Project Hope: Comparing hope in service users with first-episode-psychosis in high- and low-middle-income countries

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Abstract

Background: Hope is an important aspect of recovery for people with first-episode psychosis (FEP), but knowledge of cross-cultural experiences of hope is lacking. This study compared self-reported hope in patients experiencing FEP, accessing early intervention services in Montreal, Canada and Chennai, India, over two years of treatment. Aim 1: Establish the psychometric properties of the Hope Questionnaire in Chennai and Montreal; and in three languages- Tamil, French, and English. Aim 2: Examine the association of Hope scores to demographic and clinical variables such as age, gender, engagement in work/school, anxiety, depression, and positive and negative symptoms. Aim 3: Compare Hope scores for patients with FEP in Montreal and Chennai at baseline, 12, and 24 months. Aim 4: Examine whether Hope scores change over time. **Methods:** As part of a larger study comparing outcomes in India and Canada, 133 patients in Montreal and 165 patients in Chennai completed self-report questionnaires assessing hope; self-rated health, mental health and happiness; and recovery (measured with the Recovery Assessment Scale, RAS) at baseline (entry), 12 months, and 24 months. The Hope Questionnaire comprises four questions rated by respondents on a scale of 1-10, with higher scores indicating greater hope. **Results:** The Hope Questionnaire showed excellent test-retest reliability with intra-class correlation coefficient, $ICC_{(2,1)} > 0.840$ across language and site; and excellent internal consistency with Cronbach's $\alpha > 0.900$ at each site and time point. Hope Questionnaire scores were associated with the three single-item self-report questions (health, mental health and happiness) in the Montreal sample at all three time points and Chennai at baseline. Hope Questionnaire scores were associated with the RAS in Montreal at Months 12 and 24, but only the Goals and Success Orientation factor of the RAS in Chennai at Month 24. Associations between Hope scores and depression were found at baseline, and Hope

scores and gender at 24 months in Montreal. Associations between Hope scores and engagement in work/school were found at 12 months in Montreal and 24 months in Chennai. Few differences in Hope scores were found between Montreal and Chennai. Hope scores did not change over time in Chennai. **Discussion:** The Hope Questionnaire showed excellent test-retest reliability and internal consistency. Convergent validity was robust in Montreal, indicated by significant correlations with other subjective outcomes and recovery. In Chennai, hope was correlated with self-rated health, mental health and happiness at baseline and to the Goals and Success Orientation factor of the RAS at 24 months. Hope scores showed a gender pattern only in Montreal, with females scoring higher. Depression and engagement in work/school were associated with hope in Montreal, but only engagement in work/school in Chennai. Hope Questionnaire scores did not increase over time in Chennai, despite improved clinical outcomes. However, Hope remained moderately high throughout treatment in Chennai, demonstrating the positive effects of early intervention services.

Keywords: Hope, first-episode psychosis, subjective recovery

Introduction

Background

First-episode psychosis (FEP) is characterized by symptoms including delusions, hallucinations, disorganized speech or thinking, grossly disorganized or abnormal motor behaviour, and negative symptoms like avolition, alogia, and asociality in a person with no history of psychosis (APA, 2013). Usually diagnosed during adolescence or young adulthood, young people with psychosis face challenges and disruptions in everyday life (Rössler et al., 2005). To address FEP, early intervention services (EIS) were developed with two primary goals 1. To minimize the duration of untreated psychosis, which is associated with poorer outcomes (McGorry et al., 2008; Perkins et al., 2005). 2. Provide high-quality treatment early on (Malla et al., 2003). EIS have demonstrated better outcomes in early psychosis compared to treatment as usual (Correll et al., 2018). They are multi-modal, comprising appropriate medication, assertive case management, individual therapies, family interventions, support groups, and recovery activities to build skills and learn about one's illness (Malla et al., 2003). Hope is fundamental to the EIS philosophy, observed in its guidelines and practices (Iyer et al., 2015), and EIS are known for promoting hope in patients (Goldner-Vukov et al., 2007). Recovery in early psychosis has been largely measured using clinical outcomes (decrease in symptom severity), typically rated by clinicians (Harvey et al., 2007). However, in keeping with the patient-centered philosophy of EIS, there is merit in measuring recovery based on patient-reported outcomes (hope, quality of life, functioning, etc.). Some research has shown that EIS users report better subjectively reported outcomes than in other services (Fusar-Poli et al., 2022).

Subjective recovery in psychosis has mainly been studied in high-income countries (HIC). It is conceptualized as a lifelong process with ups and downs unique to each person

(Temesgen et al., 2019). When discussing subjective recovery, patients often mention the importance of hope (Green & Garcia-Mieres, 2022; Wood & Alsawy, 2018), and a recent review of both quantitative and qualitative research suggests that optimism for the future and hope are necessary aspects of initiating and sustaining recovery as a process (Temesgen et al., 2019). One definition of hope is looking to a better future situation that the person believes is possible, giving meaning to the person, and which requires personal activity (Schrank et al., 2008). It should be noted that hopelessness is not an absence of hopeful thinking, but a distinct concept characterized by negative expectations for the future, which correlates with hope (Huen et al., 2015). A study by Goodby & MacLeod (2016) found less future-directed thinking among FEP patients compared to controls that persisted for at least 10 years. Moreover, they found high levels of negative future-directed thinking and low levels of positive future-directed thinking were associated with feelings of hopelessness.

Hope has been linked to subjective quality of life (Kylma et al., 2006). Indeed, it has been suggested that increased levels of hope will improve the quality of life for persons with schizophrenia-spectrum disorders (SSD) (Hasson-Ohayon et al., 2009). Studies have also shown a positive association between hope and being meaningfully engaged in work, education, and volunteering, which contribute to feelings of purposefulness (Green & Garcia-Mieres, 2022; Kylma et al., 2006; Perry et al., 2007).

