**Background:** Social impairment is a core feature of schizophrenia presenting a major barrier to recovery. Although antipsychotic medications can reduce psychotic symptoms, social functioning often remains poor, contributing to the financial burden of schizophrenia. Validated behavioral interventions, such as Social Skills Training (Liberman & Martin, 1988), target a broad range of social domains by practicing pragmatic living skills. But they yield only modest effect sizes for social outcome (Plummer et al, 2006). Conventional social interventions present further limitations including: time and effort required from patients and therapists, low adherence, lack of personalization, and low generalizability. Importantly, most people with mental illness do not currently have access to social interventions. The aim of this study was to design and implement an effective, high-compliance virtual reality (VR) social skills training game for people with schizophrenia.

**Methods:** The advantages of the VR environment include flexibility, controllability, extensive repertoire of stimuli, low-burden, low-cost and safety (Strickland, 1997). The goal of the training game was to support social attention to improve social skills learning. We trained social skills by exercising problem-solving in naturalistic scenarios: the grocery store, a bus stop, and a cafeteria. Subjects moved through variable steps in a social “mission” to obtain personal information through conversations with avatars. Each mission began with the participant fixating on the avatar. Subjects then had to decide which avatar to approach and choose an appropriate response to the avatar’s prompts. If they chose an incorrect response, oral feedback was provided on why this response was not the most effective, and instructed them to try again. This occurred until the participant identified the most appropriate response, thus completing the mission and getting access to the next level of difficulty. Each training session concluded after completion of 12 total conversation missions.

Eighteen individuals with schizophrenia (SZ) and twenty demographically matched controls (CO) participated in this study. At baseline, SZ and CO completed pre-training assessments. The CO group did not undergo VR training but participated in behavioral assessments so that we could compare SZ performance to normative data. SZ participated in the VR training twice a week for 5 weeks (10 sessions). After the 10th session, we re-examined social functioning, cognitive functions, and symptoms. SZ also completed a satisfaction survey upon training completion. 

**Results:** Of the eighteen SZ participants enrolled in the study, sixteen completed the 10 sessions of training, yielding a retention rate of 89%. 80% of SZ subjects reported being “extremely satisfied” with the training. None reported not being satisfied. 93.3% rated the training as “acceptable” and the effort required to attend the study as “easy.” Regarding outcome, negative symptoms significantly decreased from pre-training to post-training. Performance on BLERT and CogState Social Emotional Cognitive Task significantly improved. The average time taken to complete a mission was significantly lower in the last session compared to the first, showing that participants became increasingly better at efficiently solving these social missions.

**Discussion:** These results show evidence for VR training as an acceptable and feasible intervention improving social functioning in SZ. Future work will test the adaptive social VR training against an active control condition to determine whether potential gains were associated with changes in gaze patterns.

**Methods:** Fifteen SZ outpatients completed a social simulation computer game intervention involving a pre-training visit, 10 training sessions scheduled approximately twice per week (days until completion: M=38.8, SD=16), and a post-training visit. During training sessions, participants played a novel, adaptive VR-based computer game that involved approaching and engaging in conversations with various Avatar game characters across several naturalistic settings (a bus stop, café, grocery store). Each game session required completion of 12 “social missions” to determine information about different characters (e.g., food preference), achieved by selecting the appropriate conversational prompts and follow-up questions from multiple options. At pre- and post-training visits, emotion recognition was assessed with a novel dynamic facial affect recognition task (DFAR) and the Bell Lysaker Emotion Recognition Task (BLERT). During the DFAR, patients viewed adult Avatar characters (50% female) making one of 8 dynamic facial expressions (anger, sadness, fear, disgust, joy, surprise, contempt) while gaze data and behavioral responses were recorded. The VR-based computer game and DFAR were developed in-house with Autodesk Maya 3D animation and Unity software (unity3d.com).

