

PSYCHOTIC LIKE EXPERIENCES AND YOUTH MENTAL HEALTH

Abstract

Aim: The prevalence of psychotic-like experiences (PLEs) was explored in a sample of 14-25 year olds with non-psychotic mental health difficulties. Associations between PLEs, psychopathology, functioning, trauma history and pathways to care were examined.

Methods: Data were collected for 202 young people. Clinicians rated PLEs using the Primary Care Checklist (PCC) and functioning using Global Assessment Scales. Eighty-three young people completed self-report assessments of PLEs using the Prodromal Questionnaire (PQ-16) and measures of social anxiety, depression, trauma history and pathways to care.

Results: There was a high prevalence of PLEs in the sample. The prevalence of PLEs was higher when young people self-rated their experiences. Endorsement frequencies for PLEs ranged from 3.5-24% on the PCC and 22-70% on the PQ-16. Higher scores on the PQ-16 were associated with more pathways into care, and greater exposure to traumatic life events.

Conclusions: PLEs are common in young people with non-psychotic mental health difficulties and may reflect increased severity and complexity of mental health difficulties. Routine screening and further assessment of PLEs is important in understanding and responding to such experiences. Screening should include self-rating of PLEs as well as clinician-rated scales.

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Keywords

Adolescent, Cross-Sectional Studies, Mental Health

Practitioner Points

Clinical Implications

- Psychotic-like experiences are common in young people with severe non-psychotic mental health problems and should be routinely screened for in mental health services.
- Psychotic-like experiences were found to be more prevalent when using a self-report screening tool compared to a clinician-rated measure.
- The presence of psychotic-like experiences may reflect more severe and complex mental health problems and may also cause delays in young people accessing the right kind of support.

Limitations

- This study only assessed the presence or absence of psychotic-like experiences. Further studies should use more detailed assessments to understand more about the nature of such experiences and how they are appraised and responded to.
- This study is cross-sectional and therefore the direction of the relationships between psychotic-like experiences and depression, anxiety, functioning and trauma cannot be specified.
- Longitudinal studies are needed to examine the impact of psychotic-like experiences on long-term outcomes.

Background and Introduction

Psychotic-like experiences (PLEs) are common in adolescence and early adulthood, with prevalence rates of 5-8% in the general population (van Os et al., 2009) and up to 47% in young people with diagnoses of anxiety and depression accessing mental health services (Wigman et al., 2012; Wigman et al., 2014). It has been suggested that, rather than existing on a separate dimension, PLEs may be on a continuum of common mental distress with anxiety and depression (Stochl et al., 2015), with their presence denoting increased complexity and severity of difficulties. PLEs in adolescent populations may therefore act as markers for at-risk mental states for psychosis but also for severe non-psychotic disorders (Kelleher et al., 2012).

The presence of PLEs, along with other risk factors, is often used to identify individuals who may be at ultra high risk (UHR) of developing psychosis. Current estimates suggest that UHR criteria can be used to identify individuals with a 30% risk of developing psychosis over a 2-year period (Fusar-Poli et al., 2012). Whilst the presence of PLEs alone does not necessarily predict future transition to psychosis (Yung et al., 2007), it is arguably important to assess and address such experiences where they cause distress. Indeed, individuals meeting UHR criteria but who do not convert to psychosis have been shown to have poor long-term outcomes (Brandizzi et al., 2015; Kelleher et al., 2014; Lin et al., 2011) and similar levels of functional impairment to those who make transition (Fusar-Poli et al., 2015). Thus, PLEs may reflect an increased clinical risk for a range of adverse outcomes, consistent with the pluripotent risk syndrome model (Yung et al., 2012). It is possible that interventions recommended for individuals with at-risk mental states, such as psychoeducation, normalising, and cognitive behavioural therapy, could be helpful for this group and may also have positive effects on affective symptoms (NICE, 2013). However, further research is necessary.