The relationship of hope and hopelessness with clinical factors in the context of psychosis has been examined. A meta-analysis by Van Eck et al. (2018) found small to medium effects for the negative relationships between hope and positive and negative symptoms for patients with SSD. However, the paper also notes significant heterogeneity across studies. High levels of hopelessness in FEP patients diagnosed with SSD predicted worse overall functioning

scores and greater severity of depression (Aguilar et al., 1997). Others found negative associations between hope and depression in young people (Esteves et al., 2013), people with psychosis (Anczewska et al., 2019), and people with SSD (Schrank et al., 2012). Hope has been shown to mediate the relationship between depression and recovery in people with SSD (Sari et al., 2021). Anxiety and depression co-occur frequently in patients with psychosis (Wilson et al., 2020). Relationships between anxiety and hopelessness have been shown in older adults with SSD (Lysaker & Salyers, 2007), but research finds unclear relationships between anxiety and hope in young people (Esteves et al., 2013).

The literature does not support an association between gender and hope in people with SSD (Schrank et al., 2012), nor in young people (Esteves et al., 2013). With respect to age, Aguilar et al. (1997) did find older participants experienced less hopelessness.

Current Study

Historically, one of psychiatry's interesting findings is that people with psychosis have better clinical outcomes in low-and-middle-income countries (LMIC) compared to high-income countries (HIC) (Isaac et al., 2007). However, Cohen et al. (2008) discusses the limitations of these studies and recommends that future research should examine whether better outcomes in LMICs are limited to clinical measures (which have typically been focused on) or also include subjective outcomes (rarely studied in comparative studies).

The current study is part of a larger one that addressed Cohen et al.'s (2008) concerns by investigating clinical, functional, and subjective outcomes following two years of treatment at similar EIS in an HIC (Montreal, Canada) and an LMIC (Chennai, India) (Malla et al., 2020). The larger study reported better clinical outcomes in India compared to Canada, demonstrating the disparity between LMICs and HICs, but do these results extend to subjective outcomes like

hope? While hope has been associated with subjective recovery for people with FEP, there is a lack of cross-cultural knowledge on hope in people with FEP (Temesgen et al., 2019). Much of the research on hope/hopelessness and psychosis reflects multi-episode or chronic SSD in adult populations. To our knowledge, there is a gap in the literature regarding hope in young people experiencing a first episode of psychosis. Furthermore, the literature has tended to focus on the affective dimensions of hope rather than hope for the future in terms of quality of life, financial well-being, career and educational goals, and quality of personal relationships, which are particularly salient for emerging adults (Cheah et al., 2010; Mitra & Arnett, 2019; Seiter & Nelson, 2011). Additionally, these domains were endorsed during consultations with stakeholders in both Montreal and Chennai.

Accordingly, the primary aim of this study was to compare self-reported hope for the future among persons with FEP in two similar treatment programs in different geo-cultural contexts, Montreal and Chennai.

Specific Aims

Aim 1: Examine the psychometric properties of the Hope Questionnaire, including reliability and validity.

Aim 2: Examine the relationship of hope with demographic and clinical variables of persons with FEP, such as age, gender, engagement in work/school, anxiety, depression, and positive and negative symptoms.

Aim 3: Compare Hope scores for patients with FEP in Montreal and Chennai at baseline, Month 12, and Month 24.

Aim 4: Examine whether Hope scores change over time for patients with FEP.

Hypotheses

Hypothesis 1: Hope is expected to relate to concepts of recovery and subjective outcomes (self-rated health, mental health, and happiness).

Hypothesis 2: Hope scores were expected to be negatively related with anxiety, depression, and positive and negative symptoms, but positively related with engagement in work/school and age. No relationship with gender was expected.

Hypothesis 3: Participants in Chennai were expected to report higher levels of hope than those in Montreal.

Hypothesis 4: Participants' hope was expected to increase over the two years of treatment.

The proposed investigation will provide new information about hope for the future, a critical part of recovery, in young people with FEP in two distinct geo-cultural contexts.

Methods and Materials

Research Context

This study is part of a cross-cultural investigation of clinical, functional, and subjective outcomes in young people with FEP (Malla et al., 2020) in Montreal and Chennai. In Montreal, the setting was the Prevention and Early Intervention Program for Psychosis at the Douglas Mental Health University Institute (PEPP-Montreal) and the McGill University Health Centre (PEPP-MUHC), both affiliated with McGill University. In Chennai, the setting was the Schizophrenia Research Foundation (SCARF), a community-based, non-governmental, not-for-profit organization (Malla et al., 2020). Both sites provide comparable treatment over a two-year period that involves assertive case management, family intervention, psychotherapy, monitoring of symptoms, and the flexible use of the lowest effective dose of antipsychotic medication (Iyer et al., 2010; Malla et al., 2020).

Participants

Between 2012 and 2018, participants were recruited from EIS at PEPP-Montreal and PEPP-MUHC in Montreal, and from SCARF in Chennai. The inclusion criteria for this study were a DSM-IV-TR primary diagnosis of Schizophrenia Spectrum Disorder or Affective Psychosis; age between 16-35 years old; IQ above 70; and the ability to speak Tamil or English in Chennai, and French or English in Montreal. Participants whose psychosis was due to a medical condition or substance-induced, or who had been previously treated with antipsychotic medication for more than 30 days were excluded from the study. Informed consent was given by each participant; and for those under 18 years, their parent/guardian gave consent, with the minor's assent. The relevant ethics boards at SCARF and McGill University approved this study.

The sample for the present study comprised two sets of samples from the larger samples of 165 Montreal patients and 168 Chennai patients who participated in the study:

1. A smaller standardization sample comprising of 59 participants (n=30 Montreal; n=29 Chennai) with whom the test-retest reliability of the Hope Questionnaire was examined.
2. A larger sample (N=165 in Chennai; N=133 in Montreal) completed all the measures at baseline, Months 12 and 24. This was the sample used for testing the internal consistency and validity of the Hope Questionnaire (part of Aim 1), along with the other three aims of the study.

Measures

All measures for the study were chosen informed by the literature and with the involvement of clinician-scientists and mental health professionals with extensive experience in FEP at both sites. They were appropriately translated from English into French and Tamil,

following recommendations of the World Health Organization (2019), and administered by similarly trained research assistants at both sites.

