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Comparing Treatment Delays and Pathways to Early Intervention Services for Psychosis in Urban Settings in India and Canada

Kathleen MacDonald[a,b,+], **Greeshma Mohan**[c,+], **Nicole Pawliuk**[a], **Ridha Joober**[a,b], **Ramachandran Padmavati**[c], **Thara Rangaswamy**[c], **Ashok Malla**[a,b,++], **Srividya N. Iyer**[a,b,++]

[a]Prevention and Early Intervention Program for Psychoses (PEPP-Montreal), Douglas Mental Health University Institute, Wilson Pavilion, 6875 boulevard LaSalle, Montreal, Quebec H4H 1R3, Canada

[b]Department of Psychiatry, McGill University, 1033 Pine Avenue West, Montreal, Quebec H3A 1A1, Canada

[c]Schizophrenia Research Foundation (SCARF), R-7A North Main Road, Anna Nagar West Extension, Chennai 600 101, Tamil Nadu, India

Abstract

Introduction: Although extensively studied in high-income countries (HICs) and less so in low- and middle-income countries (LMICs), pathways to care and treatment delays in early psychosis have not been compared across contexts. We compared pathways to early intervention for psychosis in an HIC (Montreal, Canada) and an LMIC (Chennai, India). We hypothesised that the duration of untreated psychosis (DUP) would be longer in Chennai.

Methods: The number of contacts preceding early intervention, referral sources, first contacts, and DUP and its referral and help-seeking components of first-episode psychosis patients at both sites were similarly measured and compared using chi-square analyses and t-tests/one-way ANOVAs.

Results: Overall and help-seeking DUPs of Chennai (N=168) and Montreal (N=165) participants were *not* significantly different. However, Chennai patients had shorter referral DUPs [mean=12.0±34.1 weeks vs. Montreal mean=13.2±28.7 weeks; t(302.57)=4.40; p<.001] as the early intervention service was the first contact for 44% of them (vs. 5% in Montreal). Faith healers comprised 25% of first contacts in Chennai. Those seeing faith healers had significantly shorter help-seeking *but* longer referral DUPs. As predicted, most (93%) Montreal referrals came from medical sources. Those seeing psychologists/counsellors/social workers as their first contact had longer DUPs.

Conclusion: Differences in cultural views about mental illnesses and organizational structures shape pathways to care and their associations with treatment delays across contexts. Both formal

Corresponding author: Srividya N. Iyer, srividya.iyer@mcgill.ca.
[+]First authors with equal contributions
[++]Senior authors with equal contributions

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and informal sources need to be targeted to reduce delays. Early intervention services being the first portal where help is sought can reduce DUP especially if accessed early on in the illness course.

Keywords

pathways to care; psychosis; cross-cultural; duration of untreated psychosis; early intervention; LMICs

Introduction

Pathways to care, defined as series of encounters with individuals or organizations made in the process of help-seeking[1], have been studied extensively in early intervention services for psychosis, especially in high-income countries (HICs). Pathways research emerged from the recognition that longer durations of untreated psychosis (DUPs) were linked to worse clinical outcomes[2-5], and that efforts to simplify pathways and reduce DUP could improve outcomes. In addition to individuals' choices and behaviours, pathways to psychosis services involve the systems and models of care within which early intervention services are embedded[6]. Understanding how individuals seeking help for psychosis interact with and are responded to by those from whom they seek help is crucial to improving service delivery and outcomes.

The World Psychiatric Association has identified early intervention for psychosis as a global strategic priority[7] and instituted an expert panel on what hinders and facilitates the implementation of such services in low-and middle-income countries (LMICs). In 2019, this expert panel noted that closing the research gap with respect to the study of pathways to care would be essential for implementing early intervention services in LMICs[7]. A recent review of pathways to care for psychosis in LMICs showed that most individuals had contact with traditional and/or faith healers, with only a minority having a first contact with mental healthcare systems. The review also found DUPs to be longer in LMICs than in HICs and highlighted that despite recent efforts, patients' pathways to psychosis services remain understudied in LMICs[8].

Comparing pathways to care across contexts is challenging because of the wide variation in methodologies used to ascertain pathways, including different ways of calculating DUP and defining service encounters. Previous studies on pathways to care in early intervention settings are hard to compare meaningfully, having used various measures or interviews that have differed in key concepts such as start and end points of each pathway; inclusion and exclusion criteria for participants; and the types of services (e.g., inpatient or outpatient) from which the studies emerged[9].

To our knowledge, only two studies have directly compared DUPs in first-episode psychosis in HICs and LMICs[10,11]. Fresan[10] reported that DUPs were similar in Mexico (LMIC, 35 weeks) and the USA (HIC, 38 weeks). Mossaheb[11] found that DUPs in Pakistan (LMIC) were longer (80 weeks) than in Austria (HIC, 14 weeks). Neither study reported or compared pathways to care (e.g., number of contacts, referral source) and their association with DUP. While both studies focused on first-episode psychosis, the samples were not

recruited from early intervention services that are structured to reduce DUPs and simplify pathways.

