Manuscript Accepted, May 2021 in *Abuse, an international impact journal*

Childhood Trauma and Psychosis: The case for exploring Eye Movement Desensitisation and Reprocessing (EMDR) as an adjunctive treatment for schizophrenia

Inti Qurashi*
Mersey Care NHS Foundation Trust, Liverpool UK & University of Manchester, Manchester UK

Simon Chu
Mersey Care NHS Foundation Trust, Liverpool UK & University of Central Lancashire, Preston UK

Henry Ashcroft
Mersey Care NHS Foundation Trust, Liverpool UK

Benjamin Cross
East Lancashire Hospitals NHS Trust, Blackburn UK

Richard Bentall
University of Sheffield, Sheffield UK

Nusrat Husain
University of Manchester, Manchester UK

*Corresponding author:
Inti Qurashi, Ashworth Hospital, Mersey Care NHS Foundation Trust, Parkbourn, Maghull, Liverpool L31 1HW
inti.qurashi@merseycare.nhs.uk

Childhood Trauma and Psychosis: The case for exploring Eye Movement Desensitisation and Reprocessing (EMDR) as an adjunctive treatment for schizophrenia

Abstract
There is an association between childhood trauma and the development of psychosis in adulthood and a treatment recommended to reduce the symptoms of trauma is Eye Movement Desensitisation and Reprocessing (EMDR). Studies of EMDR in adults with psychotic experiences and a history of trauma have shown encouraging results. As psychosis is a core feature of schizophrenia, and many persons with schizophrenia will have experienced childhood trauma, we review the evidence that EMDR may be a safe and effective adjunctive treatment for schizophrenia. We conclude that the evidence base supports well-designed and adequately powered randomised controlled studies of EMDR in schizophrenia with careful consideration given to inclusion criteria, participant acceptability and selection of clinically relevant outcome measures. Mechanism of action and potential effects on cognitive functioning should also be explored.

Keywords
EMDR, Trauma, Schizophrenia, Psychosis, PTSD

Impact
This article develops the rationale to explore the effectiveness of EMDR as a novel, adjunctive treatment for symptoms of schizophrenia associated with trauma.

Introduction

Adverse experiences during childhood such as trauma and adversity increase the likelihood of a range of later psychopathology (Spataro et al., 2004) including psychosis (Stanton et al., 2020). There is an increased risk of psychotic disorder in individuals exposed in childhood to bullying, emotional neglect and both physical and sexual abuse (Bentall et al., 2012). Childhood trauma is also implicated in the course and outcome of psychotic symtoms (Trotta et al., 2015) with a dose-response relationship in terms of the number and severity of adverse childhood experiences and risk of developing psychotic experiences (Croft et al., 2019; Trauelsen et al., 2015).

Trauma-focused therapies such as Eye Movement Desensitisation and Reprocessing (EMDR) are effective in reducing the impact of past and present traumatic memories (Shapiro, 2014) and EMDR may also be effective in reducing psychotic symtoms that can occur in post-traumatic stress disorder (Adams et al., 2020). As psychotic symtoms are a core feature of schizophrenia this raises the possibility for potential effectiveness of EMDR in persons with schizophrenia and past trauma. In this article we outline the evidence for this emergent viewpoint.

Schizophrenia – treatment and outcomes

Schizophrenia is in most cases a lifelong disorder (James et al., 2018) characterised by ‘positive’ symptoms such as hallucinations, delusions and disorganised communication, ‘negative’ symptoms such as reduced motivation and disturbed affect and cognitive deficts in

terms of impaired attention, concentration and verbal memory among others (National Collaborating Centre for Mental Health (UK), 2014). As schizophrenia is an aetiologically heterogeneous condition with contributory factors including genetic, environmental and developmental experiences including childhood trauma, consideration of these factors is necessary to inform personalised therapeutic interventions. Drug treatments are commonly used to improve symptoms of schizophrenia, reduce distress and improve longer-term outcomes (Gaebel et al., 2020). However, although drug treatments can be effective for positive symtoms of schizophrenia, approximately a third of people with schizophrenia remain symptomatic typically with chronic hallucinations and delusions (Howes et al., 2017). Additionally, drug treatments are not particularly effective in treating negative (Remington et al., 2016) or cognitive symtoms of schizophrenia (Goff et al., 2011).