**Results:** Patients’ emotion recognition accuracy (BLERT) significantly improved from pre- to post-training. Patients’ accuracy on the facial affect recognition task (DFAR) also significantly improved following training for specific negative emotions (anger, contempt, fear, and sadness). Regarding changes in visual attention, patients made overall fewer fixations at post-training (fixation duration threshold = 200ms) across relevant social areas (eyes, nose, mouth) when viewing emotional Avatar faces compared to pre-training. A general reduction in fixations was not accompanied by an increase in mean fixation duration. Rather, shorter fixation durations were positively associated with DFAR performance accuracy.

**Discussion:** SZ patients’ participation in a novel, VR-based computerized social simulation training may yield indirect benefits in emotion recognition. Specifically, patients exhibited improvements on a validated assessment of emotion perception (BLERT) following the 10-session computer training. A decrease in the number of fixations on socially-informative facial regions during Avatars’ emotion expression on the DFAR may indicate an increased efficiency in scanning for socioemotional information. Though much work remains in probing the exact nature of treatment mechanism and durability of these improvements, these promising initial results demonstrate the potential of an VR-based computer game for improving core deficits in social cognition.

**T206. DOES AGE INFLUENCE RESPONSE TO COGNITIVE REMEDIATION?**

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Background: Cognitive deficits are common in people with schizophrenia and have a negative impact on functioning. Cognitive Remediation (CR) is an effective approach to reduce the burden of cognitive difficulties however there are individual differences in therapy response. Previous research suggests that participants age may be a significant moderator of therapy efficacy but results are inconclusive. This study attempts to fill this gap by exploring how age may influence CR outcomes.

Methods: Data from ten trials from the NIMH Database of Cognitive Training and Remediation Studies (DoCTRS) were used. We considered the following therapy outcomes: Executive function as assessed by the Trail making test part B (TMTB), the Wisconsin Card Sorting Test (WCST) and Verbal fluency (FAS) scores. Working memory was assessed with the Letter-Number Span (LNS) and the Digit span. Symptoms were evaluated with the Positive, Negative and General scores from the Positive and Negative Syndrome Scale (PANSS). Functioning was assessed using the Heinrichs-Carpenter quality of life (HCQOL) scale. To evaluate the effect of age on outcomes we classified participants into under 40 and over 40 years old. We compared outcomes across age groups using mixed linear models.

Results: We considered data from 711 people with schizophrenia (407 received CR and 304 the control condition). For the under 40 group the average age was 29.26 (SD 6.83) while the average year spent in education was 12.11 (2.61). The over 40 group had a mean age of 40.09 (SD 6.09) and 12.11 (2.54) years of education. We found a significant interaction between age and working memory and functioning improvement for the over 40 group. The younger group showed a larger effect of CR in term of general symptoms reduction. We did not find an effect of age on executive function, positive and negative symptom.

Discussion: The results indicate that CR may benefit people with schizophrenia in different way depending on their age. Age may represent a large number of complex factors and more work is needed in this area to better understand how individual characteristics and illness history may influence CR response. Work in this sense will help to reduce CR response heterogeneity and improve therapy personalisation.

T207. A REVIEW OF PREDICTORS OF RESPONSIVENESS TO CBT FOR PSYCHOSIS
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Background: Pharmacological and psychological intervention combined are proved to be more effective for treating psychosis than pharmacological treatment alone. Cognitive Behavioral Therapy for psychosis (CBTp) has been empirically supported as conjoint treatment providing a significant improvement in positive and negative symptoms, and functional outcomes for psychosis. However, rates of patient discontinuation in CBTp and occasional lack of improvement in symptoms show it is important to refine the identification of the individual characteristics related to better response to CBTp. This literature review aims to accomplish a comprehensive analysis of the evidence-based studies that have searched predictors in the last decades, focusing on individual factors that directly predict responsiveness to CBTp, rather than therapist or treatment factors. The scope of knowledge gathered here intends to guide practical application of CBTp to people with psychosis that can benefit more from this intervention. Adaptations to improve the effectiveness of CBTp and gaps to be addressed in further research are also considered.