Given the prevalence and potential impact of PLEs, there is an argument for routinely screening for such experiences in clinical practice. This may be important in reducing transition to

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psychosis but also in improving outcomes for non-converters. However, there are numerous methods of assessing PLEs, including structured interviews (Yung et al., 2002), self-report scales (Ising et al., 2012), and clinician-rated tools (French et al., 2012). It is possible that the way in which PLEs are measured may influence prevalence rates (Johns et al., 2004; Grano et al., 2011; Fusar-Poli & van Os, 2013). Most studies assessing the prevalence of PLEs in individuals with other psychiatric diagnoses have tended to focus on community samples or use large scale surveys (van Os et al., 2009; Ronald et al., 2014). The few studies which have examined PLEs in young people in clinical practice have focused on children aged under 16 years (Wigman et al., 2014; Kelleher et al., 2014; Ames et al., 2014). In addition to these studies, Gin et al. (2017) recently screened for PLEs in young people accessing traditional Child and Adolescent Mental Health Services (CAMHS) for under 18s and showed that around two-thirds of young people may benefit from targeted interventions for PLEs. The prevalence of PLEs in older adolescents and young adults accessing mental health services is however largely unknown, as is the practicality of routine screening within this client group. The onset of severe mental illness peaks in the adolescent to young adulthood period, with 75% of mental disorders starting by 24 years of age. Therefore, exploring the prevalence of PLEs and associations with other psychopathology has important implications for understanding the complexity of mental health difficulties in this age group, and may also help to identify individuals who may be at risk of long-term mental health problems and poor functional outcomes.

The aims of the current study were to assess PLEs in a group of young people aged 14-25 years who did not have a diagnosis of psychosis but who were accessing a pilot Specialist Youth Mental Health Service (SYMHS). The study used a cross-sectional design to assess PLEs, using clinician ratings and a self-report scale, shortly after the young person had been accepted into secondary mental health services. The three main aims of the study were:

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1. To assess the prevalence of PLEs in a sample of non-psychotic young people aged 14-25 years who were accessing secondary mental health services, using both self-report and clinician-rated measures.
2. To explore the number of young people who screen positive for a possible at-risk mental state and who may benefit from further assessment of their experiences.
3. To examine relationships between PLEs and other mental health symptoms, level of functioning, trauma history and pathways to care, within this sample.
4. To investigate gender and age differences in prevalence of PLEs amongst this sample.

Method

Service Context

The study took place in the Specialist Youth Mental Health Service (SYMHS) pilot in Norfolk, UK (Wilson et al., 2017). The SYMHS pilot was established to work with young people aged 14-25 years who were experiencing severe non-psychotic mental health difficulties (defined as Health of the Nation Outcome Scales (HoNOS; Wing et al., 1996) clusters 4 and above) in addition to poor social/occupational functioning (defined as a score of 50 or below on the Global Assessment of Functioning for those aged over 18 or a score of 40 or below on the Child Global Assessment Scale for those aged under 18). Primary diagnoses of psychotic disorders, substance misuse and eating disorders were excluded from the service, as interventions for these diagnoses were provided by other specialist services. Young people accessing the SYMHS pilot presented with a range of mental health difficulties, including depression, anxiety, obsessive-compulsive disorder, post-traumatic stress disorder, bipolar disorder and personality disorders. The service was not designed as a specific at-risk mental state service but rather offered an early intervention style model with an emphasis on functional recovery to young people aged 14-25 with a broad range of complex emerging mental health difficulties. This approach is similar to the Australian *headspace* model (McGorry et al., 2013)

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but the SYMHS pilot accepted only the most complex and severe referrals. The service also differs from a traditional CAMHS model which accept referrals for young people aged under 18.