The dearth of cross-national studies of DUP and pathways to care in early intervention for psychosis and the lack of HIC-LMIC comparisons are unfortunate given that comparative analyses of service encounters and DUP across contexts can help elucidate how individual, clinical, or systemic factors influence pathways to care. With uniform definitions of samples, DUPs and pathways, cross-national studies can tease out the impacts of cultural, social, structural and policy determinants.

This study addresses these gaps by comparing treatment delays and pathways to care of persons with first-episode psychosis in two urban settings, Montreal in Canada, an HIC; and Chennai in India, an LMIC. To facilitate comparative analyses, the sites collaborated closely and used the same methodology, including shared training procedures, sampling, and data collection and measurement tools.

Based on previous literature on longer DUPs and the postulated role of healers in increasing treatment delays in LMICs[8]; and the predominance of medical contacts in the Canadian setting[12], we hypothesised that DUP would be longer in Chennai than in Montreal. For a finer-grained analysis, we also compared patients' first contacts after psychosis, referral sources, and the numbers of total contacts prior to initiating services at both sites. As secondary hypotheses, we predicted that a higher proportion of referral sources in Montreal would be medical (e.g., doctors) and that individuals whose first contact was with a healer would have longer DUPs than those whose first contact was with some other professional/organization (e.g., family doctor).

Methods

This study was part of a multi-year investigation of first-episode psychosis in Chennai and Montreal. Using identical recruitment and treatment protocols, this study involved the collection of extensive prospective data on symptoms, functioning, quality of life, and pathways to care. Detailed methods have been published previously[13,14].

Settings

This study was conducted from 2012 to 2018 at two early intervention for psychosis sites – one comprising two McGill University-affiliated services in Montreal, and the other being the first-episode psychosis program of the Schizophrenia Research Foundation (SCARF) in Chennai, India.

Both Montreal sites are part of a publicly funded healthcare system, serve defined geographic catchment areas, and operate largely as outpatient community programs. Almost 90% of the Montreal sample is from the Prevention and Early Intervention Program for Psychosis (PEPP-Montreal), which is attached to a psychiatric hospital that has an exclusively psychiatric emergency service and an inpatient unit with designated beds for first-episode psychosis. The other Montreal service, housed in a facility with a range of

outpatient psychiatric services, is affiliated with a general hospital through which it has access to a psychiatric emergency department and an inpatient psychiatric unit.

The Chennai site is a mental health non-governmental organization providing primarily outpatient services. SCARF has no defined catchment area and accepts patients from all sources and all over Chennai. Its early intervention service was built in collaboration with PEPP- Montreal and adapted to the Indian context and resource constraints. It does not have a dedicated inpatient unit but has access to beds when needed. Although SCARF does not have an emergency department, patients do sometimes present in an acute or crisis state.

Referral process

Both sites provide free services following international guidelines for early intervention for psychosis[15]. Both have open referral systems, accepting patients from any referral source (hospital emergency, police, parents, families, self-referrals, etc.).

Participants

All consecutive entrants into treatment were approached for the study. To be included, patients had to have a current primary DSM-IV diagnosis of a schizophrenia-spectrum or affective psychotic disorder which was not substance-induced or secondary to a medical condition (e.g. epilepsy); not have been treated with antipsychotic medication for 30+ days; be between 16 and 35 years old; have an IQ > 70; and be able to communicate in Tamil or English in Chennai and French or English in Montreal. Individuals with concurrent diagnoses of substance abuse/dependence were not excluded.

Assessments

At both sites, assessments were conducted by staff trained using similar rigorous protocols with well-established measures that have been deployed in prior research at both sites[16,14]. Quality assurance strategies included inter-rater reliability sessions, multiple joint training and practice sessions, and centralised data management and verification.

Measures

Assessments included a sociodemographic questionnaire and the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I)[17].

Trained staff administered the semi-structured Circumstances of Onset and Relapse Schedule (CORS) interview, to create timelines patients' lives. Information was gleaned from interviews with patients and sometimes their family members and reviews of health records to determine the time of onset of psychotic symptoms, duration of untreated psychosis, length of help-seeking and referral delays, and contacts along the pathway to the early intervention service. Details can be found in previous publications[18]. Ratings on DUP and variables related to pathways to care were finalised through consensus between the interviewer and senior clinicians.

Mental health contacts were defined as contacts made to seek help following the onset of the presenting episode of psychosis. DUP was defined as the number of weeks between

the onset of the present psychotic episode and the initiation of antipsychotic medication taken consistently for one month. DUP was subdivided into *help-seeking* delay (weeks from onset of present psychotic episode to first help-seeking contact) and *referral* delay (weeks from first help-seeking contact to entry to the early intervention service). These subdivisions indicate the proportion of treatment delay attributable to individuals/families (help-seeking) and the system (systemic or referral), respectively.

