functioning post intervention (N=1,449; SMD=0.506; 95%CI=0.347, 0.665; p<.001). Improvements in global symptoms (N=849; SMD=-0.297; 95%CI=-0.484,-0.111;p=.002)andpositivesymptoms(N=784;SMD=-0.227; 95%CI=-0.416, -0.038; p=.018) were also found. Compensatory interventions were not associated with improvements in negative symptoms (N=736; SMD=-0.162; 95%CI=-0.382, 0.058; p=.150). The heterogeneity of findings was low.
Discussion: Compensatory approaches are effective for improving functioning in psychosis, with a medium effect size. General symptoms and positive symptoms appear to benefit from compensatory approaches, but compensatory approaches are not effective for improving negative symptoms. Future analyses will examine the durability of effects, effects of study quality and moderating factors such as pure vs. partially compensatory, treatment intensity/length, mode of delivery (group vs. individual), baseline functioning level and age of participants.

S204. NUTRITIONAL DEFICIENCIES AND CLINICAL CORRELATES IN FIRST-EPISODE PSYCHOSIS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Background: Diet is increasingly recognised as a modifiable factor influencing the onset and outcomes of psychiatric disorders. Previous meta-analyses of blood nutrient levels in schizophrenia have already shown significant reductions in various individual vitamins/minerals. However, studies to date have largely focused on individual nutrients, and only considered nutrient status in patients with long-term schizophrenia. Meta-analytic evaluation of the evidence for nutrient deficits in first-episode psychosis (FEP) is completely absent. Therefore, we conducted a systematic review of all published studies comparing blood levels of vitamins and/or mineral in FEP to healthy control samples; and applied meta-analytic techniques to determine the prevalence and extent of deficiencies across the full spectrum of nutrients examined in this population to date.
Methods: We searched electronic databases from inception to July 2017 for all studies examining blood levels (i.e. serum, plasma or whole blood) of nutrient levels in people with FEP compared to healthy controls. Our systematic search identified 28 eligible studies, examining blood levels of 16 different nutrients (six vitamins, ten dietary minerals) across 2,612 individuals: 1,221 patients with FEP and 1,391 control subjects. Random effects meta-analyses compared nutrient levels in FEP to healthy controls. Clinical correlates of nutritional status in patient samples were systematically reviewed.
Results: Random effects meta-analyses found that people with FEP had large, significant reductions in blood levels of vitamin B9 (i.e. folate) compared to healthy controls(N=6, n=827, g=-0.624, 95% C.I.=-1.176 to -0.072, p=0.027). Significant reductions were also found for vitamin D (N=7, n=906, g=-1.055, 95% C.I.=-1.99 to -0.119, p=0.027) and, among fewer studies, vitamin C (N=2, n=96, g=-2.207, 95% C.I.=-3.71 to -0.71, p=0.004). No differences were found for other vitamins or minerals. Systematic synthesis of clinical correlates showed that reductions in both folate and vitamin D held significant relationships with greater psychiatric symptoms in FEP.
Discussion: This is the first meta-analysis to examine the prevalence, extent and clinical correlates of nutritional deficiencies in FEP to date. The deficits in vitamin D and folate which have previously been observed in long-term schizophrenia appear to exist from illness onset, even prior to antipsychotic treatment, and are associated with more severe symptoms. The extent and importance of these deficiencies suggests that routine screening for vitamin D and folate deficiencies should be considered in early intervention services. Furthermore, since our previous meta-analyses have shown that high-dose b-vitamin supplementation can reduce symptoms in long-term schizophrenia, this should now be investigated in FEP. The potential physical and psychological benefits of vitamin D supplementation in early psychosis should also be explored. However, further research is needed to establish casual and mechanistic relationships between vitamin deficiencies, poor diet and the onset and outcomes of psychotic disorders.

