Pathways to care among psychiatric outpatients in a tertiary mental health institution in Singapore

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Abstract

Background: Pathways to care studies in Singapore are of high interest given the cultural diversity and various sources of help available for those with mental illnesses, ranging from the more traditional to tertiary-level mental health care services.

Aim: The current study aimed to explore the associations of patients' socio-demographic characteristics with pathways to first contact and duration of untreated mental illness.

Method: A total of 402 participants were recruited through convenience sampling. A pathway to care form was used to gather systematic information about the sources of care utilized by participants before approaching a mental health professional. Data were analysed using multinomial logistic regression and multiple linear regression models to assess the associations.

Results: Majority of participants reported primary care (36.0%) as their first point of contact, followed by non-formal sources of help (33.8%), specialist care (21.8%), police/court (4.0%), websites/media (3.3%) and religious/traditional treatment (1.3%). Those belonging to Malay and Indian ethnicity (vs Chinese) were more likely to make first contact with non-formal sources of help than primary care. Those who received a diagnosis of any mood or anxiety disorder (vs schizophrenia and related psychoses) were less likely to make first contact with specialist care or non-formal sources of help than primary care. Those who were separated/divorced/widowed were significantly associated with higher duration of untreated illness compared to those who were single. Participants whose family/relative initiated the first contact were significantly associated with a shorter duration of untreated illness compared to those who initiated first contact on their own.

Conclusion: Findings suggest the determinants of the pathways to first contact and duration of untreated illness included diagnosis, ethnicity, marital status and family initiating the first contact. The pathways adopted by these participants need to be kept in mind for planning mental health programmes.

Keywords
Pathways, mental illness, first contact, duration of untreated illness

Introduction

Mental illnesses are commonly associated with higher disability and burden than many physical illnesses (Lahariya, Singhal, Gupta, & Mishra, 2010). The World Health Organization (WHO, 2003) has reported that one in four people are affected by a mental disorder at some stage of their lives. Neuropsychiatric conditions such as depressive disorders and schizophrenia are among the leading causes

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of disability worldwide (National Institute of Mental Health, 2010). However, despite the significant prevalence and disability, those with mental illnesses seldom seek or receive help (Chong, Abdin, Vaingankar, Kwok, & Subramaniam, 2012).

Research studies have shown that prolonged duration of untreated mental illness leads to poorer prognosis for the patient and also increases the cost of treatment (Altamura et al., 2010; Malla, Norman, & Joober, 2005). Descriptive research studies have demonstrated that people with psychiatric problems follow a variety of pathways before they reach mental health professionals (Gater et al., 2005). The pathway a person with psychiatric problem adopts to reach appropriate treatment/care is termed as 'pathway to care' (Lahariya et al., 2010). Studying these 'pathways' is a quick and feasible method of studying help-seeking behaviours of people with mental illnesses and their families (Fujisawa et al., 2008). Pathways to care of people with mental illnesses have been studied across the world (Chiang, Chow, Chan, Law, & Chen, 2005; Chong et al., 2012; Gater et al., 1991; Razali & Najib, 2000). Most approaches focused on access to care and identified varying pathways taken by individuals to mental health care providers in different societies (Bhui & Bhugra, 2002).

During this process, their condition becomes chronic and patients' health deteriorates due to their symptomatology. Mental illnesses are often accompanied by a lack of awareness and social stigma, which leads patients and their families to seek alternative service providers (Chadda, Agarwal, Singh, & Raheja, 2001; Wahl, 1999). An understanding of the way people with mental illness seek care for their illnesses is increasingly recognized as important for planning mental health services, organizational training and referral from other sources of health and social care services (Gater et al., 2005).

Singapore is a multi-ethnic island state situated in Southeast Asia with a total population of approximately 5.5 million, comprising predominantly of Chinese, followed by Malays and Indians (Singapore Statistics, 2016). A study conducted in Singapore showed that 12% of the adult population met lifetime criteria for any mental illnesses (Chong et al., 2012). Majority of those with lifetime mental illnesses in Singapore did not seek help; about one-third sought help, either through mental health providers, general practitioners, religious spiritual advisors or other healers (Chong et al., 2012). Pathways to care studies in Singapore are of high interest given the presence of cultural diversity and various sources of help available for those with mental illnesses, ranging from the more traditional (Picco, Subramaniam, et al., 2013; Shahwan et al., 2016) to tertiary-level mental health care services for those with mental illnesses. An earlier study showed that a quarter of multi-ethnic patients approached a traditional healer prior to consulting a psychiatrist in Singapore (Chong, Subramaniam, Lum,

Chan, & McGorry, 2005). The same study also showed that the duration of untreated psychosis was longer among those who sought alternative treatments.

