give it, we can enter you in a random draw for an iPad. All comments and responses to this survey are confidential to the research team, and any identifiable information (including your email address) will be deleted once the study is completed, unless you elect to obtain information about future studies. Decisions about participation in this survey will have no bearing on your current or future relationship with QUT. You are able to contact the research team at any point, should you want further information or find any aspects of the survey upsetting.

* 1. I have read the above statement on confidentiality and acknowledge that this survey is only for people - aged 18 or over, - who are not in treatment for a serious mental disorder (such as Schizophrenia, Bipolar Disorder, Schizo-Affective Disorder).

I am 18 years or over, and not in treatment for a serious mental disorder, and I AGREE to participate,

○ Yes (continue with survey)
○ No
Survey of odd or unusual experiences in young people

3. General Information

1. What is your current age?

2. Are you,
   - male
   - female

3. Which country were you born in?

4. Is English your first language?
   - yes
   - no

5. Do you identify as Indigenous, Aboriginal or Torres Strait Islander?
   - yes
   - no

6. How many years of education have you completed so far (e.g., finished first year uni = 13)?

7. Tick the amount that best reflects your family's income
   - <55k per year
   - 55k -100k per year
   - 100k - 150k per year
   - >150k per year

8. Which best describes your current relationship status?
   - Single
   - Have a partner
   - Married
   - Divorced
   - Other (please specify)

Other (please specify)
Survey of odd or unusual experiences in young people

9. Where did you spend most of your time growing up

- [ ] In a large capital city (e.g., Brisbane/ Melbourne)
- [ ] In a small city (e.g., Cairns)
- [ ] In a rural area (e.g., farming area)
- [ ] In a remote area (e.g., Thursday Island)

10. Please provide your email address (to be entered in our iPad competition)
Survey of odd or unusual experiences in young people

4. Young peoples experiences

We know that lots of young people have odd or unusual experiences. These questions help us identify how common some thoughts and experiences are for young people. There are 21 questions, and all are multiple choice. Remember all your answers are confidential.

* 1. Have you ever felt as if people seem to drop hints about you or say things with a double meaning?
   - Never
   - Sometimes
   - Often
   - Nearly always

* 2. Have you ever felt as if things in magazines or on TV were written especially for you?
   - Never
   - Sometimes
   - Often
   - Nearly always

* 3. Have you ever felt as if some people are not what they seem to be?
   - Never
   - Sometimes
   - Often
   - Nearly always

* 4. Have you ever felt that you are being persecuted in anyway?
   - Never
   - Sometimes
   - Often
   - Nearly always

* 5. Have you ever felt as if there is a conspiracy against you?
   - Never
   - Sometimes
   - Often
   - Nearly always
Survey of odd or unusual experiences in young people

* 6. Have you ever felt as if you are destined to be someone very important?
   - Never
   - Sometimes
   - Often
   - Nearly always

* 7. Have you ever felt that you are a very special or unusual person?
   - Never
   - Sometimes
   - Often
   - Nearly always

* 8. Have you ever thought that people can communicate telepathically?
   - Never
   - Sometimes
   - Often
   - Nearly always

* 9. Have you ever felt as if electrical devices such as computers can influence the way you think?
   - Never
   - Sometimes
   - Often
   - Nearly always

* 10. Have you ever believed in the power of witchcraft, voodoo or the occult?
    - Never
    - Sometimes
    - Often
    - Nearly always

* 11. Have you ever felt that people look at you oddly because of your appearance
    - Never
    - Sometimes
    - Often
    - Nearly always
**Survey of odd or unusual experiences in young people**

*12. Have you ever felt as if the thoughts in your head are being taken away from you?*
- Never
- Sometimes
- Often
- Nearly always

*13. Have you ever felt as if the thoughts in your head are not your own?*
- Never
- Sometimes
- Often
- Nearly always

*14. Have your thoughts ever been so vivid that you were worried other people would hear them?*
- Never
- Sometimes
- Often
- Nearly always

*15. Have you ever heard your thoughts being echoed back at you?*
- Never
- Sometimes
- Often
- Nearly always

*16. Have you ever felt as if you are under the control of some force or power other than yourself?*
- Never
- Sometimes
- Often
- Nearly always

*17. Have you ever heard voices when you are alone?*
- Never
- Sometimes
- Often
- Nearly always
Survey of odd or unusual experiences in young people

18. Have you ever heard voices talking to each other when you are alone?
   - Never
   - Sometimes
   - Often
   - Nearly always

19. Have you ever felt as if a double has taken place of a family member, friend or acquaintance?
   - Never
   - Sometimes
   - Often
   - Nearly always

20. Have you ever seen objects, people or animals that other people can’t see?
   - Never
   - Sometimes
   - Often
   - Nearly always

21. Overall, how distressed are these experiences making you feel?
   - Not distressed
   - A bit distressed
   - Quite distressed
   - Very distressed

22. For the question above, can you rate a number from 0-100. Where 0 = not distressed and 100 = very distressed
Survey of odd or unusual experiences in young people

5. How you are feeling

The next 10 questions are designed to help us understand more about psychological feelings and distress. They are multi-choice where only one answer is required.

*1. During the last 30 days, about how often did you feel tired out for no good reason?
   - None of the time
   - A little of the time
   - Some of the time
   - Most of the time
   - All of the

*2. During the last 30 days, about how often did you feel nervous?
   - None of the time
   - A little of the time
   - Some of the time
   - Most of the time
   - All of the

*3. During the last 30 days, about how often did you feel so nervous that nothing could calm you down?
   - None of the time
   - A little of the time
   - Some of the time
   - Most of the time
   - All of the

*4. During the last 30 days, about how often did you feel hopeless?
   - None of the time
   - A little of the time
   - Some of the time
   - Most of the time
   - All of the
**Survey of odd or unusual experiences in young people**

5. How you are feeling

The next 10 questions are designed to help us understand more about psychological feelings and distress. They are multi-choice where only one answer is required.

*1. During the last 30 days, about how often did you feel tired out for no good reason?*

- None of the time
- A little of the time
- Some of the time
- Most of the time
- All of the time

*2. During the last 30 days, about how often did you feel nervous?*

- None of the time
- A little of the time
- Some of the time
- Most of the time
- All of the time

*3. During the last 30 days, about how often did you feel so nervous that nothing could calm you down?*

- None of the time
- A little of the time
- Some of the time
- Most of the time
- All of the time

*4. During the last 30 days, about how often did you feel hopeless?*

- None of the time
- A little of the time
- Some of the time
- Most of the time
- All of the time
10. During the last 30 days, about how often did you feel worthless?

- None of the time
- A little of the time
- Some of the time
- Most of the time
- All of the time
### Survey of odd or unusual experiences in young people

#### 6. Mental Health and Young People

These questions are designed to help us gain a better understanding of mental health issues affecting young people.

1. Has anyone in your family ever been treated for a mental illness?
   - [ ] No (go to question 3)
   - [x] Yes

2. Please tick the relevant box or boxes that describes what they receive treatment for?
   - [ ] depression
   - [ ] anxiety
   - [ ] psychosis/ schizophrenia
   - [ ] alcohol/drug abuse or dependence
   - [ ] Other (please specify)

3. Has anyone in your family ever been prescribed antipsychotic medication?
   - [ ] No
   - [ ] Yes

4. Have you ever (in your lifetime) seriously thought about committing suicide?
   - [ ] No (go to question 10)
   - [x] Yes

5. Within the past month have you ever seriously thought about committing suicide?
   - [ ] No
   - [ ] Yes (A member of the research team will contact you within the next week to discuss this with you and ensure your safety)

6. Have you ever (in your lifetime) made a plan for committing suicide?
   - [ ] No
   - [ ] Yes

7. Within the past month have you ever made a plan for committing suicide?
   - [ ] No
   - [ ] Yes (A member of the research team will contact you within the next week to discuss this with you and ensure your safety)

8. Have you ever (in your lifetime) attempted suicide?
   - [ ] No
   - [ ] Yes
Survey of odd or unusual experiences in young people

9. Within the past month have you attempted suicide?
   ○ No
   ○ Yes (A member of the research team will contact you within the next week to discuss this with you and ensure your safety)

* 10. During the past 30 days, on how many days did you smoke cigarettes?
   ○ 0 days
   ○ 1 or 2 days
   ○ 3 to 5 days
   ○ 6 to 9 days
   ○ 10 to 19 days
   ○ 20 to 29 days
   ○ All 30 days

* 11. During the past 30 days, on how many days did you have at least one drink of alcohol?
   ○ 0 days
   ○ 1 or 2 days
   ○ 3 to 6 days
   ○ 6 to 9 days
   ○ 10 to 19 days
   ○ 20 to 29 days
   ○ All 30 days