S205. TRANSCRANIAL DIRECT CURRENT STIMULATION FOR SEVERE, PERSISTENT, TREATMENT-REFRACTORY AUDITORY HALLUCINATIONS IN SCHIZOPHRENIA

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Background: Up to 25% of schizophrenia patients continue to experience distressing auditory hallucinations despite best efforts at treatment with antipsychotic drugs. Transcranial direct current stimulation (tDCS) has been suggested to rapidly attenuate such persistent hallucinations.
Methods: We treated 23 schizophrenia patients with persistent, antipsychotic-refractory auditory hallucinations using tDCS in a single-group, open-label design. tDCS was administered at 2 mA current intensity for 20 min, twice-daily and 4 h apart, across 5 consecutive days; the anode was placed over the the left dorsolateral prefrontal cortex and the cathode over the left temporoparietal junction. Ongoing antipsychotic medications were continued unchanged. Patients were assessed using the Auditory Hallucinations Rating Scale (AHRS) at treatment endpoint and at 1- and 3-month follow up. Response was defined as 50% or greater attenuation in AHRS scores.
Results: All patients completed the study. tDCS resulted in substantial improvement. Mean (standard deviation) AHRS scores dropped from 29.0(8.3) at baseline to 4.4(5.6) at treatment endpoint; these values were 9.3(9.3) and 7.8(8.4) at 1- and 3-months follow up. The response rate was 91.3%, 69.6%, and 82.6% at the 3 posttreatment assessment points, respectively. Complete remission of hallucinations (AHRS=0) was observed in 61%, 44%, and 44% at the 3 posttreatment assessment points. tDCS was very well tolerated and adverse effects were minimal.
Discussion: tDCS is effective and well tolerated in schizophrenia patients with persistent, antipsychotic-refractory auditory hallucinations. In most patients, the benefits last for up to 3 months or longer.

S206. KNOWLEDGE ABOUT CAUSES OF RELAPSE DURING PSYCHOEDUCATION IN PATIENTS LIVING WITH SCHIZOPHRENIA- A QUALITATIVE ANALYSIS

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Background: Evidence till date shows different reasons of relapse in schizophrenia around the world. However, there was almost no reliable data from Nepal. We want to report a thematic study based on the reports of 12 patients living with schizophrenia and their family members. These patients were approached during psychoeducation group sessions.
Methods: Twelve patients with a diagnosis of schizophrenia as per Diagnostic and Statistical Manual of mental disorders-5 criteria, who were accompanied by their family members were selected. A minimum

duration of illness of 5 years was required as inclusion criteria. Semi structured interviews were conducted with patient and family members separately in 1–2 sessions. Questions were mainly related to their knowledge about causes of relapse in patients in their perspective. Interviews were recorded and transcripts were generated. All the transcripts were read separately by the 3 investigators and common themes agreed upon by all the investigators were generated. We used content analysis for the purpose of the study. A total of 36 sessions psychoeducation were taken in in-patients from National Medical College, Birgunj, Nepal. Eight out of 12 patients were males. The group therapy was psycho-education oriented and based on NIMHANS manual for family-based intervention in schizophrenia. We included those patients who were admitted and improving as per PANSS score (more than 50% of the score at admission).

Results: The patients' family members told that these sessions were useful because their issues were discussed and addressed and simpler terms were used during the process. The patients showed ability to participate and understand the proceedings though not always. Two of the patients had sub-normal intelligence and so they were not benefited more than being heard about their sufferings. Their family members reported a better understanding of the illness and non-pharmacological approach for these patients after the sessions. Participants were encouraged to make notes out of the discussions in the sessions but few of them did so.

Following themes emerged after the analysis of transcribed verbatim from the patients and family members.

Themes generated from patient's versions:

1. Residual negative/depressive symptoms
2. Critical comments from family members
3. Adverse effects of medications
4. Improper education about the duration of treatment

Themes generated from family member's versions:

5. Lack of awareness about the illness
6. Belief in super natural causes
7. Affordability issues
8. Poor insight about the illness
9. Poor compliance to medications
10. Stress

Discussion: Conclusion: Educating our patients can be tiring and mundane during regular out-patient department. However, the psychoeducation sessions are very important part of the treatment. During that process we should anticipate the possible causes of relapse and educate the same for better outcome.