Previous studies have provided data on pathways to care of patients with first-episode psychosis (Chesney, Abdin, Poon, Subramaniam, & Verma, 2016; Chong et al., 2005); however, pathways to care in other mental illnesses are yet to be established in Singapore. The current study aimed to elucidate the pathways to care in a multi-ethnic group of outpatients with mental illnesses, including schizophrenia and related psychoses, mood disorders and anxiety disorders, who were seeking treatment at a tertiary psychiatric hospital and its affiliated clinics in Singapore. The study also explored the associations between patient's socio-demographic characteristics, pathways to first contact and duration of untreated mental illness.

Materials and method

Sampling and study design

The study used data from a cross-sectional survey that was conducted at the Institute of Mental Health (IMH) between October 2015 and December 2016. IMH is the sole tertiary care psychiatric hospital in Singapore that serves a patient population with a wide range of mental illnesses. A total of 402 participants were recruited through convenience sampling. The study was initiated after receiving ethics approval from the relevant institutional ethics review board (National Healthcare Group Domain Specific Review Board). All participants provided written informed consent prior to their participation.

Patients seeking treatment at IMH outpatient clinics and affiliated satellite clinics were enrolled in the study. The study included patients who were Singapore residents (including Singapore Citizens and Permanent Residents); aged 21–65 years; belonging to Chinese, Malay or Indian ethnic groups; capable of providing consent; able to understand or read English, Chinese, Malay or Tamil; and having a clinical diagnosis of schizophrenia and related psychoses, any mood disorder (depression or bipolar disorder), or any anxiety disorder (generalized anxiety disorder, obsessive compulsive disorder, post-traumatic stress disorder or panic disorder) and with a duration of illness of not more than 2 years, as determined by a psychiatrist using International Classification of Diseases 9th Revision (ICD-9R) criteria. Patients who had intellectual disabilities or cognitive impairment, or had been seeking treatment for mental health problems for more than 2 years, or were not fluent in English, Chinese, Malay or Tamil language, were excluded from the study. Posters informing attending patients of the ongoing study and the eligibility criteria were placed in the clinics along with the phone numbers and email addresses of the study team members. Emails were sent to psychiatrists and other health care

professionals who were requested to refer their eligible patients to participate in the study.

Data collection tools and techniques

All participants were administered a set of questionnaires that included a socio-demographic questionnaire to obtain data on age, gender, ethnicity, marital status, education level attained, employment status, income, living circumstances, medical history and any family history of mental illness. Clinical history was collected through a medical records review, which included information on psychiatric diagnosis, total duration of illness and date first seen in IMH.

Pathways to care form

A semi-structured interviewer-administered questionnaire was developed for this study based on the pathways encounter form to gather systematic information about the sources of care used by participants before they approached a mental health professional. The current study used the WHO (1987) collaborative 'pathway study' encounter form as a guiding tool. The form was used to collect data on participants with mental disorders who had sought services at various health service providers in both formal and informal sectors in Singapore. Questions like 'when did you feel that you needed help?', 'what was the duration of initial changes in behaviour or symptoms noticed?', 'who was your first contact for help?', 'how long ago did the first contact happen?' and 'who initiated first contact?' were asked to the participants. It was modified for local use and was then translated into the three main local languages (Chinese, Malay and Tamil).

For the statistical analysis, the first contact was categorized into the following six groups:

1. Primary care (i.e. general practitioners/polyclinic doctors/family service centre/school counsellors/ National Service (NS) health care professionals (NS is a statutory requirement for all male Singaporean citizens and second-generation permanent residents wherein they undergo a period of compulsory service in the uniformed services)).
2. Specialist care (i.e. medical hospital care/psychiatric hospital care, including IMH emergency room/ private psychiatrists)
3. Police/court
4. Non-formal sources of help (i.e. family/friends/ neighbours)
5. Religious/traditional treatment
6. Websites/media

The initiation of the first contact was categorized into the following five groups:

1. Police/court
2. Family/relatives
3. Friends
4. Others (NS health care professionals/emergency services)
5. Initiated on their own, that is, self-referral

Duration of untreated illness was defined as the time (in months) between the onset of initial change in behaviour or symptoms noticed to when a first contact for help was made. Patients were interviewed by the research team and asked 'when they first felt that they needed help (specify age)', 'duration of initial change in behaviours or symptoms noticed' and 'how long ago did the first contact happen'. The duration of untreated illness was then calculated after combining information obtained from the interview.