Non-pharamacological approaches have also been evaluated but, to date, there are no evidence based psychological treatments for chronic psychotic symtoms. For example, a well-designed and adequately powered randomised controlled trial (RCT) of cognitive behavioural therapy (CBT) with antipsychotic medication did not find a lasting effect on total symptoms of schizophrenia at 21-month follow up (Morrison et al., 2018). As the personal and economic costs of schizophrenia are substantial (Charlson et al., 2018) there is a need to identify interventions that are effective for improving symptoms of schizophrenia associated with developmental trauma that do not respond to current usual treatments and in doing so aim to reduce emotional distress and improve quality of life.

The association between early trauma, psychosis and schizophrenia

The precise aetiology of schizophrenia is uncertain although the neural stress vulnerability model proposes that psychosocial stress acting upon a pre-existing vulnerability leads to psychotic symptoms (Wied & Jansen, 2002). Developmental trauma is in many cases a significant stressor with evidence that trauma experienced during childhood increases the likelihood of the development and persistence of psychotic symptoms (Hardy, 2017). Meta-analysis shows that exposure to childhood trauma is associated with an overall 2- to 3-fold increase in risk of psychotic outcomes (Varese et al., 2012) and findings from epidemiological studies found that all types of trauma, experienced at any time from early childhood through to adolescence, are associated with subsequent psychotic experiences (Bonoldi et al., 2013). Certain traumatic experiences are associated with particular psychotic experiences (Bentall et al., 2012) with visual flashbacks appearing more likely lead to hallucinations (Hardy et al., 2016) and interpersonal traumas more associated with paranoia and delusional beliefs (Gracie et al., 2007). These findings indicate that traumatic experiences are an important risk factor for psychotic experiences, perhaps mediated by the development of negative thoughts and feelings about the self and others leading to paranoid thoughts, delusions and pathological stimuli (Hardy, 2017). This can lead to a perpetuating cycle where delusions and hallucinations lead to further psychological trauma (Mueser et al., 2010).

In terms of possible mechanisms linking childhood trauma to subsequent psychosis in schizophrenia, this may be mediated through direct effects on dopamine function. Elevated dopamine metabolism has been found in girls who have been sexually abused compared with non-abused controls (De Bellis et al., 1994) and raises the possibility that early trauma increases the risk of later psychosis through sensitization of the dopaminergic system. Additionally, stress induced activation of the hypothalamic-pititutary axis contributes to dopamine sensitization in mesolimbic areas of the brain and increases striatal dopamine

release (van Winkel et al., 2008). Increased dopamine neurotransmission with overstimulation of the doamine receptors in several brain regions has been hypothesized in the pathophysiology of schizophrenia, a hypothesis supported by the antipsychotic effects of dopamine receptor antagonists (Falkai et al., 2011). Neurobiological findings include the observation that traumatic violence is associated with thinning in the ventromedial prefrontal cortex, involved in social and emotional processing, whilst deprivation is associated with thinning in the frontoparietal and visual networks involved in sensory and cognitive processing (Colich et al., 2020). These findings indicate that different biological consequences dependent on the type(s) of trauma experienced (Popovic et al., 2019) may lead to aberrant processing of sensory information leading to psychotic experiences. This raises the possibility that the consequences of childhood trauma on mental health may be attenuated using a trauma-focused treatment programme, such as EMDR.

EMDR as a potential adjuctive treatment for schizophrenia

EMDR is an integrative psychotherapy that uses standardized protocols and elements of interpersonal and body-centred therapies with dual stimulation (e.g., side-to-side eye movements) (Bisson et al., 2013). It is recommended for the treatment of PTSD (National Collaborating Centre for Mental Health (UK), 2005). During EMDR the person is instructed to think about the identified traumatic event for brief periods while simultaneously tracking with their eyes the therapist's fingers which are moved from side to side. The resulting bilateral brain stimulation is thought to activate the brain's information processing pathways enabling more adaptive associations to be made. Over time, this may lead to processing of traumatic events into long-term memory and persons become desensitized to the trauma (Every-Palmer et al., 2019). As many individuals with schizophrenia will have experienced traumatic events, but may not fulfil the diagnostic criteria for PTSD, EMDR may be suitable as it is indicated for any mental distress with a traumatic antecedent (Shapiro, 1989). There have been concerns that using EMDR in persons with psychosis, such as schizophrenia, may lead to symptom exacerbation and suicidality and this has previously led to the exclusion of patients with psychotic disorders from EMDR studies (Ronconi et al., 2014). More recent evaluative research points towards EMDR therapy for schizophrenia as safe (for review, see Valiente-Gómez et al., 2017).