Participants

Participants were consecutive referrals into the SYMHS pilot between April 2012 and March 2013. Over the study period, the service received 405 referrals, of which 235 (58%) were accepted. Of 170 young people who were not accepted into the service, 117 (69%) did not meet service criteria following assessment. Of those who were accepted into the service, 202 (86%) young people consented for their data to be used for service evaluation purposes. The mean age of the sample was 18.44 years (SD = 2.69) and N= 133 (65.8%) were female. One hundred and three participants (51%) were aged under 18 and n = 99 (49%) were aged 18 and above. A subsample of n = 83 young people consented to undertake additional assessments about their current difficulties. The mean age of the subsample was 18.73 years (SD = 2.82) and N = 60 (72.3%) were female. Within the subsample, n = 37 (44.6%) were aged under 18 and n = 46 (55.4%) were aged 18 and above. There was no difference between individuals who did and did not complete the additional individual assessments in terms of age ($t = (df 200) -1.28, p = .20$), gender ($\chi^2 (1) = 2.60, p = .11$), or level of baseline functioning on the GAF/CGAS ($t = (df 200) -0.34, p = .74$).

Measures

Minimum data set completed by clinicians

Prodromal symptoms of psychosis were assessed by clinicians using the Primary Care Checklist (PCC; French et al., 2012). The PCC is a 20-item checklist including items relating to future risk of developing psychosis, including PLEs (e.g. hallucinations, paranoia) and impaired psychological and social functioning (e.g. spending more time alone, sleep difficulties). It was designed specifically for use by healthcare professionals working with help-seeking individuals, both young people and adults. Items are weighted depending on their relevance to psychosis and the total checklist score ranges from 0 to 55. Five of the checklist items are considered to be indicative

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of psychosis risk, even if observed in isolation of any other checklist items. These items relate to attenuated or transient psychotic symptoms and family history plus impaired functioning. A total score of 20 or above (it is not possible to score above 20 without endorsing one of the indicators of psychosis), or endorsement of any one of the five key indicators alone is judged to be a positive screen outcome and has been shown to be predictive of at-risk mental state on the Comprehensive Assessment of At-Risk Mental State (CAARMS; Yung et al., 2002), with a sensitivity of 96% and specificity of 10% (French et al., 2012).

Functioning was rated using the Global Assessment of Functioning (GAF; APA, 2000) for those aged 18 and above and the Children's Global Assessment Scale (CGAS; Shaffer et al., 1983) was used for those aged under 18. For both scales, clinicians assigned a rating between 1 (serious and persistent poor functioning) to 100 (superior functioning) to reflect an individual's current level of functioning. Scores below 50 are indicative of poor functioning. Clinicians also completed the Time Use Survey (TUS; Hodgekins et al., 2015) in relation to their clients. The TUS is a semi-structured interview assessing hours per week spent in a range of structured activities (work, education, voluntary work, childcare, housework, leisure and sports) over the past month. On average, a non-clinical group aged between 16-36 years engage in 63.49 hours of structured activity per week, and activity levels below 30 hours are indicative of poor social functioning (Hodgekins et al., 2015). The TUS is suitable for use with both children and adults.

Assessments completed with young people

Prodromal symptoms of psychosis were self-reported by participants using the 16-item Prodromal Questionnaire (PQ-16; Ising et al., 2012). Items refer to PLEs (e.g. I have seen things that other people apparently can't see), low mood (e.g. I feel uninterested in things I used to enjoy) and anxiety (e.g. I get extremely anxious when meeting people for the first time). The PQ-16 is a screening tool for detection of at-risk mental states and endorsing 6 or more items on the PQ-16 has been shown to be predictive of at-risk mental state on the CAARMS (Yung et al., 2002), with high

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sensitivity (87%) and specificity (87%) (Ising et al., 2012). Although the PQ-16 was originally used to screen adult populations, it has recently been used to assess psychotic-like experiences in a child and adolescent mental health setting (de Jong et al., 2016).

Social anxiety was assessed using the 20-item self-report Social Anxiety Interaction Scale (SIAS; Mattick & Clarke, 1989). Each item is rated on a 5-point (0-4) scale of severity, with higher scores indicative of more severe social anxiety. A cut-off score of 43 is indicative of a clinical level of social anxiety. The SIAS has been validated using an adult sample. Depression was assessed using the Beck Depression Inventory (BDI-II; Beck et al., 1996), a 23-item self-report scale assessing symptoms of depression. Each item is rated on a 3-point scale of severity, with higher scores indicative of more severe depression. A cut-off score of 29 is indicative of a severe level of depression. The BDI-II is valid for use with people aged 13-80 years.