Statistical analysis

Analysis in this study was performed using Statistical Package for Social Sciences (SPSS) version 23. Descriptive analyses were performed to calculate the frequencies and percentages for categorical variables and mean and standard deviation for continuous variables for the socio-demographic characteristics including age, sex, ethnicity, marital status, education level, employment, family history of mental illness and current diagnosis. Normality of continuous outcome variables was checked using the Kolmogorov–Smirnov one-sample test and Shapiro–Wilk tests. The socio-demographic correlates of first contact were explored using a multinomial regression model where first contact was treated as the main outcome. Association between duration of untreated illness with first contact and socio-demographic characteristics was assessed using multiple linear regression models. Duration of untreated illness was treated as the main outcome variable predicted by first contact, the person who initiated the first contact and socio-demographic characteristics. Statistical significance was evaluated at a p value of .05 using two-sided tests.

Results

Study participants

A total of 402 participants with a diagnosis of schizophrenia and related psychoses ($n = 142$), any mood disorders ($n = 140$) or any anxiety disorders ($n = 120$) were recruited. Two participants were withdrawn from the study as their duration of mental illness reflected in the medical records was more than 2 years, resulting in a total of 400 participants whose data were analysed subsequently. The mean age of participants was 32.7 ($SD = 11.4$) years. The sample had a slightly higher proportion of men (52.8%); majority were Chinese (62.8%), single (64.8%), had A-level/junior college/polytechnic education (38.5%) and were employed

Table 1. Socio-demographic and pathways to care characteristics.

Variables	Total sample	
Age, *M* (*SD*) 32.7 (11.4)		
	n	%
Gender		
Male	211	52.8
Female	189	47.3
Ethnicity		
Chinese	251	62.8
Malay	90	22.5
Indian	59	14.8
Marital status		
Single	259	64.8
Married	107	26.8
Separated/divorced/widowed	34	8.5
Education		
No formal/primary	24	6.0
Secondary	141	35.3
A level/polytechnic	154	38.5
University and above	81	20.3
Employment		
Employed	233	58.3
Economically inactive	64	16.0
Unemployed	103	25.8
Diagnosis		
Schizophrenia and related psychoses	140	35.0
Any mood disorders	140	35.0
Any anxiety disorder	120	30.0
Pathways to first contact		
Primary care	144	36.0
Specialist care	87	21.8
Police/court	16	4.0
Non-formal sources of help	135	33.8
Religious/traditional treatment	5	1.3
Websites/media	13	3.3
Who initiated the first contact		
Police/court	18	4.5
Family/relatives	100	25.0
Friends/neighbours	19	4.8
Initiated on their own, i.e. self-referral	241	60.3
Others	22	5.5

(58.3%). Socio-demographic characteristics of the participants are shown in Table 1.

Majority of the participants had their first contact with primary care (36.0%) followed by non-formal sources of help (33.8%), specialist care (21.8%), police/court (4.0%), websites/media (3.3%) and religious/traditional treatment (1.3%). A majority of first contact was initiated on their own, that is, self-referral (60.3%), followed by family/relatives (25.0%), others (5.5%), friends (4.8%) and police/court (4.5%). The mean age when participants first felt that they needed help was 30.4 (*SD*=11.8) years. The mean age

of onset of illness among participants was 30.3 (*SD*=11.9) years. Mean duration of untreated illness was 1.1 (*SD*=3.7) months, ranging from 0 to 35 months. The mean total duration of illness was 8.5 (*SD*=7.4) months.

Association between first contact and socio-demographic characteristics

Table 2 shows the association between first contact and socio-demographic characteristics. Those who made first contact with primary care (36.0%), non-formal sources of help (33.8%) and specialist care (21.8%) were included for the analysis. Multinomial regression demonstrated that those belonging to Indian ethnicity (vs Chinese) were more likely to make first contact with specialist care (odds ratio (OR)=2.8, confidence interval (CI) (1.19, 6.63), *p*=.019) and non-formal sources of help (OR=3.5, CI (1.57, 7.83), *p*=.002) than primary care. Those of Malay ethnicity as compared to those of Chinese ethnicity were more likely to make first contact with non-formal sources of help (OR=2.15, CI (1.02, 4.50), *p*=.043) than specialist care. Those who received a diagnosis of any mood disorders or anxiety disorders (vs those with schizophrenia and related psychoses) were less likely to make first contact with specialist care (OR=0.41, CI (0.20, 0.84), *p*=.015) or (OR=0.42, CI (0.21, 0.87), *p*=.019) primary care. Similarly those who received a diagnosis of any mood disorders or anxiety disorders (vs those with schizophrenia and related psychoses) were less likely to make first contact with non-formal sources of help (OR=0.38, CI (0.20, 0.71), *p*=.003) or (OR=0.33, CI (0.17, 0.64), *p*=.001) primary care.