* 12. During the past 30 days, on how many days did you have 5 or more drinks of alcohol in a row, that is, within a couple of hours?
   ○ 0 days
   ○ 1 or 2 days
   ○ 3 to 5 days
   ○ 6 to 9 days
   ○ 10 to 19 days
   ○ 20 to 29 days
   ○ All 30 days
**Survey of odd or unusual experiences in young people**

13. During your life, how many times have you used cannabis? (Cannabis is also called marijuana, weed or pot.)
   - 0 times (go to question 16)
   - 1 or 2 times
   - 3 to 5 times
   - 10 to 19 times
   - 20 to 39 times
   - 40 to 99 times
   - 100 or more times

14. During the past 30 days, how many times did you use cannabis?
   - 0 times
   - 1 or 2 times
   - 3 to 5 times
   - 10 to 19 times
   - 20 to 39 times
   - 40 or more times

15. How old were you when you first used cannabis?

16. During your life, how many times have you used ecstasy?
   - 0 times
   - 1 or 2 times
   - 3 to 5 times
   - 10 to 19 times
   - 20 to 39 times
   - 40 or more times

17. During your life, how many times have you used methamphetamines (speed, ice)
   - 0 times
   - 1 or 2 times
   - 3 to 5 times
   - 10 to 19 times
   - 20 to 39 times
   - 40 or more times
Survey of odd or unusual experiences in young people

7. Young people and the internet

Finally, we would like to know more about internet use.

1. About how many hours a day would you spend using the internet?

2. Have you ever talked about your problems on the internet with other young people (e.g., chat rooms, blogs, MSN or Gmail messenger)?
   - No (go to question 4)
   - Yes

3. Did you find this harmful, helpful or neither?
   - Harmful
   - Helpful
   - Neither

4. Have you ever used the internet to find information for a physical health problem?
   - No (go to question 6)
   - Yes

5. Did you find this harmful, helpful or neither?
   - Harmful
   - Helpful
   - Neither

6. Have you ever used the internet to find information for a mental health, alcohol or other substance use problem?
   - No (go to question 6)
   - Yes

7. Did you find this harmful, helpful or neither?
   - Harmful
   - Helpful
   - Neither
**Survey of odd or unusual experiences in young people**

8. How useful do you think an online program for odd or unusual thoughts or experiences would be?
- [ ] Not at all useful
- [ ] Somewhat useful
- [ ] Useful
- [ ] Very useful
- [ ] Extremely useful

9. If you were having odd or unusual thoughts or experiences:

How likely is it that you would access an online program for information and assistance?
- [ ] Not at all likely
- [ ] Somewhat likely
- [ ] Likely
- [ ] Very likely
- [ ] Extremely likely

10. If you were having odd or unusual thoughts or experiences:

How likely is it that you would seek help from a mental health professional?
- [ ] Not at all
- [ ] Somewhat likely
- [ ] Likely
- [ ] Very likely
Survey of odd or unusual experiences in young people

8. Thank you

Thank you for your time.

We may like to invite you to participate in our future project of an online program to help young people who may have any odd or unusual experiences (www.ontrack.org.au/web/ontrack/program/get-real).

Get Real is a free online program for people who are having odd or unusual experiences. This program uses techniques that have been shown to be helpful with odd or unusual experiences. If you would like to trial the Get Real program please tick below and ensure your email is provided.

1. Please indicate if you would like to be invited to look at a trial for the online treatment program GetReal
   [ ] Yes

2. Please leave your email address and a member of the research team will be in contact with you via email.

   

3. We would like to send you an email in 12 months time, to check out how you are going. Please click on the check box below if you are willing to participate.

   [ ] Yes (please ensure we have your email contact. In the box above)
   [ ] No

4. Finally, if you have any questions or would like further information, please indicate below, and leave your email contact. A member of the research team will be in contact with you shortly. Thank you.
Cross sectional survey #2

Survey of odd or unusual experiences -Survey3

1.

RESEARCH TEAM
Professor David Kavanagh, School of psychology and counselling & Institute of Health and Biomedical Innovation, Queensland University of Technology (QUT): Contact (67) 3138 6143 or david.kavanagh@qut.edu.au

Dr Leanne Hides, Senior Research Fellow and Clinical Psychologist, Deputy Director for Youth Substance Abuse and Research (CYSAR), School of psychology and counselling, Contact (07) 31386144 or leanne.hides@qut.edu.au

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DESCRIPTION OF THE PROJECT
This project is designed to look at young people and their mental health, especially focused on odd or unusual experiences that we know young people may have.

Around a quarter of young people experience a psychological problem and 10-30% report odd or unusual experiences.

To gain more understanding about these experiences an online survey has been developed. Completion of the survey is voluntary, and has no relationship with your courses or assessments. It will take about 20mins, and your responses would be confidential.

This survey is only for people aged 18 or over up to 25 years and who are not in treatment for a serious mental disorder (such as Schizophrenia, Bipolar Disorder, Schizo-Affective Disorder).

The research team requests your assistance because we are interested in the thoughts and views of young people aged 18-25 years. The more young people we have complete this survey the better understanding we feel we will have.

PARTICIPATION
This project involves an online survey about odd or unusual experiences. Your participation is voluntary, and you can withdraw consent at any time. To participate in this survey, we will need you to carefully read a statement on confidentiality below, and then tick that you agree to participate.

EXPECTED BENEFITS
It is expected that this project may or may not directly benefit you, but will benefit indirectly by helping us determine how to increase help seeking for mental health problems in young people. You may find access to the resources useful.

To recognise your contribution, should you choose to participate, the research team is offering participants an opportunity to go into a random draw to win an Ipad.

RISKS
Risks may include feeling distressed from the questions in the survey and triggering thoughts and worries relating to these experiences. Participants are offered the ability to contact the research team if they feel concerned about any content within the survey or feel they require assistance. There are three separate prompts within the survey to leave details so that a member of the research team can contact you via email within 3 days to offer support and information relating to services.

At the end of the survey there is also an option to link you with the OnTrack GetReal website. This website has evidenced-based information and assists people to access help as required (ie phone numbers to key services such...
Survey of odd or unusual experiences -Survey3

as Lifeline, BeyondBlue, Local Mental Health services etc).

QUESTIONS / FURTHER INFORMATION ABOUT THE PROJECT
Please contact one of the research team members listed above if you have any questions or if you require further information about the project.
CONCERNS / COMPLAINTS REGARDING THE CONDUCT OF THE PROJECT
QUT is committed to research integrity and the ethical conduct of research projects. However, if you do have any concerns or complaints about the ethical conduct of the project you may contact the QUT Research Ethics Unit on 07 3138 5123 or email ethicscontact@qut.edu.au. The QUT Research Ethics Unit is not connected with the research project and can facilitate a resolution to your concern in an impartial manner. Thank you for helping with this research project.

This study has been approved by the QUT Human Research Ethics Committee (approval numbers 110000167 & 1100001450).

CONFIDENTIALITY
To participate in this survey, we need you to carefully read the statement below, and then tick that you agree to participate.

This project involves an online survey about odd or unusual experiences. Your participation is voluntary, and you can withdraw consent at any time.

You can complete the survey without providing your email address. All comments and responses to this survey are confidential to the research team, and any identifiable information (including your email address) will be deleted once the study is completed, unless you elect to obtain information about future studies. Decisions about participation in this survey will have no bearing on your current or future relationship with QUT. You are able to contact the research team at any point, should you want further information or find any aspects of the survey upsetting.

*1. I have read the above statement on confidentiality and acknowledge that this survey is only for people aged 18 or over,

I am 18 years or over, and I AGREE to participate,

☐ Yes (continue with survey)
☐ No

*2. I live in Australia (Please answer 'yes' if you are an international student currently living in Australia temporarily),

☐ Yes
☐ No
3. General Information

* 1. What is your current age?
   
* 2. Are you,
   
   ○ male
   ○ female

3. Which country were you born in?

4. Is English your first language?
   
   ○ yes
   ○ no

5. Do you identify as Indigenous, Aboriginal or Torres Strait Islander?
   
   ○ yes
   ○ no

* 6. What is the highest level of education have you completed so far?
   