Fourteen CORS narratives were rated by four PEPP and four SCARF raters. Two-way random intraclass correlation coefficient (ICC) with absolute agreement and single measure was used for computing the inter-rater reliability for CORS. ICC was 0.864 (0.811, 0.907) for only PEPP raters; 0.613 (0.420, 0.785) for only SCARF raters; and 0.718 (0.502, 0.891) for PEPP and SCARF raters. Thus, the inter-rater reliability ranged from good to excellent within and across sites [19].

Analysis

Analyses were conducted in SPSS version 24. Chi square analysis (with standardised residuals) and t-tests or one-way ANOVA were used for comparing patients from both sites on sociodemographic variables, DUPs (log-transformed due to skewing), first contacts, referral sources and numbers of contacts. Bonferroni correction was made for multiple tests.

Ethics

All study procedures complied with the ethical standards of relevant national and institutional committees on human subject research and with the Helsinki Declaration of 1975, as revised in 2008; and were approved by the Institutional Review Board at SCARF and the Research Ethics Board at McGill University.

Results

A sample of 333 participants (N=168 in Chennai, Montreal; and N=165 in Montreal, Canada) with first-episode psychosis was enrolled. Participants' characteristics at their time of entry to services are shown in Table 1.

Patients in Chennai were likelier to be women, married, and older than those in Montreal. While most participants at both sites were living with families, this was particularly true in Chennai (96.6%). Almost all Montreal patients were single (91%) unlike in Chennai (57%). This was mainly due to the low proportion of single women in Chennai (36%) relative to Montreal (85%) and may reflect the greater social emphasis on marriage in India. While the proportion of people identified as unemployed was similar at the two sites upon entry, a quarter of patients in Chennai were homemakers compared to a small minority in Montreal (5%). Montreal patients had a higher level of baseline positive symptoms than Chennai patients.

In terms of religious affiliation, most Chennai patients were Hindu (81%), with Christianity (16%) and Islam (3%) also being represented. In Montreal, 38% of patients did not respond to the religious affiliation question, 26% were Roman Catholic, and 13% stated they were

agnostic, atheist, non-practising or had no religion. Forty-two percent of the Montreal sample were from a visible minority.

Differences in DUP: Primary hypothesis

Overall DUP [Chennai mean=32.8 ± 61.1 weeks; Montreal mean=40.8 ± 88.5 weeks] and help-seeking DUP [Chennai mean=21.6 ± 53.0 weeks; Montreal mean=26.1 ± 63.1 weeks] were *not* significantly different at the two sites [t(287.33) =−1.22; p=0.224; t(300.14) =−1.31; p=0.191, respectively]. However, Chennai patients had a significantly shorter referral DUP [Chennai mean=12.0 ± 34.1 weeks]; than those in Montreal. [Montreal mean=13.2 ± 28.7 weeks; t(302.57)=4.40; p<.001].

First contact

The type of first contact following the onset of psychosis varied widely between the sites (see Table 2). At both sites, the first contact for a large proportion of patients was a medical source (72% in Chennai, 88% in Montreal). Further, the role of traditional or faith healers was prominent in Chennai, making up almost 25% of all first contacts (n=40). Finally, a stark difference was found in the number of patients who had a first contact with the early intervention itself [44% in Chennai (n=72) versus 5% in Montreal (n=8)].

Source of referral

The sites differed significantly with respect to the main source of referral (see Table 3).. As predicted, Montreal patients entered the early intervention service through various medical services, with half the patients entering through hospital emergency services and only a small fraction (6%, n=5) coming directly from families or being self-referred. In Chennai, a majority of patients were brought by family or friends or were self-referred (64%, n=104). Notably, a significantly higher proportion of Montreal patients were hospitalised at program entry (36%, n=60) compared to Chennai (0.06%, n=1; X(1) = 71.2, p<0.001).

Number of contacts

The total number of contacts from the onset of the psychotic episode until entry into early intervention services varied significantly, with Montreal patients having significantly more overall contacts [mean 2.3 ± 1.5 contacts] than the Chennai sample [mean 0.8 ± 0.8 contacts].

A first contact with a psychologist/counsellor/social worker was linked to more contacts [mean 2.4 ± 1.7 contacts] than a first contact with a medical professional [mean 1.4 ± 1.5 contacts] or a traditional/faith healer [mean 1.6 ± 0.8 contacts]. In Chennai, a first contact with a healer resulted in significantly more total contacts [mean 1.6 ± 0.8 contacts] than any other kind of first contact [mean 0.5 ± 0.7 contacts] (see Table 4).