The Hope Questionnaire was created for the purposes of the larger study. It consists of four questions which participants rate on a 10-point Likert scale, where 1 represents "very unhopeful" and 10 represents "very hopeful." The question stem was: "Overall, how hopeful are you that you will have the _____ that you desire in the future?" This question was asked in relation to quality of life; financial well-being; (reach the) career or educational goals; quality of personal relationships. Hope Questionnaire scores are calculated by adding the score for each item for a maximum score of 40. Thus, higher scores on the questionnaire indicate greater hope. Participants were asked to complete the Hope Questionnaire at baseline and 12 months, and 24 months after entering the EIS.

As single-item subjected outcomes, we asked three self-reported questions assessing health, mental health, and happiness. The first asked participants on a 5-point Likert scale, where 1 represents "poor," and 5 represents "excellent": "Would you say that, in general, your health is. _____?" (Bombak, 2013). The second asked participants on a 5-point Likert scale, where 1 represents "poor," and 5 represents "excellent": "In the past four weeks, would you say that your mental health has been _____?" (Ahmad et al., 2014). The third item was taken from the 2012 World Values Survey. To capture self-reported happiness, the item asks participants to rate on a 4-point Likert scale, where 1 represents "very happy," and 4 represents "not at all happy": "Taking all things together, would you say you are _____?" (Inglehart et al., 2014). For this item, lower scores indicated higher happiness. Participants were asked to complete the three questions at baseline, 12, and 24 months.

Self-reported recovery was measured with the 41-item Recovery Assessment Scale (RAS), using the total score and its factors (Corrigan et al., 2004). The RAS was assessed at 12 months and 24 months. For the Chennai sample, configurations of the factors for recovery determined in an Indian setting were used in addition to the original RAS factors (Grover et al., 2016).

The Functional Outcomes Interview (Iyer et al., 2022) determined the patient's meaningful engagement. Engagement in work/school was coded as a dichotomous variable (yes/no) if a patient was employed or in full- or part-time school at any point in the previous six months. The Functional Outcomes Interview was conducted at 12 months and 24 months.

Clinical variables of depression, anxiety, positive, and negative symptoms were assessed using the Calgary Depression Scale (CDS) (Addington et al., 1992), the Hamilton Anxiety Scale (HAS) (Riskind et al., 1987), the Scale for the Assessment of Positive Symptoms (SAPS) (Andreasen, 1984), and the Scale for the Assessment of Negative Symptoms (SANS) (Andreasen, 1983), respectively. All clinical variables were assessed at baseline.

Procedure

Participants completed (self-reported on) the Hope Questionnaire, single-item subjective outcomes (health, mental health, and happiness) questions and RAS measures. Clinical measures were administered by similarly trained research staff. Demographic data were recorded at baseline.

1. The test-retest reliability of the Hope Questionnaire was examined by having 59 participants (n=30 Montreal; n=29 Chennai) complete the Questionnaire twice, approximately two weeks apart. All measures were available in English or French in

Montreal, and English or Tamil in Chennai, depending on the participants' preferences.

2. The internal consistency, validity of the Hope Questionnaire, its relationships with clinical and demographic variables, and site and time differences in hope were examined based on data obtained at baseline, 12 months, and 24 months of the EIS at both sites.

Data Analyses

IBM SPSS version 27 was used to analyze the data. To characterize the sample, means, standard deviations, and percentages were compared across sites (Montreal and Chennai) using independent samples *t*-tests or chi-square tests at a significance level of 0.05. Intra-class correlation coefficients were used to evaluate test-retest reliability (two-way random effects model of variance and absolute agreement between scores at the two time points) at a 95% confidence interval. The $ICC_{(2,1)}$ were interpreted as "excellent" (ICC>0.75), "good" (0.60<ICC<0.74), "fair" (0.40<ICC<0.59), and "poor" (ICC<0.40) (Cicchetti, 1994). The internal consistency was investigated with Cronbach's alpha using the sum of the four hope questions at each time point: baseline, 12 months, and 24 months in each location: Montreal, Chennai, and Combined. Cronbach's alphas were interpreted as "fair" (α>0.70), "good" (α>0.80), and "excellent" (α>0.90) (Cicchetti, 1994). To investigate convergent validity, Pearson's correlation coefficients were used to assess the relationship between Hope Questionnaire scores and the single-item subjective outcome questions at baseline, 12 months, and 24 months, and the Recovery Assessment Scale at 12 months and 24 months in Montreal, Chennai, and Combined.

Pearson's correlation coefficients and independent samples *t*-tests were used to judge the relationships between Hope scores and age at entry to EIS, gender, engagement in work/school, and baseline ratings on the CDS, HAS, SAPS, and SANS at a 0.05 significance level.

Independent *t*-tests were used to evaluate differences in Hope Questionnaire total and item scores separately between Montreal and Chennai at baseline, 12 months, and 24 months separately at a 0.05 significance level.

Repeated measures analysis of variance of Hope Questionnaire total and item scores was used to evaluate changes in scores over time at a 0.05 significance level.

Results

Sample Description

The participants in the smaller standardization sample that completed the Hope Questionnaire to examine test-retest reliability (n=30 Montreal; n=29 Chennai) were comparable between the two sites in age, gender, and level of education (see Table 1). The participants in the larger sample who completed the Hope Questionnaire at least once (n=133 Montreal; n=165 Chennai) were similar (between the two sites) in their gender distribution, years of education, duration of untreated psychosis, experience of negative symptoms, and experience of depression (see Table 2). The Chennai sample was older, with a mean age at program entry of 26.53 years (SD=5.25) [M=23.98 (SD=5.08) Montreal]; and a later age of onset for the presenting episode of psychosis [M=23.23 (SD=2.67) Montreal; M=25.84 (SD=3.91) Chennai]. More Chennai participants were married (9.1% Montreal; 36.4% Chennai), engaged as homemakers (0% Montreal; 22.7% Chennai), and living with family (81.3% Montreal; 96.5% Chennai) at baseline than in Montreal at baseline. Participants in Chennai had a higher percentage diagnosed with schizophrenia-spectrum disorder (90.2%) compared to Montreal (69.5%), with the rest diagnosed

with affective psychosis. Participants in Montreal were more likely to be diagnosed with a comorbid substance abuse or dependence disorder (35.3% Montreal; 9.8% Chennai). In Montreal, participants scored higher on the Scale for the Assessment of Positive Symptoms [M=35.52 (SD=14.61) Montreal; M=20.99 (SD=9.57) Chennai] and the Hamilton Anxiety Scale [M=10.33 (SD=7.85) Montreal; M=4.21 (SD=6.65) Chennai], and those in Chennai scored higher on the Global Assessment of Functioning [M=30.95 (SD=10.19) Montreal; 35.87 (SD=10.76) Chennai] (see Table 2).

