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The impact of early life stress on the persistence of Psychotic Like Experiences in adolescence

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Introduction

- **Psychotic Like Experiences (PLE)** are a subclinical expression of symptoms of psychosis that are experienced in the absence of a psychotic disorder. Often they are in the form of auditory or visual hallucinations or delusions.
- Incidence of psychotic like experiences relatively common. Current estimate 5-7% of adults, 17% of children and 7.5% of adolescents (McGrath et al, 2015; Kelleher et al, 2012).
- For most individuals the experiences are transient and majority will have less than five such experiences in lifetime (McGrath et al, 2015).
- For 20% of individuals these experiences will persist (Linscott & Van.,2013). Individuals who report persistent PLE are susceptible to a range of poorer outcomes- increased risk of transitioning to a psychotic disorder, poorer global functioning, lower quality of life and poorer employment prospects (Calkins et al., 2017; DeVlyder, Lehmann, & Chen, 2015 & Dominguez et al, 2011).



Early life stress and Psychotic like Experiences

- Large overlap between risk factors of psychotic disorders and risk factors of PLE. Overlap apparent over a wide range of factors- heritability, early life development, social environment, use of cannabis, smoking, drugs, and early life stressors.
- “Early life stress” refer to stressful events that occur during childhood. It is a broad concept encompassing many forms of stress including child abuse, parental divorce, family violence, economic adversity, parental death and parental mental illness (Enoch, 2011).
- There is wealth of evidence linking early life stressors to PLEs (Kelleher et al, 2013; Fisher et al, 2013).
- One area that has not received as much attention from researcher is the relationship between early life stress and persistent PLE. As mentioned early it is important to distinguish risk factors for persistent PLE (in comparison to transient) as they are associated with the poorest outcomes.



Current study

Research questions:

- 1. Does early life stress increase an individuals risk of persistent PLE in comparison to transient PLE?
- 2. What forms of early life stress increases an individuals vulnerability to persistent PLE in comparison to transient PLE?
- 3. Does exposure to early life stress put individuals with persistent PLE at an elevated risk of psychopathology?



Methods

- Wave 1,2 and 3 from the Child Cohort of GUI was used in this study.

Measures used

- Early life Stress= At both 9 and 13 years of age questions were asked about potentially stressful/traumatic life events. These included the following
 - Death of parent
 - Death of close family member
 - Death of close friend
 - Moving house within Ireland
 - Moving country
 - Drug use/alcoholism in family
 - Parent in prison
 - Mental problem in immediate family
 - Serious illness/injury of family member
 - Serious illness/injury of child
 - Conflict between parents
 - Parental divorce/separation
 - Stay in foster home/residential care

Individual determined as suffering early life stress if had 4 or more of events or experienced one of seven highlighted



Methods(2)

- **Psychotic Like Experiences:** Measured at age 13 and 17 using 6 items of the Adolescent Psychotic Symptom Screener. Questions include:
 - Heard voices or sounds that no-one else can hear No=0
 - Seen things that other people could not see Maybe=.5
 - Thought that people were spying on you or following you. Yes=1
 - Other people read your mind
 - Felt that you were under control of some special power Total score 2 or more
 - Felt that you have extra-special powers.
- **Psychopathology=** Measured at age 13 and 17 years using the Short Mood and Feeling Questionnaire (top 10%). Derived from the original Mood and Feeling Questionnaire-questions focus on affective and cognitive symptoms. Examples include: “I felt miserable or unhappy”, “I was a bad person”.



Methods(3)

Confounders:

- Study Child biological sex
- Mothers education- as marker of socioeconomic status
- Economic Strain: Measured using question “with which degree of ease or difficulty is the household able to make ends meet?”. If participants answered “with great difficulty” or “with difficulty” defined as being economically strained.
- Study child not born in Ireland

Table 1: Percentage of individuals with PLE at 13, 17 and both 13/17

% with PLE at age 13 only (early onset)	9.1%	
% with PLE at age 17 only (late onset)	6.7%	
% with PLE at both 13 and 17 (persistent)	2.9%	

24% of individuals who had PLE at 13 had persistent PLE

Table 2: Percentage of individuals with PLE at 13, 17 and both 13/17 who suffered “early life stress”

% with PLE at age 13 only (early onset)	36%	196
% with PLE at age 17 only (late onset)	37%	152
% with PLE at both 13 and 17 (persistent)	47%	82

Table 3: Percentage of individuals with PLE at 13, 17 and both 13/17 who suffered “early life stress” and was in top 10% of SMFQ at 17 years of age