   ○ Grade 10
   ○ Completed High school
   ○ Diploma
   ○ Bachelor's Degree
   ○ Honours
   ○ Masters
   ○ Doctorate
   ○ Other (please specify)

7. Tick the amount that best reflects your family's income
   
   ○ <$50k per year
   ○ $50k - $100k per year
   ○ $100k - $150k per year
   ○ $>150k per year
8. Which best describes your current relationship status?
- Single
- Have a partner
- Married
- Divorced
Other (please specify)

9. Where did you spend most of your time growing up
- In a large capital city (e.g., Brisbane, Melbourne)
- In a small city (e.g., Cairns)
- In a rural area (e.g., Far North Queensland)
- In a remote area (e.g., Thursday Island)
Survey of odd or unusual experiences - Survey 3

4. Young peoples experiences

We know that lots of young people have odd or unusual experiences. These questions help us identify how common some thoughts and experiences are for young people. There are 21 questions, and all are multiple choice. Remember all your answers are confidential.

**1. In the last 3 months (90 days), have you felt as if people seem to drop hints about you or say things with a double meaning?**

- Never
- Sometimes
- Often
- Nearly always
Survey of odd or unusual experiences - Survey 3

5.

1. You indicated that [Q11] it felt as if people were dropping hints or saying things about you that had a double meaning. Please indicate how distressed you are by this experience:
   - Not distressed
   - A bit distressed
   - Quite distressed
   - Very distressed

*2. In the last 3 months (90 days), have you ever felt as if things in magazines or on TV were written especially for you?
   - Never
   - Sometimes
   - Often
   - Nearly always
Survey of odd or unusual experiences - Survey3

6.

1. You indicated that [Q13] you felt that things in magazines or on TV were written especially for you. Please indicate how distressed you are by this experience:
   - [ ] Not distressed
   - [ ] A bit distressed
   - [ ] Quite distressed
   - [ ] Very distressed

2. In the last 3 months (90 days), have you ever felt as if some people are not what they seem to be?
   - [ ] Never
   - [ ] Sometimes
   - [ ] Often
   - [ ] Nearly always
Survey of odd or unusual experiences - Survey 3

7.

1. You indicated that [Q16] people are not what they seem to be. Please indicate how distressed you are by this experience:
   - [ ] Not distressed
   - [ ] A bit distressed
   - [ ] Quite distressed
   - [ ] Very distressed

2. In the last 3 months (90 days), have you ever felt that you are being persecuted in any way?
   - [ ] Never
   - [ ] Sometimes
   - [ ] Often
   - [ ] Nearly always
1. You indicated that [Q17] you have felt persecuted in some way. Please indicate how distressing you found this experience:
   - Not distressing
   - A bit distressing
   - Quite distressing
   - Very distressing

2. In the last 3 months (90 days), have you ever felt as if there is a conspiracy against you?
   - Never
   - Sometimes
   - Often
   - Nearly always
9.

1. You indicated that you [Q19] feel there is a conspiracy against you. Please indicate how distressed you are by this experience:
   - Not distressed
   - A bit distressed
   - Quite distressed
   - Very distressed

2. In the last 3 months (90 days), have you ever felt as if you are destined to be someone very important?
   - Never
   - Sometimes
   - Often
   - Nearly always
10.

1. You indicated that you [Q21] felt as if you were destined to be someone important. Please indicate how distressed you are by this experience:

- Not distressed
- A bit distressed
- Quite distressed
- Very distressed

2. In the last 3 months (90 days), have you ever felt that you are a very special or unusual person?

- Never
- Sometimes
- Often
- Nearly always
11.

1. You indicated that you [Q23] feel you are a very special or unusual person. Please indicate how distressed you are by this experience:
   - Not distressed
   - A bit distressed
   - Quite distressed
   - Very distressed

2. In the last 3 months (90 days), have you ever thought that people can communicate telepathically?
   - Never
   - Sometimes
   - Often
   - Nearly always
12. You indicated that you have thought people can communicate telepathically. Please indicate how distressed you are by this experience:
- Not distressed
- A bit distressed
- Quite distressed
- Very distressed

2. In the last 3 months (90 days), have you ever felt as if electrical devices such as computers can influence the way you think?
- Never
- Sometimes
- Often
- Nearly always
13.

1. You indicated that you have [Q27] thought that electrical devices such as computers could influence your thoughts. Please indicate how distressed you are by this experience:
   - Not distressed
   - A bit distressed
   - Quite distressed
   - Very distressed

2. In the last 3 months (90 days), have you ever believed in the power of witchcraft, voodoo or the occult?
   - Never
   - Sometimes
   - Often
   - Nearly always
1. You indicated that you have believed in the power of witchcraft, voodoo and/or the occult. Please indicate how distressed you are by this experience:

- [ ] Not distressed
- [ ] A bit distressed
- [ ] Quite distressed
- [ ] Very distressed

* 2. In the last 3 months (90 days), have you ever felt that people look at you oddly because of your appearance:

- [ ] Never
- [ ] Sometimes
- [ ] Often
- [ ] Nearly always
Survey of odd or unusual experiences - Survey3

15.

1. You indicated that you have [Q31] felt that people looked at you oddly because of your appearance. Please indicate how distressed you are by this experience:
   - Not distressed
   - A bit distressed
   - Quite distressed
   - Very distressed

2. In the last 3 months (90 days), have you ever felt as if the thoughts in your head are being taken away from you?
   - Never
   - Sometimes
   - Often
   - Nearly always
Survey of odd or unusual experiences  Survey3

16.

1. You indicated that you have [Q33] felt that the thoughts in your head have been taken away from you. Please indicate how distressed you are by this experience:
   - Not distressed
   - A bit distressed
   - Quite distressed
   - Very distressed

* 2. In the last 3 months (90 days), have you ever felt as if the thoughts in your head are not your own?
   - Never
   - Sometimes
   - Often
   - Nearly always
17.

1. You indicated that you have felt that the thoughts in your head are not your own. Please indicate how distressed you are by this experience:
   - Not distressed
   - A bit distressed
   - Quite distressed
   - Very distressed

2. In the last 3 months (90 days), have your thoughts ever been so vivid that you were worried other people would hear them?
   - Never
   - Sometimes
   - Often
   - Nearly always
### Survey of odd or unusual experiences - Survey 3

18.

1. You indicated that you [Q37] worried that the thoughts in your head were so vivid that others could hear them. Please indicate how distressed you are by this experience:

   - [ ] Not distressed
   - [ ] A bit distressed
   - [ ] Quite distressed
   - [ ] Very distressed

2. In the last 3 months (90 days), have you ever heard your thoughts being echoed back at you?

   - [ ] Never
   - [ ] Sometimes
   - [ ] Often
   - [ ] Nearly always
19.

1. You indicated that you [Q39] heard your thoughts being echoed back at you. Please indicate how distressed you are by this experience:
   - Not distressed
   - A bit distressed
   - Quite distressed
   - Very distressed

2. In the last 3 months (90 days), have you ever felt as if you are under the control of some force or power other than yourself?
   - Never
   - Sometimes
   - Often
   - Nearly always
20.

1. You indicated that you [Q41] felt as if you were under the control of some force or power other than yourself. Please indicate how distressed you are by this experience:
   - Not distressed
   - A bit distressed
   - Quite distressed
   - Very distressed

2. In the last 3 months (90 days), have you ever heard voices when you are alone?
   - Never
   - Sometimes
   - Often
   - Nearly always
Survey of odd or unusual experiences - Survey 3

21. You indicated that you [Q43] heard voices when you were alone. Please indicate how distressed you are by this experience:

- Not distressed
- A bit distressed
- Quite distressed
- Very distressed

*2. In the last 3 months (90 days), have you ever heard voices talking to each other when you are alone?

- Never
- Sometimes
- Often
- Nearly always
### Survey of odd or unusual experiences - Survey3

**22.**

1. You indicated that you [Q46] heard voices talking to each other when you were alone. Please indicate how distressed you are by this experience:
   - Not distressed
   - A bit distressed
   - Quite distressed
   - Very distressed

*2. In the last 3 months (90 days), have you ever felt as if a double has taken place of a family member, friend or acquaintance?*
   - Never
   - Sometimes
   - Often
   - Nearly always
Survey of odd or unusual experiences - Survey 3

23.

1. You indicated that you [Q47] felt as if a double had taken the place of a family member, friend or acquaintance. Please indicate how distressed you are by this experience:
   ○ Not distressed
   ○ A bit distressed
   ○ Quite distressed
   ○ Very distressed

2. In the last 3 months (90 days), have you ever seen objects, people or animals that other people can't see?
   ○ Never
   ○ Sometimes
   ○ Often
   ○ Nearly always
24.

1. You indicated that you had [Q49] seen objects, people or animals that other people couldn't see. Please indicate how distressed you are by this experience:
   - Not distressed
   - A bit distressed
   - Quite distressed
   - Very distressed

2. Overall, how distressed are these experiences making you feel?
   - Not distressed
   - A bit distressed
   - Quite distressed
   - Very distressed

3. For the question above, can you rate a number from 0-100. Where 0 = not distressed and 100 = very distressed
Survey of odd or unusual experiences - Survey 3

25. How you are feeling

The next 10 questions are designed to help us understand more about psychological feelings and distress. They are multi-choice where only one answer is required.