Pathways to care were assessed based on the methods of Gater et al. (1991) and map individuals' journey into mental health services. This measure can be used with both children and adults. Pathways to care information is captured through a semi-structured interview and by examining health records. For the purpose of the current study, the number of pathways to care utilised prior to accessing the Norfolk SYMHS pilot was calculated. This was done by counting the number of different ways that people attempted to seek help between the onset of their presenting problem until they were accepted into an appropriate mental health service (for more details see Hodgekins et al., 2016).

The Trauma History Screen was used to examine the number of traumatic life events experienced by young people accessing the service, including natural disasters, interpersonal trauma (e.g. sexual abuse, bullying) and physical trauma (e.g. car accidents). The screen consists of 15 items taken from the Trauma History Questionnaire (THQ; Green, 1996) and the Traumatic Life Events Questionnaire (TLEQ; Kubany et al., 2000). The Trauma History Screen includes items which are relevant for both children and adults.

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Procedures

A minimum data set was completed by case managers for the whole sample (N = 202) and a subsample of young people (n = 83; 41%) completed additional individual assessments with trained Assistant Psychologists. Measures were completed at baseline, defined as the 0-3 month period after participants had been accepted into the SYMHS pilot. The sampling of young people to undertake additional assessments was opportunistic. All young people accepted into the service were invited to take part in the additional assessments. The study was classified as service evaluation using routinely collected clinical data and it received appropriate approval from Norfolk and Suffolk NHS Foundation Trust where the study took place. The aim of the service evaluation was to explore the difficulties that young people were presenting to the service with and to examine service outcomes. Participants provided written consent for their data to be used for service evaluation purposes. For participants aged under 18, parental involvement in the decision to participate was encouraged in all cases. Parental consent was gained unless the clinician responsible for the young person's care judged that they had competence to consent for themselves. Where parental consent was gained, assent was also gained from the young person.

Analysis Plan

Descriptive statistics were calculated for all measures. To ascertain the prevalence of PLEs in the sample, the frequency of endorsement of each item on the PCC and the PQ-16 was calculated. The proportion of individuals scoring above the cut-off for at-risk mental state on the PCC (≥ 20 or endorsement of one of the five key indicators of psychosis risk) and PQ-16 (≥ 6) was also calculated. Shapiro-Wilk tests confirmed most of the variables had distributions which were significantly different from normal. Therefore, Spearman's Rho correlations were conducted to examine relationships between PLEs and social anxiety, depression, functioning, number of traumatic life events experienced, and number of pathways to care. As the PQ-16 and the PCC refer to a concept

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wider than PLEs (e.g. both include items relating to mood), only the items which specifically related to PLEs were used. In order to adjust for multiple testing, a p-value of <0.01 was adopted.

Results

Descriptive statistics on all measures are shown in Table 1. Severity of psychological distress was high, with 59% of the sample scoring above the clinical cut-off for social anxiety on the SIAS; and 75.9% scoring in the severe range on the BDI-II. Functioning was also poor in the group as a whole, with average hours per week spent in Structured Activity falling below the cut-off of 30 hours on the TUS. However, functioning on the TUS was significantly better for the subsample completing face-to-face measures ($t = (df 200) 5.14, p = <.001$). Over 95% of the sample had experienced at least one traumatic life event, with 42.9% endorsing five or more traumatic events on the Trauma History Screen.

Prevalence of psychotic-like symptoms

Tables 2 and 3 show the frequency of endorsement for each item on the PCC and PQ-16. Almost all participants endorsed at least one item on the PCC (98.5%) and 100% endorsed at least one item on the PQ-16. However, the PCC and the PQ-16 both include items relating to anxiety and depression. When looking specifically at items relating to PLEs, endorsement frequencies ranged from 3.5-24% on the PCC and 22-70% on the PQ-16. Using the validated cut-off of 20 or endorsement of one of the five key indicators of psychosis risk on the PCC, 54% of the sample screened positive for possible at-risk mental state. To break this down further, 48% of the sample endorsed at least one of the five key indicators of psychosis risk, and 44.6% endorsed at least one of the four key indicators of positive PLEs (excluding the family history item). Higher rates of PLEs were found on the self-report measure and, using the cut-off of 6 on the PQ-16, 83.8% of the sample screened positive for possible at-risk mental state.