Among the 165 participants in Montreal, 32 (19.4%) did not complete the Hope Questionnaire at any time point throughout their treatment, whereas in Chennai, only three did not complete the Hope Questionnaire (0.02%). Respondents and non-respondents of the Hope Questionnaire in Montreal differed only in their negative symptom severity [M=23.60 (SD=12.78) completed Hope; M=17.73 (SD=9.91) did not complete Hope; $t(53.717)=2.756$, $p=0.008$]. Only 27 participants in Montreal completed the questionnaire at all three time points, so Aim 4 was only addressed in Chennai and not Montreal, where it would not yield any trustworthy results.

Aim 1: Psychometric Properties

Test-Retest Reliability

The $ICC_{(2,1)}$ ratings of test-retest reliability for Montreal, Chennai, and combined samples were excellent [$ICC_{(2,1)}$= (0.847);= (0.984);= (0.921), respectively] (Cicchetti, 1994) for total Hope scores. The $ICC_{(2,1)}$ ratings for English, French and Tamil also were also excellent ($ICC_{(2,1)}$= (0.878);= (0.931);= (0.979), respectively) for total Hope scores.

Internal Consistency

The Cronbach's alpha estimates for the Hope Questionnaire were calculated for each group (combined, Montreal, and Chennai) at each time point (baseline, 12 months, and 24 months). They were all found to be excellent ($0.927<\alpha<0.968$) (Cicchetti, 1994) (see Table 3).

Convergent Validity (**QoL)**

For all three groups (combined, Montreal, and Chennai), Hope Questionnaire scores had significant positive correlations with the health and mental health questions and significant negative correlations with the happiness question. For the combined sample, all correlations were significant except with the happiness question at 24 months ($0.160<r<0.367$) (see Table 4). For the Montreal sample, all correlations were significant ($0.271<r<0.657$) (see Table 5). For the Chennai sample, there were significant correlations only at baseline ($0.205<r<0.362$) (see Table 6). This indicated that higher scores on the Hope Questionnaire were associated with better self-reported health, mental health, and happiness in persons with FEP.

Convergent Validity (**RAS)**

For all three groups (combined, Montreal, and Chennai), Hope Questionnaire scores were correlated with the RAS total score and factors at 12 months and 24 months. For the combined and Montreal sample, all the correlations were significant ($0.213<r<0.359$, see Table 7; $0.673<r<0.792$, see Table 8, respectively). For the Chennai sample, the only significant correlation was between Hope Questionnaire scores and the goals and success orientation factor at 24 months for Corrigan et al.'s (2004) and Grover et al.'s (2016) factor configuration ($r=0.239$; $r=0.190$, respectively, see Table 9). This suggests that the domains of recovery and hope overlap in Montreal; but these two are quite distinct constructs in Chennai.

Aim 2: Relationships Between Hope and Demographic/Clinical Variables

For the combined and Chennai samples, no relationships were found between the Hope Questionnaire and age, gender, SAPS, SANS, CDS, or HAS (see Table 10). For the Montreal sample, Hope Questionnaire scores at baseline negatively correlated with baseline CDS scores (r=-0.245). At Month 24, women had higher Hope scores than men [M=33.36 (SD=5.36) women; M=29.08 (SD=8.81) men] in Montreal, while no gender differences were observed in hope in Chennai at any time point (See Table 10). In Montreal, Hope Questionnaire scores were higher for those engaged in work/school at Month 12 [M=30.91 (SD=7.25) engaged in work/school; M=26.00 (SD=9.28] not engaged in work/school), and in Chennai, Hope Questionnaire scores were higher for those engaged in work/school at Month 24 [M=31.64 (SD=6.97) engaged in work/school; 26.48 (SD=7.82) not engaged in work/school] (See Table 10).

Aim 3: Comparison of Hope Scores Between Montreal and Chennai

Hope Totals

There were no significant differences in Hope Questionnaire scores between Montreal and Chennai at any of the time points [baseline $t(245)=-1.655$, $p=0.099$; 12 months $t(227)=-1.029$, $p=0.304$; or 24 months $t(212)=0.052$, $p=0.778$] (see Figure 1). This suggests that there were no differences in self-reported hope for the future between Montreal and Chennai patients at any time point.

Individual Hope Items

There were two significant differences in Hope item scores between Montreal and Chennai at baseline. Chennai participants had significantly higher scores on their hope for their future quality of life [M=7.029 (SD=2.22) Montreal; M=7.773 (SD=2.25) Chennai; $t(246)=-2.479$, $p=0.014$] and future financial well-being [M=6.888 (SD=2.14) Montreal; M=7.534

(SD=2.34) Chennai; $t(184.604)=-2.184$, $p=0.030$]. There were no significant item differences between Montreal and Chennai at 12 months or 24 months (see Figure 2). This suggests that participants in Chennai had greater feelings of hope regarding their future quality of life and financial well-being than those in Montreal at baseline.

Aim 4: Change in Hope Scores Over Time

There was neither a significant change in the total Hope Questionnaire scores over time in Chennai ($F(2,1)=0.102$, $p>0.05$) (see Figure 3) nor in the four individual items over time. This was not tested in Montreal due to insufficient sample size.

Discussion

The primary aim of this study was to investigate self-reported hope at two EIS for patients with FEP in an HIC (Montreal, Canada) and an LMIC (Chennai, India). To this end, the Hope Questionnaire was created and evaluated for its psychometric properties and was used to measure hope over two years of EIS. Hope as a subjective outcome was expected to show higher improvement in Chennai than in Montreal, akin to clinical outcomes (Malla et al., 2020), but this hypothesis was not proven true. High levels of hope at baseline persisted throughout treatment, reflecting the positive effects of EIS in terms of maintaining subjective recovery.