Association between duration of untreated illness and first contact

Table 3 shows that after adjusting for socio-demographic characteristics, multiple linear regression analysis revealed that duration of untreated illness was significantly associated with marital status and the person who initiated the first contact. Participants who were separated/divorced/widowed were significantly associated with a longer duration of untreated illness (β=1.63, *p*=.03) compared to those who were single. Those whose family/relatives initiated the first contact were significantly associated with a shorter duration of untreated illness (β=−1.05, *p*=.04) compared to those who initiated first contact on their own, that is, self-referral.

Discussion

To the best of our knowledge, the current study is the first to explore pathways to care in Singapore among patients with various mental illnesses such as schizophrenia and related psychoses, mood disorders and anxiety disorders.

Table 2. Association of socio-demographic characteristics with first contact.

Variables	Specialist care vs primary care			Non-formal source of help vs primary care			Non-formal source of help vs specialist care		
	OR	95% CI	*p*	OR	95% CI	*p*	OR	95% CI	*p*
Mean age	1.021	(0.99, 1.05)	.192	0.992	(0.96, 1.02)	.593	0.972	(0.94, 1.00)	.086
Gender									
Male	0.822	(0.45, 1.49)	.522	0.761	(0.44, 1.30)	.318	0.925	(0.51, 1.67)	.797
Female	Reference			Reference			Reference		
Ethnicity									
Malay	0.878	(0.41, 1.87)	.736	1.883	(1.02, 3.47)	.420	2.145	(1.02, 4.50)	**.043**
Indian	2.806	(1.19, 6.63)	**.019**	3.511	(1.57, 7.83)	**.002**	1.251	(0.59, 2.63)	.555
Chinese	Reference			Reference			Reference		
Marital status									
Married	0.697	(0.32, 1.53)	.370	1.003	(0.49, 2.05)	.994	1.439	(0.65, 3.21)	.374
Separated/divorced/widowed	0.866	(0.31, 2.43)	.785	0.532	(0.18, 1.56)	.249	0.614	(0.20, 1.86)	.389
Single	Reference			Reference			Reference		
Education									
No formal/primary	0.944	(0.27, 3.29)	.927	0.439	(0.12, 1.66)	.225	0.465	(0.10, 2.10)	.320
Secondary	1.239	(0.62, 2.48)	.544	1.02	(0.56, 1.88)	.948	0.823	(0.42, 1.63)	.576
University and above	1.322	(0.60, 2.91)	.488	1.078	(0.53, 2.12)	.834	0.816	(0.38, 1.77)	.608
A level/polytechnic	Reference			Reference			Reference		
Employment									
Economically inactive	0.66	(0.28, 1.53)	.334	0.759	(0.38, 1.53)	.759	1.151	(0.49, 2.71)	.748
Unemployed	1.303	(0.66, 2.56)	.443	0.812	(0.43, 1.54)	.812	0.623	(0.32, 1.21)	.164
Employed	Reference			Reference			Reference		
Diagnosis									
Any mood disorders	0.414	(0.20, 0.84)	**.015**	0.38	(0.20, 0.71)	**.003**	0.918	(0.46, 1.83)	.807
Any anxiety disorder	0.424	(0.21, 0.87)	**.019**	0.334	(0.17, 0.64)	**.001**	0.789	(0.38, 1.62)	.518
Schizophrenia and related psychoses	Reference			Reference			Reference		

OR: odds ratio; CI: confidence interval.
Statistically significant *p* values (*p*<0.05) are in bold.

The findings from this cross-sectional study provide some descriptive insight into the pathways to care of a multi-ethnic group of outpatients seeking treatment at a tertiary mental health institution. Common first contacts for patients in this study were primary care, non-formal sources of help and specialist care. A number of studies have also shown that ethnicity, socio-economic status and cultural background differ widely and influence such pathways (Chow, Jaffee, & Snowden, 2003; Morgan, Mallett, Hutchinson, & Leff, 2004). Another study found that pathways to care vary according to the type of mental illness, with longer delays associated with non-psychotic disorders, somatic problems and referrals by non-medical practitioners (Steel et al., 2006). In the current study, we found that socio-demographic characteristics such as ethnicity and diagnosis were associated with first contact and marital status and person who initiated first contact were associated with duration of untreated mental illness.