Given the association between early trauma and psychosis, a small number of studies have explored EMDR as a treatment for schizophrenia. Where studies have been undertaken these have mainly focussed on effect on symptoms of PTSD, a population that will have different psychotic experiences and symptom profiles in comparison to persons with schizophrenia without a co-morbid diagnosis of PTSD. For example it is highly unlikely psychotic symtoms in PTSD will include thought disorder, abnormality of thought possession or passivity phenomenon that are typically found in schichophrenia. Psychotic experiences in PTSD tend to include, usually transient, auditory hallucinations, delusions and paranoid ideation with greater evidence for dissociation being a factor leading to psychotic symtoms in PTSD (Compean & Hamner, 2019). In terms of trials of EMDR for symptoms of schizophrenia there has been a single pilot study that used an RCT design in an acute in-patient schizophrenia population (Kim et al., 2010). Other studies include an RCT that assessed the effect of EMDR on PTSD in a schizophrenia spectrum disorder population (de Bont et al., 2016) and an open pilot trial with no comparator arm, also looking at effect on PTSD symptoms in patients with

a lifetime psychotic disorder and co-morbid PTSD (van den Berg & van der Gaag, 2012) (Table 1).

insert Table 1 here please

There were methodological limitations in these trials as only one trial reported a suitable method of randomisation (de Bont et al., 2016). Additionally the number of EMDR sessions varied from one session to ten sessions, with studies having relatively small sample sizes and insufficient power for the statistical tests necessary to evaluate the effectiveness of EMDR. Further, we could find no evaluation of the acceptability of EMDR for people with schizophrenia.

In persons with schizophrenia spectrum disorder it appears that a standard eight phase EMDR protocol is safe and feasible (see Table 1). We note that a trauma-sensitive case conceptualization strategy, ICONN, has been proposed although the efficacy of this approach does not appear to have been tested in randomized controlled trials (Miller, 2015). From our service evaluation undertaken in a forensic psychiatric service (contact lead author for further information) we found that a standard EMDR protocol used in a chronic schizophrenia population was tolerable although the duration of therapy in six cases indicated that a longer treatment duration, of circa six months, may be required. This is an important area to clarify in future trials exploring the effectiveness of EMDR in schizophrenia as cognitive impairments, such as attention, concentration and verbal and non-verbal memory deficits may impact on number of EMDR sessions required and overall duration of treatment.

Finally the intervention focus of EMDR in psychosis has varied across trials and the majority of studies have focussed on childhood traumas (for review, see Adams et al., 2020). The primary outcome of EMDR therapy in persons with psychosis has largely been on symptoms of PTSD rather than psychotic symptoms. As noted earlier there has been one published study that used EMDR to specifically target psychotic symptoms (Kim et al., 2010). In this small (n = 45) randomized trial, psychotic symptoms were targeted by EMDR in a hospital setting of which 15 participants received EMDR. Although no difference was found between EMDR and treatment as usual (TAU) in terms of improvement in psychotic symtoms, the study did find a significant diference in the percentage of people re-admitted to hospital at 2-year follow-up (EMDR 18%, TAU 33%). Importantly, this trial found no serious adverse events from EMDR (Table 1). We could find no studies that assessed for change in cognitive functioning and there appear to be no trials that have looked at cognition as an outcome measure.

Conclusion

Exposure to abuse and traumatic experiences in childhood is likely a factor in the development of psychosis in schizophrenia and the consequences of trauma represent a treatment focus in persons with schizophrenia. The majority of research of EMDR in psychosis has, understandably, focussed on PTSD symptoms and to date there has been a single RCT of EMDR focussing on psychotic symptoms in persons with acute schizophrenia.