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Although the prevalence of anxiety and depression symptoms was similar on the PQ-16 and the PCC, a higher prevalence of PLEs (perceptual anomalies, persecution and ideas of reference) were self-reported on the PQ-16 than rated by case managers on the PCC (see Figure 1). It is important to note that scores on the PCC did not differ between individuals who completed the PQ-16 and those who did not ($t = (df 200) -1.78, p = .08$). Therefore, the higher prevalence of PLEs on the PQ-16 cannot be attributed to an increased level of severity in the subsample of participants completing this measure.

Relationships between PLEs, demographic characteristics, mood, functioning, trauma history and pathways to care

There was no significant difference between males and females in scores on the PQ-16 (males = 9.22 vs. females = 9.44; $t (df 78) = 0.25, p = .80$) or the PCC (males = 20.22 vs. females = 19.02; $t (df 200) = -0.87, p = .39$). There was a small but significant positive correlation between age and scores on the PLE items of the PCC ($r_s = .15, p = .04$). There was also a significant correlation between scores on the PQ-16 and scores on the PCC ($r_s = .40, p < .001$), suggesting that both measures assess a similar construct.

Correlations between scores on the PLE items of the PCC and the PQ-16 and scores on the SIAS, BDI-II, GAF, TUS, Trauma History Screen and pathways to care measures are shown in Table 4. There were no significant associations between PLE items on the PCC and any of the other variables. However, individuals reporting higher levels of PLEs on the PQ-16 reported higher numbers of traumatic life events. Those reporting more PLEs on the PQ-16 also experienced more pathways to care, i.e. they accessed more services before being referred to the Norfolk SYMHS pilot. There were significant associations between greater endorsement of PLE items on the PQ-16 and higher scores on the SIAS ($r_s = .24, p = .04$) and BDI-II ($r_s = .27, p = .02$) but these did not remain significant when adjusting for multiple testing. When re-running the correlations using all items of the PQ-16 and the PCC, the pattern of associations was the same. However, higher total scores on the PQ-16 were

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significantly associated with higher scores on the SIAS ($r_s = .30, p = .01$) and the BDI-II ($r_s = .33, p = .003$) at the $p < .01$ level.

Discussion

Summary of findings

PLEs are common in young people accessing secondary mental health services. Individuals who have experienced more traumatic life events also self-reported more PLEs. Moreover, PLEs may have implications for accessing care, with individuals with higher scores on the PQ-16 experiencing more pathways to care. Clinician rated PLEs were not associated with trauma or pathways to care. Moreover, no significant relationships (at the $p < .01$ level) were found between PLEs and anxiety, depression or functioning.

Theoretical implications

The high prevalence of PLEs in the current sample is consistent with literature highlighting the presence of such phenomena in young people with non-psychotic mental health difficulties (Kelleher et al., 2014; Wigman et al., 2012; Wigman et al., 2014). The findings of the current study are in line with suggestions that PLEs may reflect increased severity and complexity of mental health problems (Stochl et al., 2015). Indeed, individuals with more complex presentations (i.e. higher levels of trauma exposure) reported higher levels of PLEs. Moreover, the finding that young people reporting higher levels of PLEs may have more complex pathways to care suggests that it may take longer for such individuals to access appropriate care.