Figure 1 presents the pathways to care for the 40 SCARF patients whose first contact was a healer. Twenty-two of them went to a healer first and then sought help from SCARF without further stops. Of these, four were referred to SCARF by the concerned faith healer (in these cases, the church). Thirteen went to a healer first, followed by one to two formal

pathways (e.g., doctor) and then reached SCARF. Five went first to more than one healer before reaching SCARF.

Influence of first contact and referral source on duration of untreated psychosis

The route into the service influenced DUPs, with those whose first contacts were psychologists/counsellors/social workers (n=24) having significantly longer DUPs than those whose first contacts were with medical professionals (n=257) or healers (n=40) (see Table 4). The three routes of entry were associated with significant differences in help-seeking DUPs, with those whose first contact was a healer having the shortest help-seeking DUP [mean 6.6 weeks] and those whose first contacts were psychologists/counsellors/social workers having the longest [mean 56.4 weeks]. For systemic delay (from first contact to entry to the early intervention service), having a medical first contact resulted in a significantly shorter referral DUP [mean 9.2 weeks] than contacting a psychologist/counsellor/social worker or healer first.

Our hypothesis that first contacts with healers would lengthen DUPs proved relevant only to Chennai, because no Montreal patient first consulted a healer. In Chennai, too, where a fourth of patients had consulted healers, there was no difference in overall DUP for those whose first contact was a healer compared to those whose first contact was a medical professional or a psychologist/counsellor/social worker (see Table 4). Those whose first contact was a healer (n=40) had a shorter help-seeking DUP [mean 6.6 weeks] than those who first sought help elsewhere [n=122, mean 26.6 weeks]. However, they had a significantly longer systemic/referral delay [mean 21.0 weeks] than those who sought help elsewhere [mean 8.9 weeks].

In the Chennai sample, there was no difference in total, help-seeking or referral DUPs for those whose referral source was medical (n=53) vs. non-medical (n=110) (see Table 4). As the early intervention service was the first and only contact for a substantial number in Chennai (n=72), we compared DUP and its components for this subsample with those who had other contacts before accessing early intervention (see Table 4). While their overall DUPs were similar, those whose first contact had been the early intervention service itself had a significantly longer help-seeking DUP [mean 32.4 weeks] and shorter referral DUP [mean 0.8 weeks] compared to those who first sought help elsewhere [n =90; help-seeking DUP mean 13.1 weeks; referral DUP mean 19.8 weeks].

Discussion

To our knowledge, this is the first HIC-LMIC comparison of DUP and pathways to care in patients receiving similar care in early intervention services for psychosis. Contrary to our primary hypothesis, overall DUP did not differ across the two sites. The sites were also similar in terms of help-seeking DUP. However, referral DUP was significantly shorter in Chennai. This was driven by the large number of Chennai patients (n=72) whose first contact was the early intervention service itself, removing the referral step completely from their pathway to care. Furthermore, there were striking differences in first contacts, referral sources and numbers of contacts, and their associations with treatment delays. Broadly,

the factors underlying these site differences can be resolved into structural and cultural elements.

Structural elements

The Montreal site is part of a fully public healthcare system that is organised into primary (e.g., general practitioner) and specialised (e.g., early intervention service for psychosis, emergency services) care. While the Montreal early intervention services are open-referral, this is not typical for specialised care in Canada. Generally, primary care physicians/general practitioners serve as gatekeepers, referring patients to specialised care[20]. This, along with their lack of knowledge of the symptoms of psychosis, where to seek help for it, and that such help is directly accessible, may explain why only about 5% of patients and families contacted the Montreal services directly (despite their open referral policy), with about 95% of patients and families needing referrals from some other source.

In the province of Quebec, of which Montreal is a part, a substantial minority (particularly young people) are not registered with a general practitioner, and even those who are may not have regular contact. Furthermore, while general practitioners often feature along the pathway to care for psychosis, they are known to not usually be the referral sources that link patients to early intervention services for psychosis[21]. In our study, general practitioners played a negligible role along the pathway to care at both sites. This strengthens the case for increasing young people's access to primary care and for improving early psychosis training and awareness within primary care, especially among general practitioners.

Echoing a previous report[12], our current findings underline a need in Montreal for capacity building among psychologists/counsellors/social workers, who were shown to delay final referral to early intervention for psychosis and to increase the number of contacts along the way. Disconcertingly, this suggests that even mental healthcare professionals need additional training to identify the presentations of psychosis; value early intervention services as appropriate care settings for first-episode psychosis; and know how to refer to such services (e.g., through direct access to intake clinicians at well-publicised early psychosis services)[12].

The limited role of general practitioners, along with well-known problems accessing primary and community mental healthcare (e.g., waitlists), may explain why as many as 83.5% of the Canadian patients accessed early intervention after a visit to and referral from emergency and hospital care. Our Canadian sites were within academic medical centres that also housed emergency and hospital services. These latter services may therefore have been more aware of the early intervention services and likelier to refer patients presenting with psychosis to them[22]. Although Montreal patients had higher levels of baseline positive symptoms, other systemic aspects like hospital stays being covered by Canadian public healthcare and a higher emphasis on risk management may have contributed to more Montreal patients being hospitalised at program entry.