Questions remain unanswered in terms of effectiveness of EMDR as an adjunctive treatment in persons with chronic schizophrenia, acceptability of EMDR in this population and whether improvement in psychotic symtoms leads to functional improvement in social and/or occupational functioning. Further research should also determine quality of life over the longer-term beyond the intervention period. We conclude that the present state of knowledge

provides sufficnet evidence for exploriation of EMDR as an adjunctive treatment for psychotic symptoms in schizophrenia.

Table 1. Trials of EMDR in Schizophrenia/Schizophrenia Spectrum Disorders

Study authors	**Study design**	**Population Tested**	**EMDR Intervention**	**Outcomes**	**Drop-outs and Adverse events**
Kim et al. (2010)	Pilot RCT (n = 45)	In-patients with schizophrenia	Standard eight-phase EMDR protocol (n = 15)	Non-significant reductions in *PANSS, following treatment.	Two patients out of fifteen (13%) in the EMDR group withdrew before the end of treatment period. There were no adverse events reported. EMDR considered safe in patients with schizophrenia.
Van den Berg and van der Gaag (2012)	Open pilot trial (n = 27)	Patients diagnosed with schizophrenia spectrum disorder and PTSD	Standard eight-phase EMDR protocol (n=27)	Non-significant reductions in symptom scales following treatment	Five subjects (19%) prematurely stopped treatment. Adverse events included a temporary increase in stress/PTSD symptoms in some patients. No suicide attempts and no admissions in general or psychiatric hospital and EMDR considered safe in schizophrenic patients with PTSD.
de Bont et al. (2016)	RCT (n = 155)	Out-patients with schizophrenia/schizoaffective disorder	Standard eight-phase EMDR protocol (n = 55) and *PE	EMDR and **PE significantly associated with decreased severe paranoid thoughts post-treatment.	There was no significant difference in dropout between the **PE 13 participants [24.5%] and EMDR 11 participants [20.0%] (P = .57). There were no adverse events reported.

* Positive and Negative Syndrome Scale for Schizophrenia – 30 item scale to assess positive, negative and general psychopathology
**Prolonged exposure therapy

References

Adams, R., Ohlsen, S., & Wood, E. (2020). Eye Movement Desensitization and Reprocessing (EMDR) for the treatment of psychosis: a systematic review. *European Journal of Psychotraumatology*, *11*(1), 1711349. https://doi.org/10.1080/20008198.2019.1711349

Bentall, R. P., Wickham, S., Shevlin, M., & Varese, F. (2012). Do Specific Early-Life Adversities Lead to Specific Symptoms of Psychosis? A Study from the 2007 The Adult Psychiatric Morbidity Survey. *Schizophrenia Bulletin*, *38*(4), 734–740. https://doi.org/10.1093/schbul/sbs049

Bisson, J. I., Roberts, N. P., Andrew, M., Cooper, R., & Lewis, C. (2013). Psychological therapies for chronic post-traumatic stress disorder (PTSD) in adults. *Cochrane Database of Systematic Reviews*, *12*. https://doi.org/10.1002/14651858.CD003388.pub4

Bonoldi, I., Simeone, E., Rocchetti, M., Codjoe, L., Rossi, G., Gambi, F., Balottin, U., Caverzasi, E., Politi, P., & Fusar-Poli, P. (2013). Prevalence of self-reported childhood abuse in psychosis: A meta-analysis of retrospective studies. *Psychiatry Research*, *210*(1), 8–15. https://doi.org/10.1016/j.psychres.2013.05.003

Charlson, F. J., Ferrari, A. J., Santomauro, D. F., Diminic, S., Stockings, E., Scott, J. G., McGrath, J. J., & Whiteford, H. A. (2018). Global Epidemiology and Burden of Schizophrenia: Findings From the Global Burden of Disease Study 2016. *Schizophrenia Bulletin*, *44*(6), 1195–1203. https://doi.org/10.1093/schbul/sby058