**1. During the last 30 days, about how often did you feel tired out for no good reason?**

- None of the time
- A little of the time
- Some of the time
- Most of the time
- All of the time

**2. During the last 30 days, about how often did you feel nervous?**

- None of the time
- A little of the time
- Some of the time
- Most of the time
- All of the time

**3. During the last 30 days, about how often did you feel so nervous that nothing could calm you down?**

- None of the time
- A little of the time
- Some of the time
- Most of the time
- All of the time

**4. During the last 30 days, about how often did you feel hopeless?**

- None of the time
- A little of the time
- Some of the time
- Most of the time
- All of the time
*5. During the last 30 days, about how often did you feel restless or fidgety?
   ○ None of the time
   ○ A little of the time
   ○ Some of the time
   ○ Most of the time
   ○ All of the time

*6. During the last 30 days, about how often did you feel so restless you could not sit still?
   ○ None of the time
   ○ A little of the time
   ○ Some of the time
   ○ Most of the time
   ○ All of the time

*7. During the last 30 days, about how often did you feel depressed?
   ○ None of the time
   ○ A little of the time
   ○ Some of the time
   ○ Most of the time
   ○ All of the time

*8. During the last 30 days, about how often did you feel that everything was an effort?
   ○ None of the time
   ○ A little of the time
   ○ Some of the time
   ○ Most of the time
   ○ All of the time

*9. During the last 30 days, about how often did you feel so sad that nothing could cheer you up?
   ○ None of the time
   ○ A little of the time
   ○ Some of the time
   ○ Most of the time
   ○ All of the time
Survey of odd or unusual experiences - Survey 3

*10. During the last 30 days, about how often did you feel worthless?

- [ ] None of the time
- [ ] A little of the time
- [ ] Some of the time
- [ ] Most of the time
- [ ] All of the time
Survey of odd or unusual experiences -Survey3

26. Mental Health and Young People

These questions are designed to help us gain a better understanding of mental health issues affecting young people.

* 1. Has anyone in your family ever been treated for a mental illness?
   - No (go to question 3)
   - Yes

2. Please tick the relevant box or boxes that describes what they receive treatment for?
   - depression
   - anxiety
   - psychosis/ schizophrenia
   - alcohol/drug abuse or dependence
   - Other (please specify)

* 3. Has anyone in your family ever been prescribed antipsychotic medication?
   - No
   - Yes

4. Over the past year, have you being seeing someone for support treatment of mental health issues?
   - Yes
   - No

5. If you answered yes, have you been given a diagnosis? If so, what:
   - No - no diagnosis
   - Yes - Depression
   - Yes - Anxiety
   - Yes - Psychosis
   - Yes - Bipolar affective disorder
   - Other (please specify)

* 6. Have you ever (in your lifetime) seriously thought about committing suicide?
   - No (go to question 12)
   - Yes
Survey of odd or unusual experiences - Survey 3

7. Within the past month have you ever seriously thought about committing suicide?
   - No
   - Yes (A member of the research team will contact you within the next week to discuss this with you and ensure your safety)

8. Have you ever (in your lifetime) made a plan for committing suicide?
   - No
   - Yes

9. Within the past month have you ever made a plan for committing suicide?
   - No
   - Yes (A member of the research team will contact you within the next week to discuss this with you and ensure your safety)

10. Have you ever (in your lifetime) attempted suicide?
    - No
    - Yes

11. Within the past month have you attempted suicide?
    - No
    - Yes (A member of the research team will contact you within the next week to discuss this with you and ensure your safety)

12. During the past 30 days, on how many days did you smoke cigarettes?
    - 3 days
    - 1 or 2 days
    - 3 to 5 days
    - 6 to 9 days
    - 10 to 19 days
    - 20 to 25 days
    - All 30 days
13. During the past 30 days, on how many days did you have at least one drink of alcohol?
- 0 days
- 1 or 2 days
- 3 to 5 days
- 6 to 9 days
- 10 to 19 days
- 20 to 29 days
- All 30 days

14. During the past 30 days, on how many days did you have 5 or more drinks of alcohol in a row, that is, within a couple of hours?
- 0 days
- 1 or 2 days
- 3 to 5 days
- 6 to 9 days
- 10 to 19 days
- 20 to 29 days
- All 30 days

15. During your life, how many times have you used cannabis? (Cannabis is also called marijuana, weed or pot.)
- 0 times (go to question 16)
- 1 or 2 times
- 3 to 9 times
- 10 to 19 times
- 20 to 30 times
- 40 to 99 times
- 100 or more times
Survey of odd or unusual experiences - Survey3

16. During the past 30 days, how many times did you use cannabis?

- 0 times
- 1 or 2 times
- 3 to 9 times
- 10 to 19 times
- 20 to 39 times
- 40 or more times

Please use the calendar below to answer the questions below about how long it has been since you have used cannabis.

```
2012

January

February

March

April

May

June

July

August

September

October

November

December
```

17. When did you last use cannabis? (please use the calendar above to assist you with providing the most accurate answer).

18. On how many separate occasions did you use cannabis on that day?

- Once
- Twice
- Three times
- Four times
- Five times or more
Survey of odd or unusual experiences - Survey3

19. When was the second last time that you used cannabis (i.e., the time before Q17)? (Please use the calendar above to assist with providing the most accurate answer).

20. On how many separate occasions did you use cannabis on that day?
   - once
   - Twice
   - Three times
   - Four times
   - Five times or more

21. And when was the third last time you tried cannabis (i.e., before Q19)? (Please use the calendar above to assist with providing the most accurate answer).

22. On how many separate occasions did you use cannabis on that day?
   - Once
   - Twice
   - Three times
   - Four times
   - Five times
   - More than five times

23. How old were you when you first used cannabis?

24. During the past 30 days, how many times have you used ecstasy?
   - 3 times
   - 1 or 2 times
   - 3 to 9 times
   - 10 to 19 times
   - 20 to 39 times
   - 40 or more times
Survey of odd or unusual experiences - Survey 3

*25. In the past 30 days, how many times have you used methamphetamines (speed, ice)?

☐ 3 times
☐ 1 or 2 times
☐ 3 to 9 times
☐ 10 to 19 times
☐ 20 to 39 times
☐ 40 or more times
27. Young people and the internet

Finally, we would like to know more about internet use.

* 1. About how many hours a day would you spend using the internet?

* 2. Have you ever talked about your problems on the internet with other young people (e.g., chat rooms, blogs, MSN or Gmail messenger)?
   - No (go to question 4)
   - Yes

3. Did you find this harmful, helpful or neither?
   - Harmful
   - Helpful
   - Neither

* 4. Have you ever used the internet to find information for a physical health problem?
   - No (go to question 6)
   - Yes

5. Did you find this harmful, helpful or neither?
   - Harmful
   - Helpful
   - Neither

* 6. Have you ever used the internet to find information for a mental health, alcohol or other substance use problem?
   - No (go to question 8)
   - Yes

7. Did you find this harmful, helpful or neither?
   - Harmful
   - Helpful
   - Neither
Survey of odd or unusual experiences - Survey 3

*8. How useful do you think an online program for odd or unusual thoughts or experiences would be?

- Not at all useful
- Somewhat useful
- Useful
- Very useful
- Extremely useful

*9. If you were having odd or unusual thoughts or experiences:

How likely is it that you would access an online program for information and assistance?

- Not at all likely
- Somewhat likely
- Likely
- Very likely
- Extremely likely

*10. If you were having odd or unusual thoughts or experiences:

How likely is it that you would seek help from a mental health professional?

- Not at all
- Somewhat likely
- Likely
- Very likely
28. Thank you

Thank you for your time.

We may like to invite you to participate in our future project of an online program to help young people who may have any odd or unusual experiences (www.ontrack.org.au/web/ontrack/programs/get-real).

Get Real is a free online program for people who are having odd or unusual experiences. This program uses techniques that have been shown to be helpful with odd or unusual experiences as well as strategies to assist with anxiety and depression. We may be interested in contacting you. Please tick that you are happy for this to occur and ensure your email is provided. Some participants who complete the online program may also be eligible to win an iPad.

*1. Please indicate that you would be happy for us to invite you to look at a trial for the online treatment program GetReal

☐ Yes
☐ No (Please do not contact me)

2. Please leave your email address and a member of the research team will be in contact with you via email.

☐

3. Finally, if you have any questions or would like further information, please indicate below, and leave your email contact. A member of the research team will be in contact with you shortly. Thank you.