Significant ethnic differences were found in the pathways to first contact among those with mental illness. The current study showed that Indians were more likely to make first contact with specialist care rather than primary care. In

Singapore, primary care practitioners at polyclinics do provide care for mental illness (Chesney et al., 2016). However, according to the perspective of primary care experts, the strength of Singapore's primary care system is low with respect to accessibility of mental health care services and its continuity (Khoo, Lim, & Vrijhoef, 2014). Although general practitioners provide care for patients with mental illnesses, they lack support from ancillary health care professionals and training to meet the needs of patients with serious mental illness. Moreover, majority of them do not stock psychotropic medications in their clinics (Vaingankar, Fong, & Kwok, 2010). A recent study conducted among the general population in Singapore revealed that Indians were less likely to seek help from a doctor or general practitioner for their mental illness (Picco, Abdin, et al., 2016). It is possible that Indians may not be aware of the mental health services being provided in primary care settings and feel that primary care is meant for minor medical morbidities and chronic medical conditions, thus preferring to seek help from specialists. Ethnic differences in pathways to care have been identified in studies elsewhere. A meta-analysis of ethnic differences in pathways to care revealed that Black patients are

Table 3. Correlation of duration of untreated illness.

	β	95% CI	*p*
Mean age	0.001	(−0.04, 0.04)	.965
Gender			
Male	0.453	(−0.34, 1.24)	.259
Female	Reference		
Ethnicity			
Malay	0.529	(−0.40, 1.46)	.265
Indian	0.045	(−1.06, 1.15)	.936
Chinese	Reference		
Marital status			
Married	0.32	(−0.74, 1.38)	.552
Separated/divorced/widowed	1.634	(0.14, 3.13)	**.032**
Single	Reference		
Education			
No formal/primary	1.489	(−0.30, 3.28)	.102
Secondary	0.519	(−0.39, 1.42)	.260
University and above	−0.077	(−1.12, 0.96)	.884
A level/polytechnic	Reference		
Employment			
Economically inactive	1.041	(−0.04, 2.12)	.059
Unemployed	0.174	(−0.73, 1.08)	.706
Employed	Reference		
Diagnosis			
Any mood disorders	0.283	(−0.70, 1.27)	.573
Any anxiety disorder	0.721	(−0.31, 1.75)	.170
Schizophrenia and related psychoses	Reference		
First contact			
Specialist care	0.045	(−0.10, 1.09)	.932
Police/court	0.313	(−2.40, 3.03)	.821
Non-formal sources of help	0.207	(−0.71, 1.13)	.658
Religious/traditional treatment	−0.334	(−3.71, 3.04)	.846
Websites/media	−0.453	(−2.60, 1.69)	.678
Primary care	Reference		
Person who initiated first contact			
Police/court	−0.522	(−3.11, 2.07)	.692
Family/relatives	−1.049	(−2.03, −0.07)	**.036**
Friends	−1.068	(−2.82, 0.69)	.232
Others	−0.263	(−1.93, 1.40)	.756
Initiated on their own, i.e. self-referral	Reference		

CI: confidence interval.
Statistically significant *p* values (*p*<0.05) are in bold.

less likely to have general practitioner involvement and more likely to have contact with police, as compared with White patients (Anderson, Flora, Archie, Morgan, & McKenzie, 2014). A study conducted in India revealed that approximately 68.5% of the patients sought faith healers as the first source of help (Lahariya et al., 2010).

Our study identified the important role played by non-formal sources of help (family or friends) for people with mental illness. Family members are the first to notice the initial changes in behaviour which may not be perceived by patients themselves in cases of limited insight (Naqvi, Hussain, Zaman, & Islam, 2009). Family members are the main source of support, with values and beliefs

dynamically shared among family members of the group, giving patients a sense of belonging and trust (Hanafiah & Van Bortel, 2015). In addition, the choice of where and when to first seek mental health care often depends on the family members (Aghukwa, 2012). Indians and Malays in the current study preferred to make first contact with non-formal sources of help as compared to those of Chinese ethnicity. Cultural factors such as beliefs, norms and values concerning the nature of family relationships might play an important role in this process among the Malays and Indians. Family ties and collectivist behaviour may lead individuals to inform their family members about their initial changes in behaviour or mood

and wanting active family involvement (Daneshpour, 1998; Viswanath & Chaturvedi, 2012).