The early intervention service was itself the first contact for a much higher proportion of patients in Chennai (44.4%), leaving them with no referral delay. This may be because the Chennai early intervention service was embedded within SCARF, a large, well-known

non-governmental mental health organization. SCARF acts as a one-stop hub, providing free and quick assessment and entry to appropriate psychiatric services. Individuals and families may have contacted SCARF without knowing of its early intervention service or that they needed it.

India's multi-tiered healthcare system features public, private, and non-profit providers, and chaotic, unregulated pathways to care. Unlike in Canada, direct first contacts with specialists (in this case, psychiatrists) are not uncommon, particularly in urban contexts[23]. While outpatient services at SCARF are free, about 80% of healthcare expenses in India are out of pocket[24]. The low rate of hospitalizations in the Chennai sample may be related to the anticipated cost of hospitalization. Even in SCARF, inpatient care is free only for those who cannot afford to pay. Furthermore, most young people in Chennai were living with family, who tend to avoid the costs and stigma of psychiatric hospitalization and prefer to manage the initial episode with outpatient care.

In Chennai, DUP was not significantly shorter for patients and families whose first contact was the early intervention service itself. Getting more patients and families to directly and only contact early intervention or youth mental health services is now much emphasised as a means of reducing treatment delays[25,26]. This remains desirable because it eliminates multiple and sometimes traumatic pathways to appropriate care. However, our finding suggests that direct access by patients and families does not automatically translate into shorter DUPs. Indeed, as would be expected, such direct-contact patients had significantly shorter (de facto, zero) referral DUPs. However, we found that individuals in Chennai who first contacted the early intervention service (without other stops) waited more than twice as long before first seeking help than those who contacted other individuals/systems before accessing early intervention. This has important implications. To actually reduce DUP, mental health services must not only integrate open referral systems that allow patients and families to directly access help (as our early intervention services in Chennai and Montreal did) but also conduct outreach and capacity-building to increase mental health literacy[27], so that patients and families seek help at earlier stages of illness.

Cultural elements

About 25% of the Chennai sample first sought help from healers, mostly faith leaders (e.g., clergy) and places of worship (e.g., temples), with a much smaller number visiting astrologers, shamans/exorcists, or alternate medical practitioners (e.g., homeopathy, Ayurveda). In contrast, no Montreal patient first went to a healer, underscoring the larger role that religion and spirituality play in the daily lives of people in Chennai[28].

The prevalence and popularity of faith-related pathways are underpinned by cultural beliefs that attribute unusual behaviours and phenomena to karma, misdeeds from past lives (given the belief in reincarnation), and supernatural causes[29]. They also reflect the fact that religious and traditional systems are accessible, trusted, acceptable and normative. Among Hindus and in Hinduism-influenced cultures, individuals' fates are said to be scripted at birth based on the alignment of heavenly bodies. Planetary misalignments are therefore thought to cause ill health or changes in behaviour and believed to be rectifiable by propitiation rites.

The overall DUP for the Chennai subset that first contacted a healer was no longer than that of those whose first contact had been any other source. This may falsely suggest that consulting faith or alternative healers does not delay the commencement of appropriate care. In fact, systemic/referral delay, i.e., the time between first seeking help for psychosis and finally commencing early intervention, was significantly longer for this subsample compared to those who first sought help elsewhere. Yet, their overall DUPs were not elevated simply because help-seeking DUP in these cases was the shortest.

Chennai patients who first went to a healer did so within 6-7 weeks of the onset of psychosis whereas those whose first contact was a medical professional or a psychologist/counsellor/social worker waited four times longer to seek help. Paradoxically, this group experienced no benefit in terms of overall DUP despite having waited the shortest time after psychosis onset before seeking help. This is because they seem to have sought formal treatment only after non-medical pathways (healers) may not have offered adequate benefits. Some (18/40) even contacted additional healers/individuals/organizations after the first healer before finally reaching SCARF.

This underlines the need for establishing collaborative partnerships with traditional and faith healers in the vicinity of early intervention services. Such collaborations could help not only boost referral rates and further reduce treatment delays[30] but may also help maintain therapeutic alliance and reduce drop out, especially among patients and families who continue to patronise faith or traditional healers during or after treatment at an early intervention service. While such collaborations present challenges[31], studies, especially from India, have shown that traditional healers can be engaged in recommending and facilitating medical treatment[32]. In our own sample, churches referred four individuals to the early intervention service. Furthermore, people in India have been known to comfortably reconcile apparently contradictory worldviews and attribution models[33]. Thus, in the Indian context, mental health literacy campaigns may be more effective if, instead of explicitly discouraging visiting healers, they encourage patients and families to also seek help from formal sources even if they are seeking help elsewhere.