Colich, N. L., Rosen, M. L., Williams, E. S., & McLaughlin, K. A. (2020). Biological aging in childhood and adolescence following experiences of threat and deprivation: A systematic review and meta-analysis. *Psychological Bulletin*, *146*(9), 721–764. https://doi.org/10.1037/bul0000270

Compean, E., & Hamner, M. (2019). Posttraumatic stress disorder with secondary psychotic features (PTSD-SP): Diagnostic and treatment challenges. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, *88*, 265–275. https://doi.org/10.1016/j.pnpbp.2018.08.001

Croft, J., Heron, J., Teufel, C., Cannon, M., Wolke, D., Thompson, A., Houtepen, L., & Zammit, S. (2019). Association of Trauma Type, Age of Exposure, and Frequency in Childhood and Adolescence With Psychotic Experiences in Early Adulthood. *JAMA Psychiatry*, *76*(1), 79–86. https://doi.org/10.1001/jamapsychiatry.2018.3155

De Bellis, M. D., Chrousos, G. P., Dorn, L. D., Burke, L., Helmers, K., Kling, M. A., Trickett, P. K., & Putnam, F. W. (1994). Hypothalamic-pituitary-adrenal axis dysregulation in sexually abused girls. *The Journal of Clinical Endocrinology & Metabolism*, *78*(2), 249–255. https://doi.org/10.1210/jcem.78.2.8106608

de Bont, P., van den Berg, D., van der Vleugel, B., Roos, C., Jongh, A., Gaag, M., & Van minnen, A. (2016). Prolonged exposure and EMDR for PTSD v. a PTSD waiting-list condition: effects on symptoms of psychosis, depression and social functioning in patients with chronic psychotic disorders. *Psychological Medicine*, *1*, 1–11. https://doi.org/10.1017/S0033291716001094

Every-Palmer, S., Flewett, T., Dean, S., Hansby, O., Colman, A., Weatherall, M., & Bell, E. (2019). Eye movement desensitization and reprocessing (EMDR) therapy for posttraumatic stress disorder in adults with serious mental illness within forensic and rehabilitation services: a study protocol for a randomized controlled trial. *Trials*, *20*(1), 642. https://doi.org/10.1186/s13063-019-3760-2

Falkai, P., Schmitt, A., & Cannon, T. D. (2011). Pathophysiology of schizophrenia. In *Schizophrenia: Current science and clinical practice* (pp. 31–65). Wiley-Blackwell. https://doi.org/10.1002/9780470978672.ch2

Gaebel, W., Stricker, J., & Riesbeck, M. (2020). The long-term antipsychotic treatment of schizophrenia: A selective review of clinical guidelines and clinical case examples. *Schizophrenia Research*, *225*, 4–14. https://doi.org/10.1016/j.schres.2019.10.049

Goff, D. C., Hill, M., & Barch, D. (2011). The treatment of cognitive impairment in schizophrenia. *Pharmacology, Biochemistry, and Behavior*, *99*(2), 245–253. https://doi.org/10.1016/j.pbb.2010.11.009

Gracie, A., Freeman, D., Green, S., Garety, P. A., Kuipers, E., Hardy, A., Ray, K., Dunn, G., Bebbington, P., & Fowler, D. (2007). The association between traumatic experience, paranoia and hallucinations: a test of the predictions of psychological models. *Acta Psychiatrica Scandinavica*, *116*(4), 280–289. https://doi.org/10.1111/j.1600-0447.2007.01011.x

Hardy, A. (2017). Pathways from Trauma to Psychotic Experiences: A Theoretically Informed Model of Posttraumatic Stress in Psychosis. *Frontiers in Psychology*, *8*. https://doi.org/10.3389/fpsyg.2017.00697

Hardy, A., Emsley, R., Freeman, D., Bebbington, P., Garety, P. A., Kuipers, E. E., Dunn, G., & Fowler, D. (2016). Psychological Mechanisms Mediating Effects Between Trauma and Psychotic Symptoms: The Role of Affect Regulation, Intrusive Trauma Memory, Beliefs, and Depression. *Schizophrenia Bulletin*, *42*(suppl_1), S34–S43. https://doi.org/10.1093/schbul/sbv175