Another interesting observation was that patients with mood or anxiety disorders were less likely to make first contact with specialist care (vs primary care) as compared to patients with schizophrenia and related psychoses. A possible explanation could be that patients' mood or anxiety symptoms may primarily present with somatic complaints. Thus they may seek help for bodily complaints rather than psychological distress and may be more likely to visit primary care providers, such as polyclinic doctors or general practitioners (Kuruvilla & Jacob, 2012) than specialists. On the contrary, the current study also showed that those with mood or anxiety disorders were less likely to make first contact with non-formal sources of help than primary care (as compared to those with schizophrenia and related psychoses). Schizophrenia might lead to socially disruptive behaviour, decline in social functioning, mistrust and persecutory delusions, which are difficult to hide from family (Naqvi et al., 2009), while symptoms of mood or anxiety disorder such as lack of interest and appetite, sleeplessness and so on can be better hidden from family or friends (Griffiths, Crisp, Barney, & Reid, 2011). Diala et al. (2000) found that patients with depression would be embarrassed if their friends knew that they had a mental illness. They could also fear being judged; concerned about what family and friends would think about them and would feel that they were burdening their family or friends with their problems. This might be due to stigma experienced by persons with mental illness (Griffiths et al., 2006; Picco, Pang, et al., 2016). Studies have also shown that some family members hold negative attitudes towards mood disorders resulting in stigmatizing responses towards persons with mental illness. Consequently, the anticipated stigma were seen to limit help-seeking behaviour from family (Griffiths et al., 2011).

The current study showed that those who were single had a shorter duration of untreated mental illness compared to those who were separated/divorced/widowed. The reasons may include having a supportive social network, freedom to make decisions and fewer family commitments, leading to early help-seeking. On the contrary, those who were separated/divorced/widowed could have more commitments, financial difficulties and lack of support, which may have resulted in delay in seeking treatment. It is also possible that those who were separated/divorced/widowed may be experiencing significant stress due to the loss of a partner/relationship, which may have led to a mislabelling of their symptoms of mental illness and delayed help-seeking. The study showed a significant association between duration of untreated illness and person initiating first contact. The duration of untreated illness was significantly shorter when a family member initiated the first contact as compared to when patients initiated the first contact themselves. A study conducted among Ethiopian patients with mental illness found that

the majority were advised to seek treatment at the specialized hospital by their family members (Girma & Tesfaye, 2011) as did another study from Eastern Europe (Gater et al., 2005). A possible explanation could be that family members are able to pick up nuances in behaviour earlier than patients who may have limited insight (Gater et al., 2005). It is also possible that family members compel initiating treatment, particularly if there are psychotic symptoms or behavioural disturbances with a risk of harm to self or others, or when socially disturbing symptoms become prominent (Gater et al., 2005). The study conducted by De Haan, Peters, Dingemans, Wouters, and Linszen (2002) among individuals with first-episode psychosis showed that family members are almost always needed for initiating treatment and successful contact, as it minimizes the duration of untreated psychosis when compared to individual's own efforts in seeking treatment (De Haan et al., 2002).

This study has some limitations. First, individuals were recruited from a tertiary hospital and the findings may not be generalizable to community settings. Second, the study did not establish the pathways to care at the first episode of treatment contact but did it within 2 years of initial service contact which may have resulted in recall bias and limits comparisons with other studies that have established pathways to care at first contact with service providers. Third, the three groups of first contact such as police/court, religious/traditional treatment and websites/media were not included in the analyses due to the small sample size. Finally, the participants in this study were recruited using a convenience sampling method and were restricted to only those who were self-referred or referred by treating clinicians or other health care professionals; hence, they might not be representative of all outpatients in the institution and that could impose a sampling bias.

Notwithstanding these limitations, significant strengths of the study were the use of the pathways to care standard encounter form as a guiding tool along with relevant questions which assessed the pathways to first contact among patients with different diagnosis and the use of questionnaires which were translated into the local languages to ensure inclusiveness.

Conclusion

This is the first study elucidating the pathways to first contact in a multi-ethnic group of patients with various mental illnesses in Singapore. Findings suggest that pathways to first contact vary across patients with different diagnosis and ethnicities. The study also identified that duration of untreated mental illness was associated with marital status and person initiating the first contact. Planning of outreach programmes must take these differences into consideration. These factors affirm the importance of developing a public mental health approach strategy which involves

collaborative partnerships with families so as to prevent the delays in referral and ensure early treatment of patients. The need for incorporating an efficient and effective referral mechanism, the role of various service providers in the pathways to care and availability of services should be kept in mind when developing mental health programmes or services in Singapore.