Psychometric Properties

As a new scale, the Hope Questionnaire was tested for its psychometric properties, specifically test-retest reliability, internal consistency, and convergent validity. It was found to be reliable and internally consistent in Montreal and Chennai, and its convergent validity was more robust in Montreal than in Chennai.

Overall, the Hope Questionnaire is reliable over two weeks with excellent ICC ratings (Cicchetti, 1994) across sites and languages. The Hope Questionnaire is internally consistent with excellent alpha ratings (Cicchetti, 1994) across sites at each time point.

Hope scores were hypothesized to correlate with single-item subjective outcome measures of health, mental health, and happiness (Hasson-Ohayon et al., 2009; Kylma et al., 2006). This was true for the Montreal sample at all time points. For the combined sample, only at 24 months was the happiness question unrelated to hope. In Chennai, hope was related to all three measures only at baseline, despite consistent hope scores across time.

Since hope is a noteworthy aspect of subjective recovery (Aguilar et al., 1997; Green & Garcia-Mieres, 2022; İpçi et al., 2020; Temesgen et al., 2019; Vass et al., 2015), it was hypothesized that hope scores at Months 12 and 24 would correlate with scores on the Recovery Assessment Scale (RAS). This was true for the Montreal and combined samples, but in Chennai, the only significant correlation was at 24 months between hope and the Goals and Success Orientation factor of the RAS. Even with the subscales calculated based on the RAS's validation in India (Grover et al., 2016), only the Goals and Success Orientation factor again had a significant relationship to hope. Different cultural perceptions of the meaning of recovery may explain the lack of a relationship between hope and recovery in Chennai. While patients with psychosis in India report positive attributes like hope and optimism to facilitate recovery (Gandhi et al., 2020), Gopal et al. (2020) found that patients with schizophrenia in India imagined recovery as an outcome characterized as being symptom-free and without medication. This contrasts with views of recovery in North America as a hopeful process of taking responsibility for one's illness management and moving beyond the illness (Temesgen et al., 2019).

Demographic and Clinical Variables

It was hypothesized that hope scores would relate to various clinical and demographic variables. However, few relationships were established. The current study found that depression was negatively associated with hope scores at baseline in Montreal, consistent with previous findings with adolescents and young adults (Esteves et al., 2013), people experiencing FEP (Aguilar et al., 1997), people with psychosis (Anczewska et al., 2019) and people with SSD (Schrank et al., 2012).

Anxiety was not significantly related to hope in the current study despite it being a common symptom associated with FEP (Wilson et al., 2020). Esteves et al. (2013) found inconsistencies in the literature regarding adolescent hope and anxiety.

Positive and negative symptoms were not significantly associated with hope scores in the current study, concordant with Kylma et al.'s (2006) review of hope and schizophrenia. However, hope has been associated with negative symptoms (Vrbova et al., 2018); positive future thinking has been associated with milder negative symptoms (Goodby & MacLeod, 2016); and Van Eck et al.'s (2018) meta-analysis reported small to medium-sized relationships between hope and both positive and negative symptoms. Moreover, there is evidence that hopelessness positively relates to positive symptoms in FEP (Vass et al., 2015). However, hopelessness is not necessarily the inverse of hope, though they are correlated (Huen et al., 2015).

Consistent with prior studies (Green & Garcia-Mieres, 2022; Kylma et al., 2006; Perry et al., 2007), there was a significant relationship between hope and engagement in work/school (employed or in school full or part-time at any point in the previous six months) at 12 months in Montreal and at 24 months in Chennai. The association between hope and being engaged in work/school at 24 months in Chennai aligns with the connection found at 24 months between

hope and the Goals and Success Orientation factor of the RAS, as having goals might facilitate the pursuit of ongoing engagement in work/school.

There was no association found between hope and the age of participants. Previous work found that age was negatively associated with hopelessness in FEP, suggesting that older participants had more optimistic views of the future (Aguilar et al., 1997). The current finding may be because the sample was selected from a narrow age range (16-35).

At 24 months in Montreal, women had significantly higher hope scores than men. A consistent relationship between gender and hope has not been established in the literature (Esteves et al., 2013; Schrank et al., 2012). The differences in symptomatology and course of recovery between men and women with FEP could account for this finding, with women having better global functioning and reporting better recovery more often than men (Thorup et al., 2014).

Comparison of Hope Scores Between Montreal and Chennai

It was hypothesized that participants in Chennai would have higher levels of hope than those in Montreal. Hope Questionnaire scores did not significantly differ between Montreal and Chennai, so a post-hoc examination of individual items was conducted. At baseline, participants in Chennai were more optimistic about both their future quality of life and financial well-being. Greater familial support, as evidenced by a higher percentage of participants being married and living with families in Chennai, may explain this difference by reassuring participants that their basic needs will be met on their recovery journey. However, at Months 12 and 24, there were similar hope scores for future quality of life and financial well-being between sites. However, these differences did not persist past baseline. Higher mean Hope scores at Months 12 and 24

compared to baseline suggest an increase in hope for future quality of life and financial well-being in Montreal to levels observed in Chennai over the first year of treatment.

Change in Hope Scores Over Time

It was hypothesized that hope scores would increase over the course of treatment at EIS. The Hope Questionnaire scores in Chennai remained moderately high and did not change significantly over time. As noted, Montreal had similarly high Hope Questionnaire scores at all three time points, but it was not possible to run the appropriate statistical tests due to a small sample size. It was hypothesized that feelings of hope would increase with treatment because EIS is focused on comprehensive recovery and instills hope (Goldner-Vukov et al., 2007). The current finding suggests that the clientele at the Chennai EIS were fairly hopeful about their future from the start of treatment. Past interviews with people who were hospitalized for first-episode psychosis indicate that patients experience confusion and hopelessness (Perry et al., 2007). Our findings suggest that EIS, particularly at SCARF, engenders hope in patients from the start and maintains it throughout the treatment program and is consistent with the literature on the benefits of EIS compared to treatment as usual (Harvey et al., 2007).