Of the Chennai patients, 36.8% were brought to the early intervention service (i.e., referred) by family members. Across contexts, family members play a pivotal role in the pathway to mental healthcare, particularly for young people[34,35]. Of the Chennai patients, 96.6% lived with families at the time of onset, and familial involvement in general is higher, as has been reported in our prior work[13].

Limitations

Having been recruited from publicly funded programs serving specified catchments, Montreal patients may be more representative of a treated incidence sample. The Montreal programs are also part of settings that have in-house emergency services. The Chennai site is not geographically restricted and is housed in a stand-alone building with no emergency services. Its patients came from a wider-spread population base. While these site and sampling differences explain some of our findings, this is not truly a limitation in that it serves to exemplify the role of structural and organizational heath system elements in shaping pathways to care. Furthermore, both samples were similarly well-characterised.

We did not assess potential influences on pathways to care and DUP such as stigma perceptions, attitudes towards mental health help-seeking, etc.[36-38], which merit attention in future research.

Our study only included patients who had presented to early intervention services. It is therefore representative only of such individuals in these two contexts, and not of all persons with psychosis in Chennai or Montreal.

Having relied on patients' and families' retrospective accounts, our study is subject to recall bias, errors emerging from differences in interviewer styles within and between sites, etc. Patients and families may also have hesitated to share certain pathways. E.g., some in Montreal may have accessed faith healers but not reported doing so. These limitations were mitigated by using the same well-established semi-structured interview-based tool to ascertain pathways and delays at both sites, and by supplementing interview data with records, where possible. Raters were similarly and rigorously trained and engaged in joint rating and inter-rater reliability sessions throughout the project.

These limitations notwithstanding, this study is valuable given the paucity of cross-national studies comparing pathways to early intervention care for psychosis. This is also the first study to break down and compare help-seeking and referral DUPs and study their associations with specific pathways across an LMIC and an HIC. Our findings highlight the value of such research for elucidating how cultural and organizational elements underpin site differences in pathways to care. They also underline the importance of basing the design of early identification interventions on evidence/data, rather than on intuitive assumptions. For instance, that first contacts with psychologists/counsellors/social workers were associated with longer DUPs belies the intuitive idea that formal pathways shorten DUPs. Our findings also reinforce the need to go beyond coarse examinations of overall DUPs. For instance, healers or early intervention service may appear to represent neutral pathways given that first contact with them does not prolong overall DUPs as compared to first contact with other sources of help. We know, however, that first contacts with healers delays care (longer referral DUPs) and that first contacts with early intervention directly are beneficial (because appropriate care commences immediately), especially when initiated shortly after the onset of symptoms.

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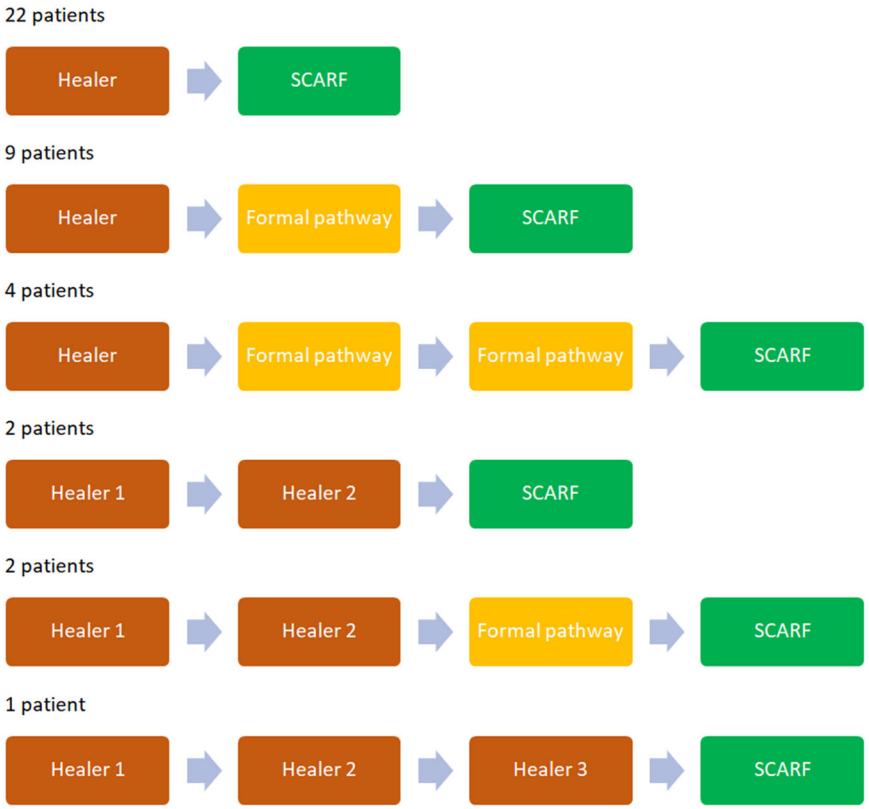