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References

Aghukwa, C. N. (2012). Care seeking and beliefs about the cause of mental illness among Nigerian psychiatric patients and their families. *Psychiatric Services*, *63*, 616–618.

Altamura, A. C., Dell'Osso, B., Berlin, H. A., Buoli, M., Bassetti, R., & Mundo, E. (2010). Duration of untreated illness and suicide in bipolar disorder: A naturalistic study. *European Archives of Psychiatry and Clinical Neuroscience*, *260*, 385–391.

Anderson, K., Flora, N., Archie, S., Morgan, C., & McKenzie, K. (2014). A meta-analysis of ethnic differences in pathways to care at the first episode of psychosis. *Acta Psychiatrica Scandinavica*, *130*, 257–268.

Bhui, K., & Bhugra, D. (2002). Mental illness in Black and Asian ethnic minorities: Pathways to care and outcomes. *Advances in Psychiatric Treatment*, *8*, 26–33.

Chadda, R., Agarwal, V., Singh, M. C., & Raheja, D. (2001). Help seeking behaviour of psychiatric patients before seeking care at a mental hospital. *International Journal of Social Psychiatry*, *47*, 71–78.

Chesney, E., Abdin, E., Poon, L. Y., Subramaniam, M., & Verma, S. (2016). Pathways to care for patients with first-episode psychosis in Singapore. *The Journal of Nervous and Mental Disease*, *204*, 291–297.

Chiang, J. C., Chow, A. S., Chan, R. C., Law, C., & Chen, E. Y. (2005). Pathway to care for patients with first-episode psychosis in Hong Kong. *Hong Kong Journal of Psychiatry*, *15*, 18–22.

Chong, S. A., Abdin, E., Vaingankar, J. A., Kwok, K. W., & Subramaniam, M. (2012). Where do people with mental disorders in Singapore go to for help? *Annals of the Academy of Medicine, Singapore*, *14*, 154–160.

Chong, S. A., Subramaniam, M., Lum, A., Chan, Y. H., & McGorry, P. (2005). Determinants of duration of untreated psychosis and the pathway to care in Singapore. *International Journal of Social Psychiatry*, *51*, 55–62.

Chow, C.-C., Jaffee, K., & Snowden, L. (2003). Racial/ethnic disparities in the use of mental health services in poverty areas. *American Journal of Public Health*, *93*, 792–797.

Daneshpour, M. (1998). Muslim families and family therapy. *Journal of Marital and Family Therapy*, *24*, 353–390.

De Haan, L., Peters, B., Dingemans, P., Wouters, L., & Linszen, D. (2002). Attitudes of patients toward the first psychotic episode and the start of treatment. *Schizophrenia Bulletin*, *28*, 431–442.

Diala, C., Muntaner, C., Walrath, C., Nickerson, K. J., LaVeist, T. A., & Leaf, P. J. (2000). Racial differences in attitudes toward professional mental health care and in the use of services. *American Journal of Orthopsychiatry*, *70*, 455–464.

Fujisawa, D., Hashimoto, N., Masamune-Koizumi, Y., Otsuka, K., Tateno, M., Okugawa, G., ... Tonai, E. (2008). Pathway to psychiatric care in Japan: A multicenter observational study. *International Journal of Mental Health Systems*, *2*(1), 14.

Gater, R., Jordanova, V., Maric, N., Alikaj, V., Bajs, M., Cavic, T., ... Szalontay, A. S. (2005). Pathways to psychiatric care in Eastern Europe. *The British Journal of Psychiatry*, *186*, 529–535.

Gater, R., Sousa, D. B. A. E., Barrientos, G., Caraveo, J., Chandrashekar, C., Dhadphale, M., ... Silhan, K. (1991). The pathways to psychiatric care: A cross-cultural study. *Psychological Medicine*, *21*, 761–774.

Girma, E., & Tesfaye, M. (2011). Patterns of treatment seeking behavior for mental illnesses in Southwest Ethiopia: A hospital based study. *BMC Psychiatry*, *11*(1), 138.

Griffiths, K. M., Crisp, D. A., Barney, L., & Reid, R. (2011). Seeking help for depression from family and friends: A qualitative analysis of perceived advantages and disadvantages. *BMC Psychiatry*, *11*, 196–207. doi:10.1186/1471-244x-11-196

Griffiths, K. M., Nakane, Y., Christensen, H., Yoshioka, K., Jorm, A. F., & Nakane, H. (2006). Stigma in response to mental disorders: A comparison of Australia and Japan. *BMC Psychiatry*, *6*(1), 21.