☐
Survey of stress with odd or unusual experiences - UQ

1.

RESEARCH TEAM
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DESCRIPTION OF THE PROJECT
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A quarter of young people experience a psychological problem and 10-30% report distress with odd or unusual experiences.

To gain more understanding about these experiences an online survey has been developed. Completion of the survey is voluntary, and has no relationship with your courses or assessments. It will take about 20mins, and your responses would be confidential.

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This project involves an online survey about odd or unusual experiences. Your participation is voluntary, and you can withdraw consent at any time. To participate in this survey, we will need you to carefully read a statement on confidentiality, below, and then tick that you agree to participate. You will also be invited at the end of the survey to participate in an online program that we have developed for these experiences.

EXPECTED BENEFITS
It is expected that this project may or may not directly benefit you, but will benefit indirectly by helping us determine how to increase help seeking for mental health problems in young people. You may find access to the resources useful.

To recognize your contribution, should you choose to participate: the research team is offering participants an opportunity to go into a random draw to win one of six $100 Coles/Myer vouchers.

RISKS
Risks may include feeling distressed from the questions in the survey and triggering thoughts and worries relating to these experiences. Participants are offered the ability to contact the research team if they feel concerned about any content within the survey or feel they require assistance. There are three separate prompts within the survey to leave details so that a member of the research team can contact you (via email) within 3 days to offer support and information relating to services.

At the end of the survey there is also an option to link you with the GetReal website. This website has evidenced-based information and assists people to access help as required (ie phone numbers to key services such as Lifeline, BeyondBlue, Local Mental Health services etc).
Survey of stress with odd or unusual experiences - UQ

QUESTIONS / FURTHER INFORMATION ABOUT THE PROJECT
Please contact one of the research team members named above if you have any questions or if you require further information about the project.
CONCERNS / COMPLAINTS REGARDING THE CONDUCT OF THE PROJECT
QUT is committed to research integrity and the ethical conduct of research projects. However, if you do have any concerns or complaints about the ethical conduct of the project you may contact the QUT Research Ethics Unit on 07 3138 5123 or email ethicscontact@qut.edu.au. The QUT Research Ethics Unit is not connected with the research project and can facilitate a resolution to your concern in an impartial manner. Thank you for helping with this research project.

This study has been approved by the QUT Human Research Ethics Committee (approval numbers 1100000187 & 1100000663) and the University of Queensland (UQ) Human Research Ethics Committee (approval numbers 2013001417 & 2013001418).

CONFIDENTIALITY
To participate in this survey, we need you to carefully read the statement below, and then tick that you agree to participate.

This project involves an online survey about odd or unusual experiences. Your participation is voluntary, and you can withdraw consent at any time.

You can complete the survey without providing your email address. All comments and responses to this survey are confidential to the research team, and any identifiable information (including your email address) will be deleted once the study is completed, unless you want to obtain information about future studies. Decisions about participation in this survey will have no bearing on your current or future relationship with QUT. You are able to contact the research team at any point, should you want further information or find any aspects of the survey upsetting.

**1. I have read the above statement on confidentiality and acknowledge that this survey is only for people aged 16 or over,**

I am 16 years or over, and I **AGREE** to participate,

☐ Yes (continue with survey)
☐ No

**2. I live in Australia (Please answer ‘yes’ if you are an international student currently living in Australia temporarily).**

☐ Yes
☐ No
### 3. General Information

1. **What is your current age?**
   
2. **Are you,**
   - [ ] male
   - [ ] female
### Survey of stress with odd or unusual experiences - UQ

#### 4. Young People's Experiences

We know that lots of young people have odd or unusual experiences, especially when they are distressed. These questions help us identify how common some thoughts and experiences are for young people. There are 16 questions, and all are multiple choice. Remember all your answers are confidential.

**1. In your lifetime, have you ever felt as if people seem to drop hints about you or say things with a double meaning?**
- [ ] Never
- [ ] Sometimes
- [ ] Often
- [ ] Nearly always

**2. In your lifetime, have you ever felt as if some people are not what they seem to be?**
- [ ] Never
- [ ] Sometimes
- [ ] Often
- [ ] Nearly always

**3. In your lifetime, have you ever felt that you are being persecuted in any way?**
- [ ] Never
- [ ] Sometimes
- [ ] Often
- [ ] Nearly always

**4. In your lifetime, have you ever felt as if there is a conspiracy against you?**
- [ ] Never
- [ ] Sometimes
- [ ] Often
- [ ] Nearly always

**5. In your lifetime, have you ever felt as if electrical devices such as computers can influence the way you think?**
- [ ] Never
- [ ] Sometimes
- [ ] Often
- [ ] Nearly always
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6. In your lifetime, have you ever felt that people look at you oddly because of your appearance?
   - Never
   - Sometimes
   - Often
   - Nearly always

7. In your lifetime, have you ever felt as if the thoughts in your head are being taken away from you?
   - Never
   - Sometimes
   - Often
   - Nearly always

8. In your lifetime, have you ever felt as if the thoughts in your head are not your own?
   - Never
   - Sometimes
   - Often
   - Nearly always

9. In your lifetime, have your thoughts ever been so vivid that you were worried other people would hear them?
   - Never
   - Sometimes
   - Often
   - Nearly always

10. In your lifetime, have you ever heard your thoughts being echoed back at you?
    - Never
    - Sometimes
    - Often
    - Nearly always
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*11. In your lifetime, have you ever felt as if you are under the control of some force or power other than yourself?
- Never
- Sometimes
- Often
- Nearly always

*12. In your lifetime, have you ever heard voices when you are alone?
- Never
- Sometimes
- Often
- Nearly always

*13. In your lifetime, have you ever heard voices talking to each other when you are alone?
- Never
- Sometimes
- Often
- Nearly always

*14. In your lifetime, have you ever felt as if a double has taken place of a family member, friend or acquaintance?
- Never
- Sometimes
- Often
- Nearly always

*15. In your lifetime, have you ever seen objects, people or animals that other people can’t see?
- Never
- Sometimes
- Often
- Nearly always

*16. How distressed are you now, about having had these experiences?

<table>
<thead>
<tr>
<th>Scale</th>
<th>0 - Not distressed</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10 - Extremely distressed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5. How you are feeling

The next 10 questions are designed to help us understand more about psychological feelings and distress. They are multi-choice where only one answer is required.

**1. During the last 30 days, about how often did you feel tired out for no good reason?**
- None of the time
- A little of the time
- Some of the time
- Most of the time
- All of the time

**2. During the last 30 days, about how often did you feel nervous?**
- None of the time
- A little of the time
- Some of the time
- Most of the time
- All of the time

**3. During the last 30 days, about how often did you feel so nervous that nothing could calm you down?**
- None of the time
- A little of the time
- Some of the time
- Most of the time
- All of the time

**4. During the last 30 days, about how often did you feel hopeless?**
- None of the time
- A little of the time
- Some of the time
- Most of the time
- All of the time
Survey of stress with odd or unusual experiences - UQ

* 5. During the last 30 days, about how often did you feel restless or fidgety?
   - None of the time
   - A little of the time
   - Some of the time
   - Most of the time
   - All of the time

* 6. During the last 30 days, about how often did you feel so restless you could not sit still?
   - None of the time
   - A little of the time
   - Some of the time
   - Most of the time
   - All of the time

* 7. During the last 30 days, about how often did you feel depressed?
   - None of the time
   - A little of the time
   - Some of the time
   - Most of the time
   - All of the time

* 8. During the last 30 days, about how often did you feel that everything was an effort?
   - None of the time
   - A little of the time
   - Some of the time
   - Most of the time
   - All of the time

* 9. During the last 30 days, about how often did you feel so sad that nothing could cheer you up?
   - None of the time
   - A little of the time
   - Some of the time
   - Most of the time
   - All of the time
10. During the last 30 days, about how often did you feel worthless?

- None of the time
- A little of the time
- Some of the time
- Most of the time
- All of the time
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6. Mental Health and Young People

These questions are designed to help us gain a better understanding of mental health issues affecting young people.