It is interesting to compare the findings of this paper with those of other studies examining ARMS and PLEs in child and adolescent mental health samples. de Jong et al. (2016) used the PQ-16 with a group of 12-17 year olds attending child and adolescent mental health services in the Netherlands. A smaller proportion of their sample (34.7%) scored above the cut-off on the PQ-16 but those who did also reported poorer functioning. Endorsement of individual items of the PQ-16 was

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much lower in the de Jong et al study. For example, 20% of young people reported hearing things that other people could not, compared to 52.9% in the current study. Furthermore, 28.6% vs. 68.6% of young people reported feeling that others had it in for them. Brandizzi et al. (2015) used the 92-item version of the PQ to assess for psychotic-like experiences in 11-18 year olds accessing mental health services. Again, positive endorsement of items was generally much higher in the current study. For example, 22.8% vs. 52.9% of young people reported hearing things that other people could not; and 52.6% vs. 68.6% reported feeling that others had it in for them.

The higher proportion of young people both scoring above the cut-off on the PQ-16 and endorsing psychotic-like symptoms could be due to the wider age range included in the current study. The de Jong et al. (2016) and Brandizzi et al. (2015) studies assessed prodromal symptoms in samples aged under 18, whereas the current study focused on a sample covering the age range at peak risk for the onset of mental health problems (14-25 years). The current sample were also recruited from a service with a specific remit to provide care for individuals with more severe presentations. This is reflected in the high levels of comorbidity and exposure to multiple traumas reported in the current sample. This fits with previous research suggesting that endorsement of psychotic-like experiences is associated with multi-comorbid psychopathology (Kelleher et al., 2012).

The results of this study support theoretical models outlining potential mechanisms which may underpin psychotic symptoms. For example, the finding that individuals who reported more PLEs experienced more traumatic life events is consistent with previous research examining trauma history in high-risk groups (Russo et al., 2014; Thompson et al., 2009). It is possible that trauma exposure may be implicated in the development of PLEs both directly via a re-experiencing route and indirectly via the impact of trauma on schematic beliefs (Gracie et al., 2007). However, further research is necessary to examine whether the same mechanisms are at play in young people with non-psychotic mental health difficulties.

Clinical Implications

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The prevalence of PLEs in this study varied depending on how they were assessed, with higher rates of PLEs being self-reported on the PQ-16 than rated by clinicians on the PCC. Similar differences between self-report and clinician-rated scales have been reported in the literature (Grano et al., 2011). It is possible clinicians were using an unspecified threshold of severity in their ratings and did not rate the presence of PLEs unless they believed them to be clinically relevant, thus resulting in an under-reporting of such phenomena. It may also reflect a lack of trust between young person and clinician, and it may be possible that young people find it easier to disclose such symptoms on a self-report measure. An alternative explanation is that young people may have been over-reporting the presence of PLEs due to high levels of distress, misunderstanding the meaning of questions, or reporting past rather than current experiences.

Despite a significant correlation between scores on the PCC and PQ-16, suggesting they assess a similar construct, higher scores on the clinician-rated PCC were not significantly correlated with any of the other variables measured in the study; whereas the self-report PQ-16 is significantly correlated with trauma history and pathways to care. This reinforces the idea that clinicians and young people may have different thresholds in their ratings as outlined above. Further research directly comparing subjective and clinician-ratings on the same scale would be beneficial in distinguishing whether it is the scales themselves or the reporting that results in such differences.

This study highlights the importance of routinely screening for PLEs in mental health settings, especially those accepting referrals from young people with severe and complex mental health problems and poor functioning. As outlined by Gin et al. (2017), young people may not disclose these experiences unless they are directly asked about them. Although the development of youth mental health services is still in its relative infancy, the results of this study have equal relevance for both traditional Child and Adolescent and Adult Mental Health service settings. Indeed, approximately half of the study sample were under 18 and half were 18 and above. However, developmental sensitivity is likely to be needed when assessing and treating PLEs in early

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and late adolescence. Self-report formats may aid disclosure of psychotic-like symptoms and could be used as a basis for further clinical assessment (Kline & Schiffman, 2014), although the acceptability of these measures should be considered given that less than half of the full sample in the current study agreed to complete them. Self-report formats may be more sensitive at assessing subclinical psychotic symptoms. Indeed, it may be the case that young people were rating unusual experiences on the PQ-16 but that clinicians did not consider them to be 'psychotic' and therefore did not rate them on the PCC. However, it is arguably clinically important to know about unusual experiences even if they do not reach a 'psychotic' threshold as these may still cause distress and could develop into psychotic symptoms in the future. Moreover, assessing PLEs at an early stage may assist with young people receiving timely and appropriate access to services, shortening their pathways to care.