Hanafiah, A. N., & Van Bortel, T. (2015). A qualitative exploration of the perspectives of mental health professionals on stigma and discrimination of mental illness in Malaysia. *International Journal of Mental Health Systems*, *9*, 10–22.

Khoo, H. S., Lim, Y. W., & Vrijhoef, H. J. (2014). Primary healthcare system and practice characteristics in Singapore. *Asia Pacific Family Medicine*, *13*(1), 8.

Kuruvilla, A., & Jacob, K. (2012). Perceptions about anxiety, depression and somatization in general medical settings: A qualitative study. *The National Medical Journal of India*, *25*, 332–335.

Lahariya, C., Singhal, S., Gupta, S., & Mishra, A. (2010). Pathway of care among psychiatric patients attending a

mental health institution in central India. *Indian Journal of Psychiatry*, *52*, 333–338.

Malla, A. K., Norman, R. M., & Joober, R. (2005). First-episode psychosis, early intervention, and outcome: What have we learned? *The Canadian Journal of Psychiatry*, *50*, 881–891.

Morgan, C., Mallett, R., Hutchinson, G., & Leff, J. (2004). Negative pathways to psychiatric care and ethnicity: The bridge between social science and psychiatry. *Social Science & Medicine*, *58*, 739–752.

Naqvi, H. A., Hussain, S., Zaman, M., & Islam, M. (2009). Pathways to care: Duration of untreated psychosis from Karachi, Pakistan. *PLoS ONE*, *4*, e7409.

National Institute of Mental Health. (2010). *Global leading categories of diseases/disorders*. Retrieved from http://www.nimh.nih.gov/health/statistics/disability/us-leading-categories-of-diseases-disorders.shtml

Picco, L., Abdin, E., Chong, S. A., Pang, S., Vaingankar, A. J., Sagayadevan, V., ... Subramaniam, M. (2016). Beliefs about help seeking for mental disorders: Findings from a mental health literacy study in Singapore. *Psychiatric Services*, *67*, 1246–1253.

Picco, L., Pang, S., Lau, Y. W., Jeyagurunathan, A., Satghare, P., Abdin, E., ... Chong, S. A. (2016). Internalized stigma among psychiatric outpatients: Associations with quality of life, functioning, hope and self-esteem. *Psychiatry Research*, *246*, 500–506.

Picco, L., Subramaniam, M., Abdin, E., Vaingankar, A. J., Zhang, Y., & Chong, S. A. (2013). Roles of religious and spiritual advisors among adults in Singapore with mental illnesses. *Psychiatric Services*, *64*, 1150–1156.

Razali, S., & Najib, M. (2000). Help-seeking pathways among Malay psychiatric patients. *International Journal of Social Psychiatry*, *46*, 281–289.

Shahwan, S. B. M., Abdin, E., Vaingankar, A. J., Shafie, S. B., Chong, S. A., & Subramaniam, M. (2016). Help-seeking from traditional healers among Singaporean older adults. *Asean Journal of Psychiatry*, *17*, 160–170.

Singapore Statistics. (2016). *Population and population structure*. Retrieved from https://www.singstat.gov.sg/find-data/search-by-theme/population/population-and-population-structure/latest-data

Steel, Z., Mcdonald, R., Silove, D., Bauman, A., Sandford, P., Herron, J., & Minas, I. H. (2006). Pathways to the first contact with specialist mental health care. *Australian and New Zealand Journal of Psychiatry*, *40*, 347–354.

Vaingankar, A. J., Fong, C., & Kwok, K. (2010). Managing patients with mental illness in primary care: Apprehension and views of general practitioners. *Singapore Family Physician*, *36*, 22–25.

Viswanath, B., & Chaturvedi, S. K. (2012). Cultural aspects of major mental disorders: A critical review from an Indian perspective. *Indian Journal of Psychological Medicine*, *34*, 306–312.

Wahl, O. F. (1999). Mental health consumers' experience of stigma. *Schizophrenia Bulletin*, *25*, 467–478.

World Health Organization (WHO). (1987). *Pathways of patients with mental disorders: A multi-centre collaborative project*. Geneva, Switzerland: Author.

World Health Organization (WHO). (2003). The world health report 2003: *S*haping the future. Geneva, Switzerland: Author.