S207. TDCS AS FUTURE TREATMENT OPTION FOR SCHIZOPHRENIA PATIENTS - A NEUROPHYSIOLOGICAL INVESTIGATION OF INDUCED PLASTICITY OVER MOTOR AND PREFRONTAL CORTEX USING SLORETA

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Background: Transcranial direct current stimulation (tDCS) is a non-invasive, plasticity-inducing brain stimulation technique that can induce long-lasting excitability changes in the motor cortex and has been discussed as an alternative treatment option for patients with schizophrenia. Therefore, the aim of the present study was to detect electrophysiological correlates after motor cortical and prefrontal tDCS in order to improve the understanding of tDCS-mechanisms. Anodal and cathodal tDCS was applied over motor cortex (M1) and dorsolateral prefrontal cortex (DLPFC), which is known as one major region of interest considering neurobiology of psychosis. Thus, we looked for tDCS-induced source-localized activity changes in resting EEG by using sLORETA (standardized low-resolution brain electromagnetic tomography) and compared the effects of motor and prefrontal cortex.

Methods: A total of 20 healthy volunteers were examined within five sessions (within-subject design). Anodal tDCS (1mA, 13 minutes) and cathodal tDCS (1mA, 9 min) were applied over M1 and respectively DLPFC. In addition, there was a sham tDCS of DLPFC. Transcranial magnetic stimulation (TMS) was performed before and after motor cortical tDCS in order to generate motor evoked potentials (MEP) as periphery indicators of motor cortical plasticity. A 6-minute resting EEG was performed before and after each tDCS treatment. EEG data was then investigated by sLORETA for source-localized brain activity changes.

Results: After tDCS over M1, the expected increase of MEP amplitude after anodal tDCS and reduction after cathodal tDCS could be measured. Following anodal tDCS over M1 an increased activity was found in the area of precuneus in EEG frequency band alpha. After cathodal tDCS over M1 an activity decrease was seen in frequency band alpha, beta and total power, which could be localized in insula and temporal gyrus.

After anodal as well as cathodal tDCS over DLPFC decreased activities could be measured in most frequency bands (e.g. delta, theta, alpha, beta, total power). Most of these changes were found in frontal lobe, anterior cingulate or insula. Unexpectedly there were also significant changes after sham tDCS in all frequency bands. However, these were measured mostly in right-sided temporal lobe, which could be due to jaw muscle artefacts.

Discussion: The polarity-specific tDCS effects, which can be demonstrated in motor cortex, cannot be seen in prefrontal cortex; instead we detected a polarity-independent frontal modulation. This lack of prefrontal polarity specificity may be explained by a more complex mode of action in frontal cortex. This is consistent with the variable results of prefrontal tDCS in other publications. As the effects from motor cortical studies cannot easily be transferred to the frontal system in healthy subjects, one could speculate that in schizophrenic patients the responses to prefrontal tDCS might be even more difficult to predict. Further investigations are required to evaluate the heterogeneity of source-localized tDCS-effects and to understand prefrontal mechanisms, so that frontal tDCS may be used as a future treatment in schizophrenia patients.

S208. PREDICTORS OF RESPONSE TO COGNITIVE REMEDIATION THERAPY: SYSTEMATIC REVIEW OF LITERATURE

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Background: Impaired cognitive functioning is considered a core aspect of schizophrenia and is associated with poorer functional outcomes. Proving only marginally responsive to pharmacological interventions, there has been an acceleration of research investigating the efficacy of cognitive remediation therapy (CRT) in ameliorating cognitive deficits. While small to moderate effect sizes have been reported, closer examination suggests 40–60% of participants fail to realise a benefit. To improve both efficacy and effectiveness, better understanding of the factors that predict cognitive response to CRT is needed. To date, no systematic review of the evidence base has been conducted. We aimed to address that gap by providing a synthesis of predictor variables, whether they were moderators, mediators or predictors, of cognitive response to CRT.

Methods: An electronic database search was conducted across Scopus, Web of Science and PsychINFO databases and the Cochrane Collaboration Controlled Trials Register for all years until 30/09/2017. Reference lists of published meta-analyses and review articles were hand searched. Eligibility assessment was performed independently in an unblinded standardised manner by two reviewers. Studies that included a CRT arm, had a majority (≥70%) schizophrenia / schizoaffective disorder participants, had at least one training-distinct pre-post measure of cognition and at least one predictor of cognitive outcome were included. Studies that incorporated social