Although PLEs in adolescents have been linked to increased risk for the development of a psychotic illness, the presence of such phenomena without other risk factors does not necessarily mean that an individual will make transition to psychosis. This is an important message to give to patients and their families as well as staff working in mental health services. Nevertheless, it is important that PLEs are assessed, understood and responded to in a timely manner as their presence may reflect an increased clinical risk of a range of adverse outcomes (Yung et al., 2012). There is a strong evidence base for the efficacy of low-level interventions for young people experiencing PLEs and such targeted interventions have been recommended in clinical guidelines (NICE, 2013) and clinical staging frameworks (Fusar-Poli et al., 2014). Interventions targeted at this population may also be wise to focus on broader outcomes than the prevention of psychosis, such as improving functioning (Fowler et al., 2009).

Study Limitations and Future Research

The current study has some limitations which need to be considered. First, the sample was recruited from Norfolk which has a predominantly white British population and thus prevalence

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rates of PLEs may not be representative of other geographical areas. The sample also excluded those with certain diagnoses (a primary diagnosis of psychosis, eating disorder, substance misuse). Second, only 41% of the full sample agreed to complete face-to-face measures, suggesting that there might be an issue with the acceptability of assessments. The subsample who completed the larger assessment battery were shown to have higher functioning on the TUS, suggesting that they may not be representative of the larger group, although they were representative in terms of other clinical and demographic variables, including the GAF/CGAS. Third, the study utilised a cross-sectional design and thus any correlations between PLEs, functioning and symptoms do not indicate causality. The long-term impact of PLEs is also unknown. In addition, some aspects of the assessment were reliant on retrospective self-report and this may have introduced bias into the data. Furthermore, not all measures were valid for use in both children and adults. This is a consideration for all research with samples of young people crossing the boundary of traditional definitions of childhood and adulthood.

It is possible that the PQ-16 and the PCC were assessing slightly different constructs, which may explain different prevalence rates on the two measures. Schizotypal traits or experiences which have happened in the past may have been endorsed on the PQ-16, whereas it is likely that clinicians were rating the PCC based on current information about symptoms. However, the two measures were significantly and positively correlated suggesting they are both assessing a similar underlying construct. The PQ-16 and PCC are also only screens for at-risk mental states and not diagnostic instruments, nor do they ask detailed questions about the nature of psychotic experiences. Future research could include a formal assessment interview, such as the Comprehensive Assessment of At-Risk Mental States (Yung et al., 2002), in order to define at-risk mental state. Formal interviews take into account dimensions other than the presence of PLEs, such as associated distress and functional impairments, and have been found to be more accurate at predicting transition rates than screening tools (Grano et al., 2011). However, the purpose of the current study was not necessarily to define at-risk mental state but rather examine how common PLEs were in young people with non-psychotic

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mental health difficulties. Nevertheless, more detailed instruments could be used to understand more about the nature of PLEs in this group, as well as how they are appraised and responded to.

Conclusions

This study demonstrates that PLEs are common in young people with non-psychotic mental health difficulties who are accessing secondary mental health services. Moreover, correlations with trauma history and pathways to care suggest that such experiences may reflect increased severity and complexity of mental health difficulties. Routine screening of PLEs using both individual and clinician ratings is important in understanding and responding to such experiences in a timely and appropriate manner. Further research should include longitudinal investigations to examine the impact of such experiences on long-term outcome.