* 1. Has anyone in your family ever been treated for a mental illness?
   - No (go to question 3)
   - Yes

2. Please tick the relevant box or boxes that describes what they receive treatment for?
   - depression
   - anxiety
   - psychosis/ schizophrenia
   - anorexia/ drug abuse or dependence
   - Other (please specify)

3. Over the past year, have you been seeing someone for support/ treatment of mental health issues?
   - Yes
   - No

4. If you answered yes, have you been given a diagnosis? If so, what:
   - No - no diagnosis
   - Yes - Depression
   - Yes - Anxiety
   - Yes - Psychosis
   - Yes - Bipolar affective disorder
   - Other (please specify)
5. During your life, how many times have you used cannabis? (Cannabis is also called marijuana, weed or pot.)
   - 0 times (go to question 9)
   - 1 or 2 times
   - 3 to 9 times
   - 10 to 19 times
   - 20 to 39 times
   - 40 to 59 times
   - 100 or more times

6. During the past 30 days, how many times did you use cannabis?
   - 0 times
   - 1 or 2 times
   - 3 to 9 times
   - 10 to 19 times
   - 20 to 39 times
   - 40 or more times

7. When did you last use cannabis? (please use an option provided).

8. How old were you when you first used cannabis?

9. Have you ever (in your lifetime) seriously thought about committing suicide?
   - No (go to the next section)
   - Yes

10. Within the past month have you ever seriously thought about committing suicide?
    - No
    - Yes (A member of the research team will contact you within the next week to discuss this with you and ensure your safety)

11. Have you ever (in your lifetime) made a plan for committing suicide?
    - No
    - Yes
Survey of stress with odd or unusual experiences - UQ

12. Within the past month have you ever made a plan for committing suicide?
   - No
   - Yes (a member of the research team will contact you within the next week to discuss this with you and ensure your safety)

13. Have you ever (in your lifetime) attempted suicide?
   - No
   - Yes

14. Within the past month have you attempted suicide?
   - No
   - Yes (a member of the research team will contact you within the next week to discuss this with you and ensure your safety)

15. If you have ever had a suicidal thought, what age were you when you had your FIRST suicidal thought?

16. Did you have odd or unusual experiences at this time?
   - No - none at all
   - Yes - I had these experiences but they had no impact on my suicidal thoughts
   - Yes - I had these experiences and they had an impact on my suicidal thoughts (i.e. contributed to them directly or made them worse)

17. If you used cannabis at this time, did you start using more?
   - No - no change in cannabis use
   - Yes - I increased cannabis use
Survey of stress with odd or unusual experiences - UQ

7. Young peoples experiences

We are going to ask you the same 15 questions at the start of this survey. However, we are interested in how these experiences maybe effecting your currently. Remember your responses are confidential. We are also able to provide you with feedback on your responses and how they compare to other young people.

* 1. In the past 3 months have you felt as if people seem to drop hints about you or say things with a double meaning?

- Never
- Sometimes
- Often
- Nearly always
1. You indicated, in the previous question, that it felt as if people were dropping hints or saying things about you that had a double meaning. Please indicate how distressed you are by this experience:

- Not distressed
- A bit distressed
- Quite distressed
- Very distressed
8.

1. You indicated, in the previous question, that it felt as if people were dropping hints or saying things about you that had a double meaning. Please indicate how distressed you are by this experience:

- Not distressed
- A bit distressed
- Quite distressed
- Very distressed
1. You indicated, in the previous question, that people are not what they seem to be. Please indicate how distressed you are by this experience:
   - Not distressed
   - A bit distressed
   - Quite distressed
   - Very distressed
11.

*1. In the past 3 months, have you ever felt that you are being persecuted in any way?

- Never
- Sometimes
- Often
- Nearly always
12.

1. You indicated, in the previous question, that you have felt persecuted in some way. Please indicate how distressing you found this experience:

- Not distressing
- A lot distressing
- Quite distressing
- Very distressing
13.

* 1. In the past 3 months, have you ever felt as if there is a conspiracy against you?
   - Never
   - Sometimes
   - Often
   - Nearly always
1. You indicated, in the previous question, that you feel there is a conspiracy against you. Please indicate how distressed you are by this experience:

- [ ] Not distressed
- [ ] A bit distressed
- [ ] Quite distressed
- [ ] Very distressed
1. In the past 3 months, have you ever felt as if electrical devices such as computers can influence how you think?

- Never
- Sometimes
- Often
- Nearly always
16. You indicated, in the previous question, that you have thought that electrical devices such as computers could influence your thoughts. Please indicate how distressed you are by this experience:

- [ ] Not distressed
- [ ] A bit distressed
- [ ] Quite distressed
- [ ] Very distressed
17.

1. In the past 3 months, have you ever felt that people look at you oddly because of your appearance

- Never
- Sometimes
- Often
- Nearly always
1. You indicated, in the previous question, that you have felt that people looked at you oddly because of your appearance. Please indicate how distressed you are by this experience:

- [ ] Not distressed
- [ ] A bit distressed
- [ ] Quite distressed
- [ ] Very distressed
19.

1. In the past 3 months, have you ever felt as if the thoughts in your head are being taken away from you?
   - [ ] Never
   - [ ] Sometimes
   - [ ] Often
   - [ ] Nearly always
Survey of stress with odd or unusual experiences -UQ

20.

1. You indicated, in the previous question, that you have felt that the thoughts in your head have been taken away from you. Please indicate how distressed you are by this experience:
   - [ ] Not distressed
   - [ ] A bit distressed
   - [ ] Quite distressed
   - [ ] Very distressed
<table>
<thead>
<tr>
<th>Survey of stress with odd or unusual experiences -UQ</th>
</tr>
</thead>
</table>

**21.**

*1. In the past 3 months, have you ever felt as if the thoughts in your head are not your own?*

- [ ] Never
- [ ] Sometimes
- [ ] Often
- [ ] Nearly always
22.

1. You indicated, in the previous question, that you have felt that the thoughts in your head are not your own. Please indicate how distressed you are by this experience:

- [ ] Not distressed
- [ ] A bit distressed
- [ ] Quite distressed
- [ ] Very distressed
23.

* 1. In the past 3 months, have your thoughts ever been so vivid that you were worried other people would hear them?

- Never
- Sometimes
- Often
- Nearly always
Survey of stress with odd or unusual experiences - UQ

24.

1. You indicated, in the previous question, that you worried that the thoughts in your head were so vivid that others could hear them. Please indicate how distressed you are by this experience:

- [ ] Not distressed
- [ ] A bit distressed
- [ ] Quite distressed
- [ ] Very distressed
25.

*1. In the past 3 months, have you ever heard your thoughts being echoed back at you?

- Never
- Sometimes
- Often
- Nearly always
26.

1. You indicated, in the previous question, that you heard your thoughts being echoed back at you. Please indicate how distressed you are by this experience:
   - [ ] Not distressed
   - [ ] A bit distressed
   - [ ] Quite distressed
   - [ ] Very distressed
27.

* 1. In the past 3 months, have you ever felt as if you are under the control of some force or power other than yourself?

☐ Never
☐ Sometimes
☐ Often
☐ Nearly always
28.

1. You indicated, in the previous question, that you felt as if you were under the control of some force or power other than yourself. Please indicate how distressed you are by this experience:
   - Not distressed
   - A bit distressed
   - Quite distressed
   - Very distressed
29.

1. In the past 3 months, have you ever heard voices when you are alone?
   - Never
   - Sometimes
   - Often
   - Nearly always
Survey of stress with odd or unusual experiences - UQ

30.

1. You indicated, in the previous question, that you heard voices when you were alone. Please indicate how distressed you are by this experience:

- Not distressed
- A bit distressed
- Quite distressed
- Very distressed
31. * In the past 3 months, have you ever heard voices talking to each other when you are alone?

- Never
- Sometimes
- Often
- Nearly always
32.

1. You indicated, in the previous question, that you heard voices talking to each other when you were alone. Please indicate how distressed you are by this experience:

- [ ] Not distressed
- [ ] A bit distressed
- [ ] Quite distressed
- [ ] Very distressed
1. In the past 3 months, have you ever felt as if a double has taken place of a family member, friend or acquaintance?

- Never
- Sometimes
- Often
- Nearly always
1. You indicated, in the previous question, that you felt as if a double had taken the place of a family member, friend or acquaintance. Please indicate how distressed you are by this experience:

- Not distressed
- A bit distressed
- Quite distressed
- Very distressed
35.

1. In the past 3 months, have you ever seen objects, people or animals that other people can’t see?

- Never
- Sometimes
- Often
- Nearly always
### Survey of stress with odd or unusual experiences - UQ

36.

1. You indicated, in the previous question, that you had seen objects, people or animals that other people couldn’t see. Please indicate how distressed you are by this experience:

- [ ] Not distressed
- [ ] A bit distressed
- [ ] Quite distressed
- [ ] Very distressed
37.

1. **Overall, how distressed are these experiences making you feel currently?**

   - [ ] Not distressed
   - [ ] A bit distressed
   - [ ] Quite distressed
   - [ ] Very distressed
38. Thank you

Thank you for your time.

We would like to invite you to participate in our online program to help young people who may have any distress with odd or unusual experiences.