Strengths

The strengths of this study are:

1. The new measure of hope was developed based on inputs from various stakeholders in Chennai and Montreal.
2. It investigates hope in similar treatment settings in both an HIC and an LMIC. This is important because of the lack of research conducted in LMICs on EIS in general.
3. The study is longitudinal, following participants throughout their EI treatment.
4. It looks at both affective and non-affective first-episode psychosis in young people.

Limitations

Some limitations of this study are:

1. The small sample size in Montreal impeded the possibility of examining changes in hope over time.
2. The study was quantitative in nature, and the inclusion of first-person accounts of participants' hopes and fears for the future would have enhanced the methodology of the study.

Conclusion

The four items of the Hope Questionnaire were developed to assess experiences of hope in the context of EIS for psychosis in India and Canada. This hope questionnaire is valuable because it is short and quick to administer, thus reducing assessment burden on participants. Hope was not associated with recovery in Chennai as it was in Montreal. There is little difference in hope as a subjective outcome between Montreal and Chennai despite better clinical outcomes in Chennai (Malla et al., 2020). Future research should examine, qualitatively, what hope means for participants in the two sites.

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Table 1 Sample characteristics (test-retest sample)

Variable		**Montreal (n=30) M (SD)/N (%)**	**Chennai (n=29) M (SD)/N (%)**	**Statistical Test (df)**	***p*-value**
Gender				$\chi2(1)=0.145$	0.703
	Men	17 (56.7)	15 (51.7)		
	Women	13 (43.3)	14 (48.3)		
Age at entry (years)		24.43 (5.14)	26.31 (5.11)	*t*(57)=-1.403	0.166
Education (years)		12.27 (2.27)	12.62 (3.91)	*t*(44.658)=-0.423	0.674

Bold indicates statistical significance

Table 2 Sample characteristics (main sample)

Variable		**Montreal (n=133) M (SD)/N (%)**	**Chennai (n=165) M (SD)/N (%)**	**Statistical Test (df)**	***p*-value**
Gender				$\chi2(2)=7.675$	0.22
	Men	85 (63.9)	82 (49.7)		
	Women	47 (35.3)	83 (50.3)		
	Trans	1 (0.8)	0 (0)		
Age at entry (years)		23.98 (5.08)	26.53 (5.25)	*t*(296)=-4.224	**<0.001**
Education (years)		12.32 (2.67)	11.82 (3.91)	*t*(287.878)=1.314	0.19
Duration of untreated psychosis from the start of the current episode (weeks)		44.11 (94.87)	29.76 (47.46)	*t*(179.272)=1.566	0.119
Age of onset of psychosis for presenting episode		23.23 (5.5)	25.84 (5.21)	*t*(288)=-4.141	**<0.001**
Scale for the Assessment of Positive Symptoms		35.53 (14.61)	20.99 (9.57)	*t*(194.798)=9.521	**<0.001**
Scale for the Assessment of Negative Symptoms		23.6 (12.78)	21.33 (15.6)	*t*(280.630)=1.347	0.179
Global Assessment of Functioning		30.95 (10.19)	35.87 (10.76)	*t*(295)=-4.008	**<0.001**

Calgary Depression Scale		4.46 (3.8)	3.49 (4.73)	*t*(277.223)=1.904	0.058
Hamilton Anxiety Scale		10.33 (7.85)	4.21 (6.65)	*t*(273)=6.958	<**0.001**
Primary diagnosis				$\chi2(1)=20.219$	<**0.001**
	SSD	91 (69.5)	147 (90.2)		
	Affective Psychosis	40 (30.5)	16 (9.8)		
Substance abuse & dependence diagnosis				$\chi2(1)=27.170$	<**0.001**
	Yes	41 (35.3)	16 (9.8)		
	No	75 (64.7)	147 (90.2)		
High school education				$\chi2(1)<0.001$	0.992
	Less than HS complete	35 (26.7)	44 (26.7)		
	HS complete or more	96 (73.3)	121 (73.3)		
Occupational status				$\chi2(3)=34.507$	<**0.001**
	Unemployed	80 (62.5)	76 (46.6)		
	Student	19 (14.8)	25 (15.3)		
	Homemaker	0 (0)	37 (22.7)		
	Employed	29 (22.7)	25 (15.3)		
Marital status				$\chi2(2)=38.868$	<**0.001**
	Single	119 (90.2)	95 (57.6)		
	Married/common law/relationship	12 (9.1)	60 (36.4)		
	Separated/divorced/widowed	1 (0.8)	10 (6.1)		
Living situation				$\chi2(3)=16.808$	**0.001**
	Lives alone	12 (9.4)	2 (1.4)		
	Lives with family	104 (81.3)	138 (96.5)		
	Lives with friend/roommate	10 (7.8)	2 (1.4)		
	Other (group home, homeless)	2 (1.6)	1 (0.7)		

Bold indicates statistical significance

Table 3 Internal consistency reliability estimates for baseline, 12 months, and 24 months across site

Time point	Location	N	No of items	Cronbach's α
Baseline	Combined	247	4	0.951
	Montreal	84	4	0.941
	Chennai	163	4	0.956
12 Months	Combined	229	4	0.942
	Montreal	92	4	0.927
	Chennai	137	4	0.95
24 Months	Combined	214	4	0.96
	Montreal	56	4	0.943
	Chennai	158	4	0.968

Interpret Cronbach's $\alpha > 0.70$ as "fair"
Interpret Cronbach's $\alpha > 0.80$ as "good"
Interpret Cronbach's $\alpha > 0.90$ as "excellent" (Cicchetti, 1994)

Table 4 Correlations between Hope Questionnaire scores and single-item self-report questions for baseline, 12 months, and 24 months (combined)

Time point	Quality of life item	N	Pearson's r	*p*-value
Baseline	Health	247	0.199**	0.002
	Mental Health	246	0.308**	<0.001
	Happiness	245	-0.367**	<0.001
12 Months	Health	223	0.188**	0.005
	Mental Health	223	0.183**	0.006
	Happiness	222	-0.160*	0.017
24 Months	Health	213	0.243**	<0.001
	Mental Health	213	0.221**	0.001
	Happiness	210	-0.116	0.93