Fig. 1. Pathways followed by Chennai patients who went to a healer first (n = 40)
SCARF = Schizophrenia Research Foundation, India

Table 1

Baseline sociodemographic and clinical characteristics

Variable	Montreal (N = 165) Mean ± SD / N (%)	Chennai (N = 168) Mean ± SD / N (%)	Statistical test	p value
Age at entry (years)	24.1 ± 5.3	26.6± 5.2	t(331) = −2.47	<0.001
Gender N (%)				
Men	110 (66.7)	82 (48.8)		
Women	54 (32.7)	86 (51.2)	$\chi^2(2) = 12.37$	0.002
Transgender	1 (0.6)	0		
Total	**165**	**168**		
Education (years)	12.24 ± 2.63	11.75 ± 3.9	t(293.94) = 1.34	0.182
Education				
Less than high school	44 (27.2)	47 (28)	$\chi^2(1) = 0.03$	0.868
High school or more	118 (72.8)	121 (72)		
Total	**162**	**168**		
Occupation Status				
Student	40 (29.0)	24 (14.4)		
Paid employment	35 (25.3)	25 (15.0)	$\chi^2(3) = 30.0$	<0.001
Homemaker	7 (5.1)	40 (24.0)		
Unemployed	56 (40.6)	78 (46.7)		
Total	**138**	**167**		
Marital Status				
Single	149 (90.9)	95 (56.5)		
Married/Common law	13 (7.9)	62 (36.9)	$\chi^2(2) = 50.51$	<0.001
Separated/divorced/widowed	2 (1.2)	11 (6.5)		
Total	**164**	**168**		
Living Situation				
Alone	16 (10.0)	2 (1.4)		
With family	125 (78.1)	140 (96.6)	$\chi^2(3) = 22.95$	<0.001
With friend/roommate	16 (10.0)	2 (1.4)		
In residence, group home or homeless	3 (1.9)	1 (0.7)		
Total	**160**	**145**		
SCID diagnosis				
Schizophrenia-spectrum psychosis	109 (67.3)	150 (90.4)	$\chi^2(1) = 26.29$	<0.001
Affective psychosis	53 (32.7)	16 (9.6)		
Total	**162**	**166**		
Substance use diagnosis (SCID)				
Yes	54 (37.8)	17 (10.2)	$\chi^2(1) = 32.9$	<0.001
No	89 (62.2)	149 (89.8)		
Total	**143**	**166**		
Age at onset (years)	23.41 (5.67)	25.81 (5.22)	t(318)=3.94	<0.001
SAPS (baseline)	34.5 ± 14.9	19.9 ± 9.9	t(259.56) = 10.19	<0.001

Variable	Montreal (N = 165) Mean ± SD / N (%)	Chennai (N = 168) Mean ± SD / N (%)	Statistical test	p value
SANS (baseline)	22.7 ± 12.6	21.6 ± 15.7	t(295.56) = 0.67	0.505

SCID = Structured Clinical Interview for DSM-IV-R, Research version.

SAPS = Scale for the Assessment of Positive Symptoms. SANS = Scale for the Assessment of Negative Symptoms.

Table 2

First contacts on the pathway to early intervention for psychosis

Variable	Montreal N (%)	Chennai N (%)	Statistical test	p value
First contact- Type				
Medical	140 (88.1%)	117 (71.8%)	$\chi^2(2) = 50.2$	< 0.001
Non-medical: Psychologists/ counsellors/social workers[a]	19 (11.9%)	5 (3.1%)		
Non-medical: Traditional or Faith healers[b]	0%	40 (24.7%)		
Total	**159**	**162**		
First Contact - subcategories				
Medical				
ER	83 (52.2%)	2 (1.2%)		
General practitioner, any doctor	10 (6.3%)	5 (3.1%)		
Psychiatrist	12 (7.5%)	19 (11.7%)		
Walk-in clinic	4 (2.5%)	9 (5.6%)		
EI service	8 (5.0%)	72 (44.4%)		
Hospital outpatient	13 (8.2%)	9 (5.6%)		
Hospital inpatient	10 (6.3%)	2 (1.2%)		
Psychologists/counsellors/social workers				
Psychologist	10 (6.3%)	3 (1.9%)		
School counsellors	6 (3.8%)	1 (0.6%)		
Counsellor or social worker	3 (1.9%)	1 (0.6%)		
Traditional or faith healers				
Temple	0%	16 (9.9%)		
Clergy	0%	15 (9.3%)		
Other faith healer (e.g., remover of evil spirits)	0%	4 (2.5%)		
Astrologer	0%	3 (1.9%)		
Alternative medicine (e.g., homeopathy)	0%	2 (1.2%)		

[a] Standardized residuals = 2.1, significantly higher proportion of Montreal patients' first contact was a psychologist, counsellor or social worker