GetReal is a free online program for people who are distressed and having odd or unusual experiences. This program uses techniques that have been shown to be helpful with odd or unusual experiences as well as strategies to assist with anxiety and depression. We are currently evaluating the program and seeking participants. If you agree, we would like to email you your results from the 15 questions you answered above and then send you a login for the program.

This program has ethics approval (QUT #1100000053 & UQ #2013001418) and you will be reentered into the prize draw for a chance to win $100 Coles/Myer vouchers.

Please leave your email address below and you will be sent an email with your results included.

1. Please leave your email address below and you will be entered into the prize draw to win one of six $100 Coles/Myer Vouchers. Please note: emails are confidential and only used for the purpose of this research study.

2. Please leave an email contact to find out how your scores on the Weird Stuff quiz (15 Questions) compare to other young people. You will also be asked to consider participating in a trial of a new website targeting Weird Stuff in young people.

   - [ ] Yes - I am interested in my feedback and hearing more about Getreal.
   - [ ] No - I am not interested and do not want further contact.

3. Finally, if you have any questions or would like further information, please indicate below, and leave your email contact. A member of the research team will be in contact with you shortly. Thank you.
Appendix 4

A-4.1 CAPE-P15 tool

Note; there are two versions of the CAPE-P15 provided. The first version does not include the distress questions but the second version does.

Scoring:

Each question is scored as follows:

Never = 0
Sometimes = 1
Often = 2
Nearly Always = 3

When using version two and distress scores as well:

Not distress = 1
A bit distressed = 2
Quite distressed = 3
Very Distressed = 4
These questions are from the Community Assessment of Psychic Experiences (CAPE) positive scale questionnaire. For each item, please indicate how often you have felt that way.

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Sometimes</th>
<th>Often</th>
<th>Nearly Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Have you ever felt as if people seem to drop hints about you or say things with a double meaning?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Have you ever felt as if some people are not what they seem to be?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Have you ever felt that you are being persecuted in anyway?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Have you ever felt as if there is a conspiracy against you?</td>
<td></td>
<td></td>
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<tr>
<td>5</td>
<td>Have you ever felt as if electrical devices such as computers can influence the way you think?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Have you ever felt that people look at you oddly because of your appearance?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Have you ever felt as if the thoughts in your head are being taken away from you?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Have you ever felt as if the thoughts in your head are not your own?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Have your thoughts ever been so vivid that you were worried other people would hear them?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Have you ever heard your thoughts being echoes back at you?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Have you ever felt as if you are under the control of some force or power other than yourself?</td>
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<tr>
<td>12</td>
<td>Have you ever heard voices when you are alone?</td>
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</tr>
<tr>
<td>13</td>
<td>Have you ever heard voiced talking to each other when you are alone?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Have you ever felt as if a double has taken the place of a family member, friend or acquaintance?</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Have you ever seen objects, people or animals that other people can't see?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Overall, how distressed are these experiences making you feel?</td>
<td>Not distressed</td>
<td>A bit distressed</td>
<td>Quite distressed</td>
</tr>
</tbody>
</table>
CAPE-P15 – Version 2 lifetime with distress.

These questions are from the Community Assessment of Psychic Experiences (CAPE) positive scale questionnaire. For each item, please indicate how often you have felt that way. (please circle)

1. **Have you ever felt as if people seem to drop hints about you or say things with a double meaning?**

<table>
<thead>
<tr>
<th>Never</th>
<th>Sometimes</th>
<th>Often</th>
<th>Nearly always</th>
</tr>
</thead>
</table>

If you ticked "never", please go to question 2.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience: (please circle)

<table>
<thead>
<tr>
<th>Not distressed</th>
<th>A bit distressed</th>
<th>Quite distressed</th>
<th>Very distressed</th>
</tr>
</thead>
</table>

2. **Have you ever felt as if some people are not what they seem to be?**

<table>
<thead>
<tr>
<th>Never</th>
<th>Sometimes</th>
<th>Often</th>
<th>Nearly always</th>
</tr>
</thead>
</table>

If you ticked "never", please go to question 3.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience: (please circle)

<table>
<thead>
<tr>
<th>Not distressed</th>
<th>A bit distressed</th>
<th>Quite distressed</th>
<th>Very distressed</th>
</tr>
</thead>
</table>

3. **Have you ever felt that you are being persecuted in anyway?**

<table>
<thead>
<tr>
<th>Never</th>
<th>Sometimes</th>
<th>Often</th>
<th>Nearly always</th>
</tr>
</thead>
</table>

If you ticked "never", please go to question 4.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience: (please circle)

<table>
<thead>
<tr>
<th>Not distressed</th>
<th>A bit distressed</th>
<th>Quite distressed</th>
<th>Very distressed</th>
</tr>
</thead>
</table>

4. **Have you ever felt as if there is a conspiracy against you?**

<table>
<thead>
<tr>
<th>Never</th>
<th>Sometimes</th>
<th>Often</th>
<th>Nearly always</th>
</tr>
</thead>
</table>

277
If you ticked "never", please go to question 5.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience: (please circle)

- Not distressed
- A bit distressed
- Quite distressed
- Very distressed

5. Have you ever felt as if electrical devices such as computers can influence the way you think?

- Never
- Sometimes
- Often
- Nearly always

If you ticked "never", please go to question 6.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience: (please circle)

- Not distressed
- A bit distressed
- Quite distressed
- Very distressed

6. Have you ever felt that people look at you oddly because of your appearance?

- Never
- Sometimes
- Often
- Nearly always

If you ticked "never", please go to question 7.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience: (please circle)

- Not distressed
- A bit distressed
- Quite distressed
- Very distressed

7. Have you ever felt as if the thoughts in your head are being taken away from you?

- Never
- Sometimes
- Often
- Nearly always

If you ticked "never", please go to question 8.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience: (please circle)

- Not distressed
- A bit distressed
- Quite distressed
- Very distressed

8. Have you ever felt as if the thoughts in your head are not your own?
If you ticked “never”, please go to question 9.

If you ticked “sometimes”, “often” or “nearly always” please indicate how distressed you are by this experience: (please circle)

<table>
<thead>
<tr>
<th>Not distressed</th>
<th>A bit distressed</th>
<th>Quite distressed</th>
<th>Very distressed</th>
</tr>
</thead>
</table>

9. Have your thoughts ever been so vivid that you were worried other people would hear them?

If you ticked “never”, please go to question 10.

If you ticked “sometimes”, “often” or “nearly always” please indicate how distressed you are by this experience: (please circle)

<table>
<thead>
<tr>
<th>Not distressed</th>
<th>A bit distressed</th>
<th>Quite distressed</th>
<th>Very distressed</th>
</tr>
</thead>
</table>

10. Have you ever heard your thoughts being echoed back at you?

If you ticked “never”, please go to question 11.

If you ticked “sometimes”, “often” or “nearly always” please indicate how distressed you are by this experience: (please circle)

<table>
<thead>
<tr>
<th>Not distressed</th>
<th>A bit distressed</th>
<th>Quite distressed</th>
<th>Very distressed</th>
</tr>
</thead>
</table>

11. Have you ever felt as if you are under the control of some force or power other than yourself?

If you ticked “never”, please go to question 12.

If you ticked “sometimes”, “often” or “nearly always” please indicate how distressed you are by this experience: (please circle)

<table>
<thead>
<tr>
<th>Not distressed</th>
<th>A bit distressed</th>
<th>Quite distressed</th>
<th>Very distressed</th>
</tr>
</thead>
</table>
12. Have you ever heard voices when you are alone?

| Never | Sometimes | Often | Nearly always |

If you ticked "never", please go to question 13.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience: (please circle)

| Not distressed | A bit distressed | Quite distressed | Very distressed |

13. Have you ever heard voiced talking to each other when you are alone?

| Never | Sometimes | Often | Nearly always |

If you ticked "never", please go to question 14.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience: (please circle)

| Not distressed | A bit distressed | Quite distressed | Very distressed |

14. Have you ever felt as if a double has taken the place of a family member, friend or acquaintance?

| Never | Sometimes | Often | Nearly always |

If you ticked "never", please go to question 15.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience: (please circle)

| Not distressed | A bit distressed | Quite distressed | Very distressed |

15. Have you ever seen objects, people or animals that other people can’t see?

| Never | Sometimes | Often | Nearly always |

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience: (please circle)

| Not distressed | A bit distressed | Quite distressed | Very distressed |
A-4.2 Tables of endorsed frequencies of lifetime and current CAPE-P15 tool