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Table 1. Descriptive statistics for the full sample and the subsample who completed face-to-face assessments

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	N	Min-Max	Mean (SD)
Primary Care Checklist Score			
• full sample	202	0-55	19.43 (9.35)
• subsample	83	0-44	20.82 (8.64)
Prodromal Questionnaire Score	80	1-16	9.38 (3.55)
Social Anxiety Interaction Scale	83	8-76	44.78 (15.15)
Beck Depression Inventory-II	82	8-58	36.55 (11.37)
Time Use Survey – hours per week			
• full sample	202	0-68.60	16.33 (18.23)
• subsample	83	0.25-68.60	23.76 (18.63)
Global Assessment of Functioning (over 18 years)/Children’s Global Assessment Scale (under 18 years)			
• full sample	202	5-80	45.39 (13.03)
• subsample	83	9-65	45.73 (10.24)
Number of Traumatic Life Events	63	0-11	4.49 (2.83)
Number of Pathways to Care	77	1-20	5.53 (3.66)

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Table 2. Items endorsed by clinicians on the Primary Care Checklist (N = 202)

Item	% Yes
Depressive mood	89.6
Family is concerned	87.6
Sleep difficulties	80.2
Tension or nervousness	79.7
Less pleasure from things	76.2
Spending more time alone	73.3
Poor concentration	71.3
Arguing with friends and family	66.8
Poor appetite	56.9
Restlessness	56.9
Feeling people are watching you or giving you a hard time for no reason*	35.6
Inappropriate emotional responses	34.2
Use of street drugs (including cannabis)	27.2
Feeling, hearing or seeing things that others cannot*	24.3
Excess use of alcohol	20.8
Had a feeling that something odd is going on that you cannot explain*	17.8
Odd behaviour or appearance	16.3
Odd manner of thinking or speech	13.9
First-degree family history of psychosis plus increased stress or deterioration in functioning*	7.4
Feeling that everyday things have a special meaning just for you*	3.5

Note. * = key indicators of risk for psychosis

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Table 3. Items endorsed by self-report on the Prodromal Questionnaire (N = 80)

Item	% Yes
I feel uninterested in the things I used to enjoy	86.3
I get extremely anxious when meeting people for the first time	83.8
Sometimes I have felt that I'm not in control of my own thoughts or ideas	75.0
My thoughts are sometimes so strong that I can almost hear them	73.8
I have been confused at times whether something I experienced was real or imaginary	72.5
I often seem to live through events exactly as they happened before	71.3
I often hear unusual sounds like banging, clicking, hissing, clapping or ringing in my ears	67.5
I often feel that others have it in for me	66.3
Sometimes I feel suddenly distracted by distant sounds that I am not normally aware of	62.5
I have heard things other people can't hear, like voices of people whispering or talking	57.5
I have had the sense that some person or force is around me, even though I could not see anyone	55.0
I have seen things that other people apparently can't see	43.8
I sometimes smell or taste things that other people can't smell or taste	40.0
I sometimes see special meanings in advertisements, shop windows, or in the way things are arranged around me	32.5
I feel that parts of my body have changed in some way, or that parts of my body are working differently than before	27.5
When I look at a person, or look at myself in a mirror, I have seen the face change right before my eyes	22.5

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Table 4. Correlations (Spearman’s Rho) between psychotic-like symptom severity (scores on the items of the PCC and PQ-16 which specifically refer to PLEs) and social anxiety, depression, functioning, trauma history and pathways to care

	Prodromal Questionnaire (PQ-16)	Primary Care Checklist (PCC)
Social Anxiety Interaction Scale	.24 (n = 80)	.04 (n = 83)
Beck Depression Inventory-II	.27 (n = 79)	.14 (n = 82)
Time Use Survey – hours per week	-.08 (n = 80)	.07 (n = 202)
Global Assessment of Functioning	-.07 (n = 80)	-.10 (202)
Number of Traumatic Life Events	.44*** (n = 62)	.16 (n = 63)
Number of Pathways to Care	.31** (n = 77)	.06 (n = 94)

Note. *p <.01, **p <.001

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Figure 1

Frequency (%) endorsement of psychotic and non-psychotic symptoms on the Primary Care Checklist (PCC) and Prodromal Questionnaire (PQ-16)