* Correlations are significant at $p<0.05$

** Correlations are significant at $p<0.01$

Table 5 Correlations between Hope Questionnaire scores and single-item self-report questions for baseline, 12 months, and 24 months (Montreal)

Time point	Quality of life item	N	Pearson's r	*p*-value
Baseline	Health	84	0.271*	0.013
	Mental Health	83	0.413**	<0.001
	Happiness	82	-0.439**	<0.001
12 Months	Health	86	0.501**	<0.001
	Mental Health	86	0.504**	<0.001
	Happiness	85	-0.657**	<0.001
24 Months	Health	56	0.488**	<0.001
	Mental Health	56	0.448**	0.001
	Happiness	53	-0.543**	<0.001

* Correlations are significant at p<0.05

** Correlations are significant at p<0.01

Table 6 Correlations between Hope Questionnaire scores and single-item self-report questions for baseline, 12 months, and 24 months (Chennai)

Time point	Quality of life item	N	Pearson's r	*p*-value
Baseline	Health	163	0.205**	0.009
	Mental Health	163	0.288**	<0.001
	Happiness	163	-0.362**	<0.001
12 Months	Health	137	-0.055	0.522
	Mental Health	137	-0.057	0.51
	Happiness	137	0.159	0.064
24 Months	Health	157	0.131	0.101
	Mental Health	157	0.112	0.161
	Happiness	157	-0.008	0.918

* Correlations are significant at p<0.05

** Correlations are significant at p<0.01

Table 7 Correlations between Hope Questionnaire scores and Recovery Assessment Scale, 12 months, and 24 months (combined)

Time point	RAS Measures	N	Pearson's r	*p*-value
12 Months	Personal Confidence and Hope	222	0.300**	<0.001
	RAS Score	212	0.213**	<0.001
	Goal and Success Orientation	221	0.231**	<0.001
	Reliance on Others	222	0.207**	0.001
	Willingness to Ask for Help	224	0.244**	0.002
	No Domination of Symptoms	216	0.137*	0.045
24 Months	Personal Confidence and Hope	209	0.264**	<0.001
	RAS Score	207	0.258**	<0.001
	Goal and Success Orientation	210	0.359**	<0.001
	Reliance on Others	209	0.165*	0.017
	Willingness to Ask for Help	210	0.164*	0.017
	No Domination of Symptoms	209	0.191**	0.006

* Correlations are significant at p<0.05

** Correlations are significant at p<0.01

Table 8 Correlations between Hope Questionnaire scores and Recovery Assessment Scale, 12 months, and 24 months (Montreal)

Time point	Scale	N	Pearson's r	*p*-value
12 Months	Personal Confidence and Hope	85	0.753**	<0.001
	RAS Score	75	0.753**	<0.001
	Goal and Success Orientation	84	0.735**	<0.001
	Reliance on Others	85	0.524**	<0.001
	Willingness to Ask for Help	87	0.436**	<0.001
	No Domination of Symptoms	79	0.440**	<0.001
24 Months	Personal Confidence and Hope	51	0.792**	<0.001
	RAS Score	49	0.765**	<0.001
	Goal and Success Orientation	52	0.673**	<0.001
	Reliance on Others	51	0.603**	<0.001
	Willingness to Ask for Help	52	0.465**	<0.001
	No Domination of Symptoms	51	0.512**	0.001

* Correlations are significant at p<0.05

** Correlations are significant at p<0.01

Table 9 Correlations between Hope Questionnaire scores and Recovery Assessment Scale, 12 months, and 24 months (Chennai)

Time point	Scale	N	Pearson's r	*p*-value
12 Months	Personal Confidence and Hope	137	-0.034	0.692
	RAS Score	137	-0.040	0.641
	Goal and Success Orientation	137	-0.079	0.358
	Reliance on Others	137	-0.037	0.664
	Willingness to Ask for Help	137	0.089	0.229
	No Domination of Symptoms	137	-0.053	0.538
	Indian Context: Personal Confidence and Hope	137	0.001	0.987
	Indian Context: Goals and Success Orientation	137	-0.069	0.422
	Indian Context: Awareness and Control over Illness	137	-0.052	0.544
	Indian Context: Seeking and Relying on Social Support	137	-0.040	0.639
	Indian Context: Defeated Overcome of the Illness	137	-0.048	0.575
24 Months	Personal Confidence and Hope	158	0.063	0.429
	RAS Score	158	0.093	0.245
	Goal and Success Orientation	158	0.239**	0.003
	Reliance on Others	158	0.003	0.996
	Willingness to Ask for Help	158	0.065	0.419
	No Domination of Symptoms	158	0.083	0.298
	Indian Context: Personal Confidence and Hope	158	0.049	0.541
	Indian Context: Goals and Success Orientation	158	0.190*	0.017
	Indian Context: Awareness and Control over Illness	158	0.101	0.207
	Indian Context: Seeking and Relying on Social Support	158	0.081	0.310
	Indian Context: Defeated Overcome of the Illness	158	0.075	-0.346

* Correlations are significant at $p<0.05$, ** Correlations are significant at $p<0.01$

Table 10 Associations between Hope Questionnaire scores and demographic/clinical variables

Variable	Montreal Pearson's r, *p*-value	Chennai Pearson's r, *p*-value
Age	r=-0.018, *p*=0874	r=-0.023, *p*=0.768
Calgary Depression Scale	**r=-0.245, *p*=0.03**	r=-0.022, *p*=0.783
Hamilton Anxiety Scale	r=-0.144, *p*=0.217	r=0.021, *p*=0.789
Scale for the Assessment of Positive Symptoms	r=0.94, *p*=0.409	r=-0.112, *p*=0.160
Scale for the Assessment of Negative Symptoms	r=0.002, *p*=0.984	r=-0.057, *p*=0.484
Variable	**Montreal M, test, significance**	**Chennai M, test, significance**
Gender (Baseline)	27.89 Men; 29.77 Women, *t*(81)=-1.001, *p*=0.320	31.66 Men; 29.11 Women, *t*(161)=1.857, *p*=0.065
Gender (12 months)	29.12 Men; 30.48 Women, *t*(819)=-0.866, *p*=0.389	30.11 Men; 31.40 Women, *t*(127.861)=-0.885, *p*=0.378
Gender (24 months)	**29.08 Men; 33.36 Women, *t*(52.667)=-2.242, *p*=0.029**	31.23 Men; 30.01 Women, *t*(156)=1.033, *p*=0.303
Engagement in Work/School (12 months)	**30.91 Yes; 26.00 No, *t*(88)=2.574, *p*=0.012**	30.61 Yes; 29.54 No, *t*(120)=0.567, *p*=0.572
Engagement in Work/School (24 months)	30.51 Yes; 29.22 No, *t*(51)=0.447, *p*=0.657	**31.64 Yes; 26.48 No, *t*(152)=3.592, *p*<0.001**