[b] Standardized residuals = 4.4, significantly higher proportion of Chennai patients' first contact was a traditional or faith healer

Table 3

Sources of referral on the pathway to early intervention for psychosis

Source of Referral - Type				
Medical	151(92.6%)	53 (32.5%)		
Non-medical	12 (7.4%)	110 (67.5%)	$\chi^2(1) = 125.8$	< 0.001
Total	**163**	**163**		
Source of Referral - Subcategories				
Medical				
ER	81 (49.7%)	0%		
Hospital outpatient	21 (12.9%)	52 (31.9%)		
Hospital inpatient	19 (11.7)	0%		
Ultra-high risk for psychosis service	15 (9.2%)	0%		
Community medical services	11 (6.7%)	0%		
Psychiatrist or GP	4 (2.5%)	1 (0.6%)		
Non-medical				
Family	9 (5.5%)	60 (36.8%)		
Self	0%	44 (26.9%)		
Church	0%	4 (2.5%)		
College or school	0%	2 (1.2%)		
Psychologists/counsellors/social workers	3 (1.8%)	0%		

Table 4

Total contacts and duration of untreated psychosis by first contact and source of referral

Variable	Total contacts	Total DUP* (weeks)	Help-seeking DUP* (weeks)	Referral DUP* (weeks)
First contact (both sites combined)				
Medical				
Mean ± SD	1.38 ± 1.5	31.8 ± 68.8	23.6[c] ± 59.1	9.2[f] ± 25.5
Median (Range)	-	9.9 (0-684.3)	5.6 (0-532.1)	2.6 (0-215.1)
Psychologist/counsellor/social worker				
Mean ± SD	2.43[a] ± 1.7	94.2[b] ± 116.7	56.4[d] ± 79.8	34.5 ± 53.7
Median (Range)	-	43.5 (2-421.4)	14.1 (0-260.9)	8.9 (0.29-172.7)
Healer				
Mean ± SD	1.62 ± 0.8	23.7 ± 39.5	6.6[e] ± 12.9	21.0 ± 41.6
Median (Range)	-	10.3 (2-220.9)	2.0 (0-54.3)	7.1 (0.43-218.9)
Test; p	F(2,308) = 5.57; .004	F(2,307) = 11.06; < .001	F(2,314) = 10.39; < .001	F(2,313) = 19.35; < .001
Referral source (Chennai only)				
Medical				
Mean ± SD	0.94 ± 0.8	33.8 ± 55.6	17.6 ± 37.2	17.2 ± 44.3
Median (Range)	-	12.7 (0.29-223.0)	6.4 (0-223.0)	4.1 (0-218.9)
Non-medical				
Mean ± SD	0.7 ± 0.9	32.2 ± 64.8	23.2 ± 59.9	9.5 ± 28.0
Median (Range)	-	11.3 (0.43-518.7)	5.7 (0-518.7)	0.3 (0-181.1)
Test; p	t(154) = 1.71; .09	t(153) = 0.26; .794	t(154) = −0.44; .660	t(156) = 2.20; .029[g]
First contact (Chennai only)				
Healer				
Mean ± SD	1.63 ± 0.8	23.7 ± 39.4	6.6 ± 12.9	21.0 ± 41.6
Median (Range)	-	10.3 (2-220.9)	2.0 (0-54.3)	7.1 (0.43-218.9)
Other				
Mean ± SD	0.5 ± 0.7	35.8 ± 66.5	26.6 ± 59.9	8.9 ± 30.7
Median (Range)	-	12.6 (0.29-518.7)	8.6 (0.29-518.7)	0 (0-215.1)
Test; p	t(159) = 8.98; <.001	t(88.75) = −0.20; .819	t(159) = −4.85; < .001	t(160) = −5.54; < .001
First contact (Chennai only)				
Early intervention service				
Mean ± SD	N/A	33.5 ± 74.9	32.4 ± 74.8	0.8 ± 6.2
Median (Range)		8.6 (0.3-518.7)	7.3 (0.3 – 518.7)	0 (0-52.1)
Other				
Mean ± SD	N/A	32.3 ± 47.8	13.1 ± 22.0	19.8 ± 42.5
Median (Range)		13.7 (1.0-220.9)	4.3 (0-123.9)	6.6 (0.1-218.9)
Test; p	N/A	t(158) = −1.81; .072	t(159) = 2.93; .004	t(120.13) = −14.75; < .001

[*] log DUP used for all analyses, +1 constant added to all dup values

[a] LSD significantly more contacts before date of entry if psychologist/counsellor/social worker is first contact

[b] LSD psychologist/counsellor/social worker significantly longer than medical and healer

[c,d,e] LSD each type of contact significantly different from the other

[f] LSD medical significantly shorter than psychologist/counsellor/social worker and healer

[g] Not significant after Bonferroni correction for multiple tests