Methods: Thirty (30) studies (18 RCT) were included to determine which characteristics are relevant for a distinctive response to CBTp in people with schizophrenia and other psychotic disorders. The word “predictor” was used to discriminate pertinent studies. Articles were included if they reported in a population within a Psychosis Spectrum Disorder; reported on CBT or derived intervention; reported on individual predictors of outcome in CBT or derived therapy. Articles that reported on a high-risk psychosis population or on comorbidities with psychosis; reported non-individual predictors; were case studies or literature reviews; had a small sample; and had mixed interventions and did not report results specific to CBT were not included.

Results: Studies have shown divergences in methodology, focus on different domains and time-points of disorders outcome and great heterogeneity in results. There is strong evidence that greater clinical and cognitive insight, cognitive flexibility, greater positive symptom severity and less pronounced negative symptoms at baseline, shorter duration of psychosis, a greater number of hospitalization in the previous five years and pre-therapy coping styles can predict better outcome in CBTp, although their significance has varied between studies. While impairment in verbal memory was related to a shortage of improvement in symptoms and a greater likelihood to abandon of treatment before completion, most studies did not find neurocognitive functioning to be a predictor of outcome in CBTp.

Discussion: Further investigation is needed to determine the extent and validity of these predictors in different populations within the scope of psychosis. Professionals can benefit from the gathered knowledge, using these findings to better target CBTp and to focus early stages of intervention on developing patient’s abilities such as cognitive flexibility and insight, working memory, coping skills and clinical awareness in order to improve their receptiveness to therapy and successful outcome.

Future research should aim to replicate findings with larger and more diagnosis-comprehensive samples to enable generalization of the present results. Aspects such as personality traits, metacognition and sociodemographic characteristics require more thorough investigation to confirm their predictive value before being taken into consideration when selecting patient suitability to CBTp and similar interventions.

T208. LONGITUDINAL FEASIBILITY AND ACCEPTABILITY OF THE EXPRESS SMARTPHONE APP: RECRUITMENT, RETENTION AND PRELIMINARY FINDINGS
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Background: Relapse of schizophrenia is common, has profound, adverse consequences for patients and is costly to health services. Early signs interventions aim to use warning signs of deterioration to prevent full relapse. These interventions show promise but could be further developed. There is preliminary evidence that adding ‘basic symptoms’ to conventional early signs of relapse may improve relapse prediction. Basic symptoms are subtle, subclinical disturbances in one’s experience of oneself and the world that can include, for example, perceptual changes, mild subjective cognitive problems and decreased tolerance of stressors. This study aimed to evaluate the feasibility and acceptability of using the ExPRESS smartphone app to monitor both conventional early signs and basic symptoms as possible predictors of relapse.

Methods: Patients who had experienced a relapse of schizophrenia within the past year took part in a screening interview. Those with at least one basic symptom emerging prior to a previous relapse were eligible for the longitudinal feasibility study. Consenting participants were asked to use the ExPRESS smartphone app once a week for 6 months, answering questions on their experience of conventional early signs, basic symptoms and psychotic symptoms. When app responses indicated an increase in psychotic symptoms above a pre-defined threshold, the researcher conducted the PANSS positive symptoms interview over the phone to assess whether the symptom increase was indicative of relapse. At the end of the follow-up period, face-to-face qualitative interviews were conducted to explore participants’ experiences of using the phone app and reasons for study dropout.

Results: 82% (18/22) of those screened were eligible for the longitudinal feasibility study and consented to participate. Of these, 72% (13/18) completed at least half of the weekly phone app assessments, with two participants dropping out of the study without completing any assessments on the phone app. Two participants met pre-defined relapse criteria during the 6 month follow up period. Initial findings from sixteen qualitative interviews are discussed, including interviews with the two participants who met relapse criteria and two study drop-outs.

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