Howes, O. D., McCutcheon, R., Agid, O., de Bartolomeis, A., van Beveren, N. J. M., Birnbaum, M. L., Bloomfield, M. A. P., Bressan, R. A., Buchanan, R. W., Carpenter, W. T., Castle, D. J., Citrome, L., Daskalakis, Z. J., Davidson, M., Drake, R. J., Dursun, S., Ebdrup, B. H., Elkis, H., Falkai, P., … Correll, C. U. (2017). Treatment-Resistant Schizophrenia: Treatment Response and Resistance in Psychosis (TRRIP) Working Group Consensus Guidelines on Diagnosis and Terminology. *American Journal of Psychiatry*, *174*(3), 216–229. https://doi.org/10.1176/appi.ajp.2016.16050503

James, S. L., Abate, D., Abate, K. H., Abay, S. M., Abbafati, C., Abbasi, N., Abbastabar, H., Abd-Allah, F., Abdela, J., Abdelalim, A., Abdollahpour, I., Abdulkader, R. S., Abebe, Z., Abera, S. F., Abil, O. Z., Abraha, H. N., Abu-Raddad, L. J., Abu-Rmeileh, N. M. E., Accrombessi, M. M. K., … Murray, C. J. L. (2018). Global, regional, and national incidence, prevalence, and years lived with disability for 354 diseases and injuries for 195 countries and territories, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017. *The Lancet*, *392*(10159), 1789–1858. https://doi.org/10.1016/S0140-6736(18)32279-7

Kim, D., Choi, J., Kim, S. H., Oh, D. H., Park, S.-C., & Lee, S. H. (2010). A Pilot Study of Brief Eye Movement Desensitization and Reprocessing(EMDR) for Treatment of Acute Phase Schizophrenia. *Korean Journal of Biological Psychiatry*, *17*(2), 94–102.

Miller, P. W. (2015). *EMDR Therapy for Schizophrenia and Other Psychoses*. Springer Publishing Company.

Morrison, A. P., Pyle, M., Gumley, A., Schwannauer, M., Turkington, D., MacLennan, G., Norrie, J., Hudson, J., Bowe, S. E., French, P., Byrne, R., Syrett, S., Dudley, R., McLeod, H. J., Griffiths, H., Barnes, T. R. E., Davies, L., Kingdon, D., Aydinlar, S., … Tully, S. (2018). Cognitive behavioural therapy in clozapine-resistant schizophrenia (FOCUS): an assessor-blinded, randomised controlled trial. *The Lancet Psychiatry*, *5*(8), 633–643. https://doi.org/10.1016/S2215-0366(18)30184-6

Mueser, K. T., Lu, W., Rosenberg, S. D., & Wolfe, R. (2010). The trauma of psychosis: Posttraumatic stress disorder and recent onset psychosis. *Schizophrenia Research*, *116*(2), 217–227. https://doi.org/10.1016/j.schres.2009.10.025

National Collaborating Centre for Mental Health (UK). (2005). *Post-Traumatic Stress Disorder: The Management of PTSD in Adults and Children in Primary and Secondary Care*. Gaskell. http://www.ncbi.nlm.nih.gov/books/NBK56494/

National Collaborating Centre for Mental Health (UK). (2014). *Psychosis and Schizophrenia in Adults: Treatment and Management: Updated Edition 2014*. National Institute for Health and Care Excellence (UK). http://www.ncbi.nlm.nih.gov/books/NBK248060/

Popovic, D., Schmitt, A., Kaurani, L., Senner, F., Papiol, S., Malchow, B., Fischer, A., Schulze, T. G., Koutsouleris, N., & Falkai, P. (2019). Childhood Trauma in Schizophrenia: Current Findings and Research Perspectives. *Frontiers in Neuroscience*, *13*. https://doi.org/10.3389/fnins.2019.00274

Remington, G., Foussias, G., Fervaha, G., Agid, O., Takeuchi, H., Lee, J., & Hahn, M. (2016). Treating Negative Symptoms in Schizophrenia: an Update. *Current Treatment Options in Psychiatry*, *3*(2), 133–150. https://doi.org/10.1007/s40501-016-0075-8