% with PLE at age 13 only (early onset)	22%	42
% with PLE at age 17 only (late onset)	27%	39
% with PLE at both 13 and 17 (persistent)	44%	36



Demographic characteristics of individuals with persistent PLE

Table 1: Percentage of individuals with persistent PLE by Gender

Male	47%
Female	53%

Table 2: Percentage of individuals with persistent PLE by mother's education

Lower Secondary	21.7%
Upper Secondary	40%
Non-Degree	19.4%
Degree	18.9%

Table 3: Percentage of individuals with persistent PLE by if study child born in Ireland

Yes	2.7%
No	5.2%

Table 4: Percentage of individuals with persistent PLE by economic strain

Economically strained	3.5%
Not Economically strained	2.7%



Research Question 1

Does early life stress increase an individuals risk of persistent PLE in comparison to transient PLE?

	Model 1 (Odds ratios)	Model 2 (Odds ratios)
Early life stress	1.55** (1.12-2.15)	1.58** (1.13-2.20)
Female		1.04
Not born in Ireland		1.92** (1.21-3.03)
PCG Lower Secondary		1.30
PCG Upper Secondary		1.27
PCG non-degree		1.31
Have difficulty making ends meet		.97

- In comparison to individuals with transient PLE, individuals with persistent PLE are one and a half times more likely to have suffered “early life stress”