Table A-4.1: Percentages of responses (N= 1610) for lifetime CAPE-P15

<table>
<thead>
<tr>
<th>Questions</th>
<th>Never (%)</th>
<th>Sometimes (%)</th>
<th>Often (%)</th>
<th>Nearly Always (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAPE 1</td>
<td>14</td>
<td>69</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>CAPE 2</td>
<td>5</td>
<td>53</td>
<td>38</td>
<td>5</td>
</tr>
<tr>
<td>CAPE 3</td>
<td>48</td>
<td>45</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>CAPE 4</td>
<td>72</td>
<td>25</td>
<td>3</td>
<td>0.4</td>
</tr>
<tr>
<td>CAPE 5</td>
<td>59</td>
<td>24</td>
<td>13</td>
<td>4</td>
</tr>
<tr>
<td>CAPE 6</td>
<td>34</td>
<td>49</td>
<td>13</td>
<td>4</td>
</tr>
<tr>
<td>CAPE 7</td>
<td>85</td>
<td>12</td>
<td>3</td>
<td>0.3</td>
</tr>
<tr>
<td>CAPE 8</td>
<td>75</td>
<td>21</td>
<td>4</td>
<td>0.1</td>
</tr>
<tr>
<td>CAPE 9</td>
<td>71</td>
<td>24</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>CAPE 10</td>
<td>78</td>
<td>17</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>CAPE 11</td>
<td>76</td>
<td>21</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>CAPE 12</td>
<td>92</td>
<td>7</td>
<td>1</td>
<td>0.1</td>
</tr>
<tr>
<td>CAPE 13</td>
<td>82</td>
<td>17</td>
<td>1</td>
<td>0.2</td>
</tr>
<tr>
<td>CAPE 14</td>
<td>94</td>
<td>5</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>CAPE 15</td>
<td>83</td>
<td>15</td>
<td>2</td>
<td>0.4</td>
</tr>
</tbody>
</table>

*note: All percentages rounded to the closest whole number except for values equal or ≤ 0.4

Table A-4.2: Percentages of responses (N= 489) for current CAPE-P15

<table>
<thead>
<tr>
<th>Questions</th>
<th>Never (%)</th>
<th>Sometimes (%)</th>
<th>Often (%)</th>
<th>Nearly Always (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAPE 1</td>
<td>24</td>
<td>60</td>
<td>14</td>
<td>1</td>
</tr>
<tr>
<td>CAPE 2</td>
<td>21</td>
<td>53</td>
<td>21</td>
<td>4</td>
</tr>
<tr>
<td>CAPE 3</td>
<td>64</td>
<td>31</td>
<td>4</td>
<td>0.2</td>
</tr>
<tr>
<td>CAPE 4</td>
<td>83</td>
<td>15</td>
<td>1</td>
<td>0.2</td>
</tr>
<tr>
<td>CAPE 5</td>
<td>63</td>
<td>23</td>
<td>11</td>
<td>2</td>
</tr>
<tr>
<td>CAPE 6</td>
<td>34</td>
<td>46</td>
<td>14</td>
<td>5</td>
</tr>
<tr>
<td>CAPE 7</td>
<td>89</td>
<td>8</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>CAPE 8</td>
<td>81</td>
<td>14</td>
<td>3</td>
<td>0.4</td>
</tr>
<tr>
<td>CAPE 9</td>
<td>77</td>
<td>19</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>CAPE 10</td>
<td>79</td>
<td>17</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>CAPE 11</td>
<td>81</td>
<td>15</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>CAPE 12</td>
<td>94</td>
<td>5</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>CAPE 13</td>
<td>84</td>
<td>12</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>CAPE 14</td>
<td>95</td>
<td>3</td>
<td>1</td>
<td>0.2</td>
</tr>
<tr>
<td>CAPE 15</td>
<td>89</td>
<td>8</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

*note: All percentages rounded to the closest whole number except for values equal or ≤ 0.4
Appendix 5

A-5.1 Getreal program – screen shots

Did you know...
Almost 1 in 3 people will experience Weird Stuff at some time in their life

If you haven't already done so, we recommend you do the Weird Stuff Quiz if you want to know how your Weird Stuff compares to 880 year 10 students in Melbourne.

Remember... most people who have Weird Stuff get on perfectly well without needing professional help.

Your Weird Stuff Weird Thoughts or Ideas?

Think about the last time you had a weird thought or idea...

Was it like any of these?

- People are out to get me in some way
- People seem to drop hints about me or say things with double meaning
- I am very special or unusual
- People look at me oddly because of my appearance
- There is a conspiracy against me
- I have felt electrical devices such as a computer can influence the way I think
Your Weird Stuff  What Could be Causing It?
A lot of things can cause weird stuff.

Could any of these be causing your Weird Stuff?

- I'm really upset or worried about something
- My thoughts or worries
- Other people are experiencing the same thing
- I might be getting confused about things
- I'm really tired
- I'm really stressed
- I've been using drugs like cannabis, speed, ecstasy, LSD, magic mushrooms...

Your Weird Stuff  Chill your mind

Freaking out can make the Weird Stuff worse. Being mindful can help you feel calm and think more clearly.
Your Weird Stuff  Weird Experiences - Hallucinations

Think about the last time you had a weird experience. Was it any like these?

- [ ] Seen things others can’t see  
- [ ] Heard voices when alone

Hallucinations occur when you see, hear, feel, smell or taste something that feels very real but is not actually there. They can happen even if there is no source for the experience.

If you think you are having a hallucination, try asking:

- [ ] Is it real? Can I take a photo of it? Can I record it?
- [ ] Can my friends hear or see it?

Your Weird Stuff  Weird Experiences - Illusions

Think about the last time you had a weird experience...

Was it like any of these?

- [ ] I thought I heard someone call my name on a busy street
- [ ] I thought I saw someone I knew, but it wasn’t them

These are illusions. Illusions are a common experience, and can happen to anyone. They are usually nothing to worry about.

Illusions happen when your brain makes a mistake.

Some illusions happen because of the way our brain works.
### Stress Less: How Do You Feel Stress?

Click on the things that happen to you when you feel stress.

**Thinking**
- Can't think straight
- Racing thoughts
- Forget things
- Think I'm losing control
- Worry a lot
- Mind slows down
- Trouble making decisions

**Feelings**
- Sad
- Annoyed
- Panicky
- Angry
- Flat
- Worry
- Frustrated
- Mood swings
- Disinterested

**Physical**
- Eat (more or less)
- Feel tense
- Aches and pains
- Feel sick
- Sleep (more or less)
- Feel tired
- Sweat

---

### Stress Less: What Stresses You Out?

Click on the things stressing you out!!

**People Stuff**
- Problems with friends
- Problems with family
- No social life
- Relationship problems
- Being a victim of assault or abuse
- Someone dying
- Fights

**School or Work Stuff**
- Exams
- Money problems
- Problems at work, school or uni
- Work pressures
- Career expectations
- Being bullied
- Cyberbullying

**Other Stuff**
- Big changes in my life
- Poor health
- Boredom
**Stress Less by Relaxing**

Which relaxing activities can you try?

- **Take a belly breath**
  
  Anytime, anywhere. Take a deep breath in for 3 seconds all the way to your belly. Hold and then breathe out slowly for 3 seconds.

  - [ ] I can try this

- **Close your eyes and think of the ocean**
  
  Imagine the waves and try to time your breathing to the pace of the waves.

  - [ ] I can try this

**Stress Less by Chilling**

- **Listen to music**
  
  Take some music and listen to the beat, notice the lyrics as well as the sounds of instruments. Focus on the music.

  - [ ] I can try this

- **Eat your favourite food mindfully**
  
  Sight - look at the cookie
  Touch - how does the cookie feel?
  Smell - smell the cookie
  Sound - take a bite of the cookie, what do you hear?
  Taste - slowly eat the cookie, focus on tasting (and enjoying!!) every bit
Good Vibes  Increasing Good Vibes

Doing at least 1 fun thing a day will make you feel good. Look at the list and thing about the fun things you enjoy.

What activities would you like to do more often?

<table>
<thead>
<tr>
<th>Social</th>
<th>Physical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Talk on the phone</td>
<td>Play a team sport</td>
</tr>
<tr>
<td>Visit someone</td>
<td>Go swimming</td>
</tr>
<tr>
<td>Invite someone over</td>
<td>Go cycling</td>
</tr>
<tr>
<td>Eat out with someone</td>
<td>Go running</td>
</tr>
<tr>
<td>Go out with someone</td>
<td>Go to the gym</td>
</tr>
</tbody>
</table>

If Weird Stuff is bothering you, the most important thing is that you tell somebody.

Who can help:

- Parent
- Friend
- Doctor
- School counsellor/nurse
- Youth worker
- Mental health professional
- Teacher
- Brother or sister