Ronconi, J. M., Shiner, B., & Watts, B. V. (2014). Inclusion and Exclusion Criteria in Randomized Controlled Trials of Psychotherapy for PTSD. *Journal of Psychiatric Practice*, *20*(1), 25–37. https://doi.org/10.1097/01.pra.0000442936.23457.5b

Shapiro, F. (1989). Efficacy of the eye movement desensitization procedure in the treatment of traumatic memories. *Journal of Traumatic Stress*, *2*(2), 199–223. https://doi.org/10.1002/jts.2490020207

Shapiro F. (2014). The role of eye movement desensitization and reprocessing (EMDR) therapy in medicine: addressing the psychological and physical symptoms stemming from adverse life experiences. *The Permanente Journal, 8*(1), 71-77. https://doi.org/10.7812/TPP/13-098

Spataro, J., Mullen, P. E., Burgess, P. M., Wells, D. L., & Moss, S. A. (2004). Impact of child sexual abuse on mental health: Prospective study in males and females. *The British Journal of Psychiatry*, *184*(5), 416–421. https://doi.org/10.1192/bjp.184.5.416

Stanton, K. J., Denietolis, B., Goodwin, B. J., & Dvir, Y. (2020). Childhood Trauma and Psychosis: An Updated Review. *Child and Adolescent Psychiatric Clinics*, *29*(1), 115–129. https://doi.org/10.1016/j.chc.2019.08.004

Trauelsen, A. M., Bendall, S., Jansen, J. E., Nielsen, H.-G. L., Pedersen, M. B., Trier, C. H., Haahr, U. H., & Simonsen, E. (2015). Childhood adversity specificity and dose-response effect in non-affective first-episode psychosis. *Schizophrenia Research*, *165*(1), 52–59. https://doi.org/10.1016/j.schres.2015.03.014

Trotta, A., Murray, R. M., & Fisher, H. L. (2015). The impact of childhood adversity on the persistence of psychotic symptoms: a systematic review and meta-analysis. *Psychological Medicine*, *45*(12), 2481–2498. https://doi.org/10.1017/S0033291715000574

Valiente-Gómez, A., Moreno-Alcázar, A., Treen, D., Cedrón, C., Colom, F., Pérez, V., & Amann, B. L. (2017). EMDR beyond PTSD: A Systematic Literature Review. *Frontiers in Psychology*, *8*. https://doi.org/10.3389/fpsyg.2017.01668

van den Berg, D. P. G., de Bont, P. A. J. M., van der Vleugel, B. M., de Roos, C., de Jongh, A., Van Minnen, A., & van der Gaag, M. (2015). Prolonged Exposure vs Eye Movement Desensitization and Reprocessing vs Waiting List for Posttraumatic Stress Disorder in Patients With a Psychotic Disorder: A Randomized Clinical Trial. *JAMA Psychiatry*, *72*(3), 259–267. https://doi.org/10.1001/jamapsychiatry.2014.2637

van den Berg, D. P. G., & van der Gaag, M. (2012). Treating trauma in psychosis with EMDR: A pilot study. *Journal of Behavior Therapy and Experimental Psychiatry*, *43*(1), 664–671. https://doi.org/10.1016/j.jbtep.2011.09.011

van Winkel, R., Stefanis, N. C., & Myin-Germeys, I. (2008). Psychosocial Stress and Psychosis. A Review of the Neurobiological Mechanisms and the Evidence for Gene-Stress Interaction. *Schizophrenia Bulletin*, *34*(6), 1095–1105. https://doi.org/10.1093/schbul/sbn101

Varese, F., Smeets, F., Drukker, M., Lieverse, R., Lataster, T., Viechtbauer, W., Read, J., van Os, J., & Bentall, R. P. (2012). Childhood Adversities Increase the Risk of Psychosis: A Meta-analysis of Patient-Control, Prospective- and Cross-sectional Cohort Studies. *Schizophrenia Bulletin*, *38*(4), 661–671. https://doi.org/10.1093/schbul/sbs050

Wied, C. C. G., & Jansen, L. M. C. (2002). The stress-vulnerability hypothesis in psychotic disorders: Focus on the stress response systems. *Current Psychiatry Reports*, *4*(3), 166–170. https://doi.org/10.1007/s11920-002-0022-9