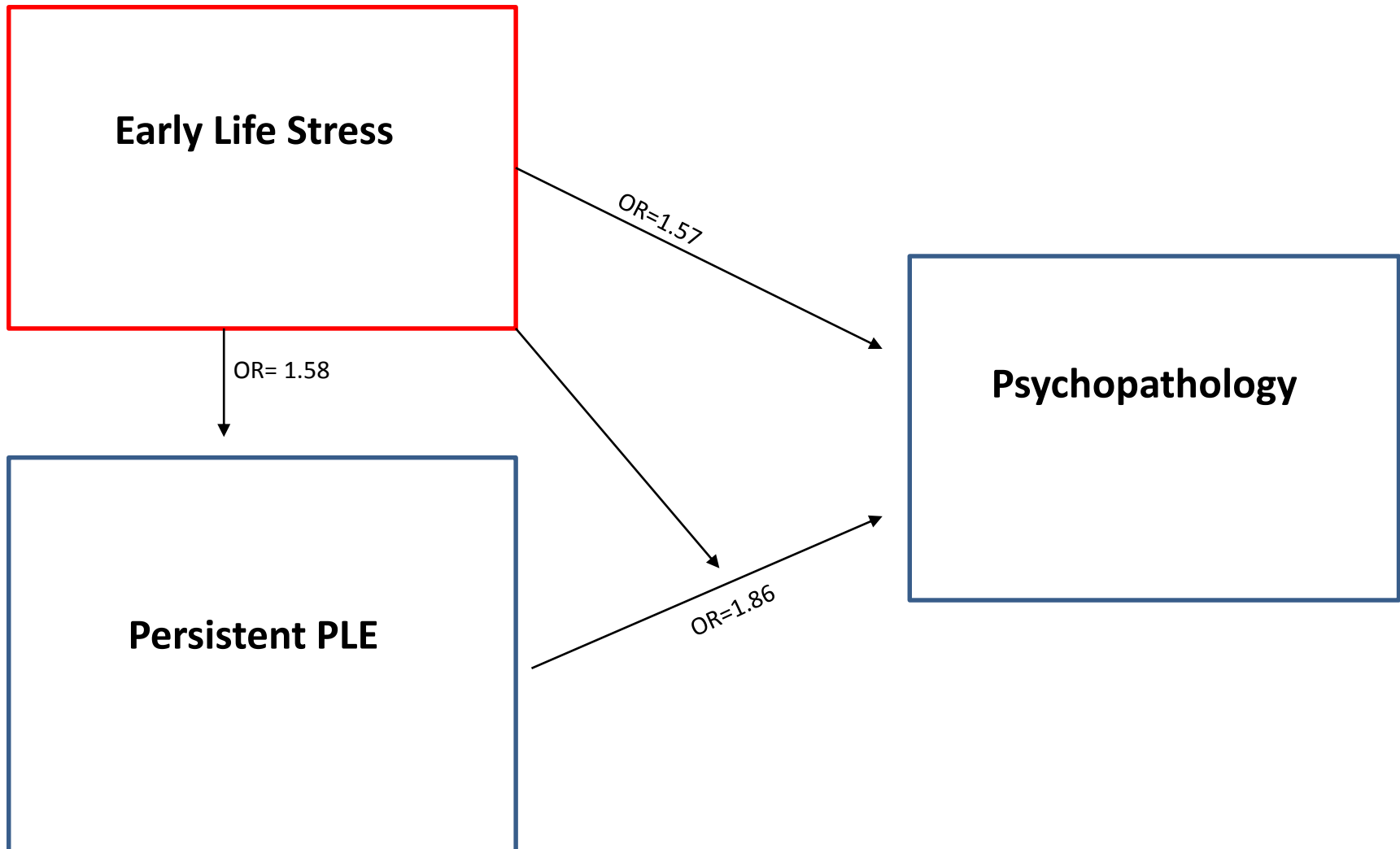
Research Question 2

What form of early life stressors increase an individuals vulnerability to persistent PLE in comparison to transient PLE?

	Simple logistic (individual stressors) (Odds ratios)	Simple logistic (individual stressors and confounders) (Odds ratios)	Multivariate logistics (stressors and confounders) (Odds ratios)
Death of Parent	2.19* (1.04-4.62)	2.28* (1.07-4.86)	1.91
Death of Relative	1.13	1.12	1.10
Death of Friend	1.58	1.59	1.51
Parental Divorce	1.02	1.05	.81
Parental Conflict	1.10	1.12	.85
Moving House	1.15	1.04	1.06
Moving Country	1.59	1.02	.90
Foster Care	2.48	2.34	1.04
Illness of Child	1.15	1.13	1.07
Illness in Family	1.16	1.14	1.05
Drug taking	1.15	1.17	.93
Mental Disorder in family	2.42*** (1.50-3.90)	2.63*** (1.60-4.33)	2.93*** (1.67-5.15)
Parent in Prison	6.57*** (2.72-15.91)	6.73*** (2.73-16.60)	8.28*** (3.17-21.62)

- **After controlling for confounding variables and other early life stressors (model 3) having a mental disorder in family or a parent in prison puts an individual at risk of persistent PLE compared to transient**

Early life stress, PLE and Psychopathology





Research Question 3

Does exposure to early life stress put individuals with persistent PLE at an elevated risk of psychopathology?

Individuals exposed to Early Life Stress	UNIVARIATE Odds ratio	MULTIVARIATE Odds ratio
Persistent 13 and 17	6.11*** (3.83-9.74)	4.68*** (2.83-7.75)
Early Onset 13	2.24*** (1.52-3.28)	1.55** (1.02-2.34)
Late Onset 17	3.13*** (2.09-4.69)	3.44*** (2.23-5.30)
No PLE	REF	REF
W2 SMFQ score		3.06*** (2.22-4.22)
Female		2.17*** (1.62-2.91)
Not born in Ireland		1.19
PCG Lower Secondary		.99
PCG Upper Secondary		.75
PCG non-degree		1.51
Have difficulty making ends meet		1.27

- Individuals who have suffered early life trauma and have persistent PLE are nearly 4.7 times more likely to suffer from psychopathology. Individuals who have late onset PLE are 3 times more likely and individuals with early onset PLE are 1.5 times more likely at age 17



Summary of Results

- Individuals who have suffered early life stress are at an increased risk of persistent PLE.
- A mental health disorder in the family and having a parent in prison puts an individual at risk of persistent PLE compared to transient.
- Individuals who have suffered early life stress and report persistent PLE at 13 and 17 are 4.7 times more likely to experience psychopathology at 17. Individuals who report transient PLE at 13 are 1.6 times more likely to experience psychopathology at age 17 and those who report PLE at 17 years are 3 times more likely (relative to individuals who have ELS but don't report PLE).



Implications and Conclusion

- We have shown that early life stress and in particular a mental health disorder and parent in prison puts an individual at increased risk of persistent PLE. Future research needs to identify other potential “early life stressors”. One limitation of study: we did not look at victimisation/bullying linked to PLE (Varese et al., 2012).
- More advanced techniques to identify the complex interaction on multiple levels of multiple risk factors that leads to expression of PLE.
- Results highlight the need for prevention and intervention strategies for individuals who have suffered early life stress as we have shown they are at risk of persistent PLE and in turn an elevated risk of psychopathology.
- Important to increase public awareness of PLE and provide psychoeducation to reduce stigma and lead to more help seeking from those who may be reluctant to share experiences.

Questions