Bold indicates statistical significance

Figure 1 Comparison of Hope Questionnaire scores between Montreal and Chennai at all time points

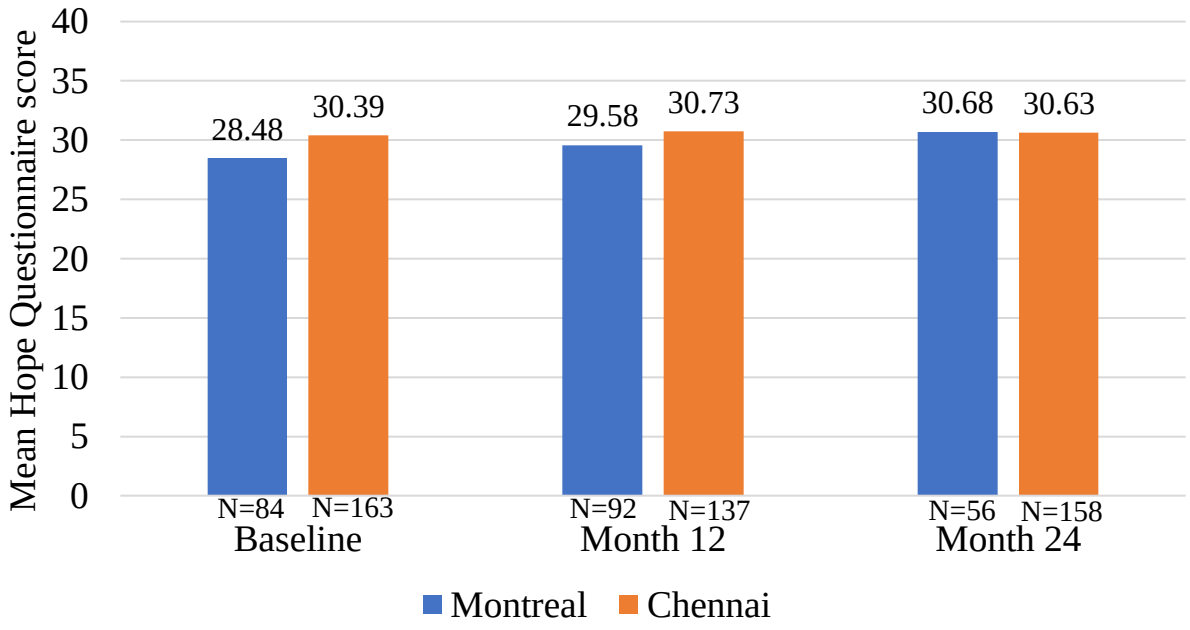

Figure 2 Comparison of Hope item scores between Montreal and Chennai at all time points

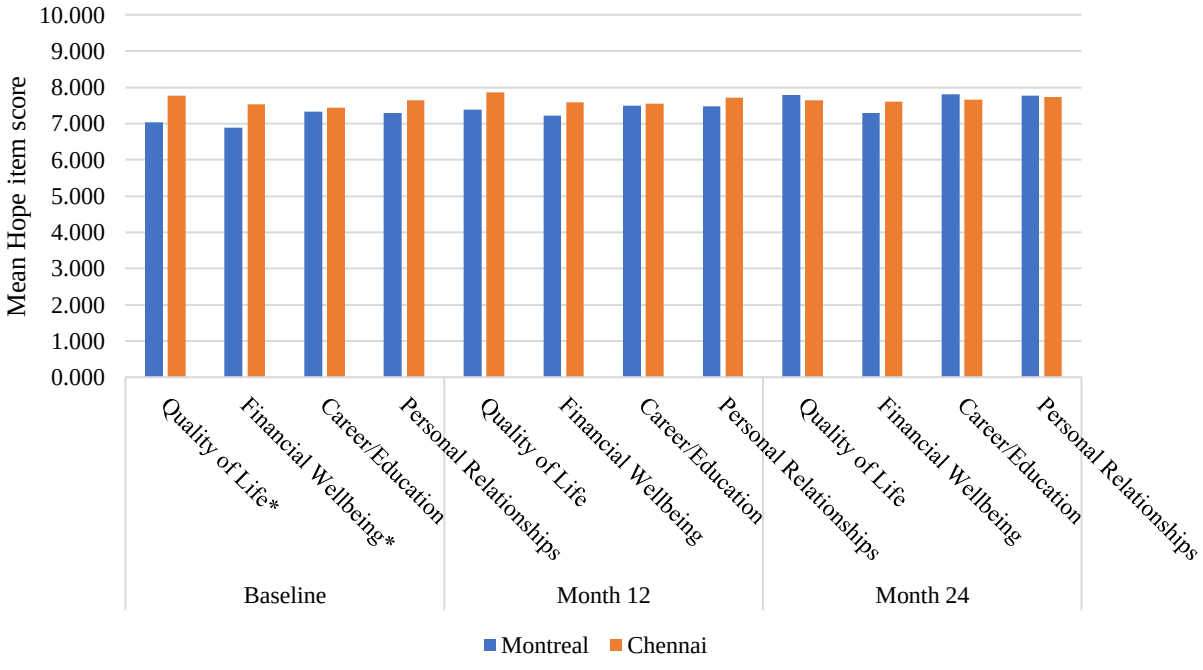

Figure 3 Hope Questionniare scores over time in Chennai