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Predictors of help-seeking duration in adult-onset psychosis in Hong Kong

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Abstract

Purpose Delay in receiving treatment in psychosis may lead to adverse consequences. We examined the predictors for help-seeking duration in adult-onset psychosis Chinese patients in Hong Kong. We hypothesized that factors which are more related to the illness manifestation would be predictive of waiting time before any help-seeking initiation, and factors which are more related to one's knowledge about mental health services would be predictive of help-seeking duration.

Methods First-episode patients with psychosis were recruited from the Jockey Club Early Psychosis project. They were asked to report retrospectively all help-seeking behaviors involved since their first occurrence of psychotic symptoms until receipt of effective psychiatric treatment. Baseline characteristics, pre-morbid functioning and traits, and mode of illness onset were assessed.

Results Help-seeking pattern was analyzed in 360 patients who had subsequently reached the psychiatric services. They had an average of 2.5 help-seeking contacts. Nearly half of the first help-seeking process was initiated by family members. Only 1 % approached priests or traditional healers as the first step in help-seeking. Whereas a gradual mode of onset was significantly associated with longer waiting time to first help-seeking initiation, more premorbid schizoid and schizotypal traits and a migrant status were related to longer help-seeking duration.

Conclusions Current findings suggested that family members were the key decision makers in initiating help-seeking. Longer help-seeking duration in migrants has significant implications to both local and global mental health policy.

Keywords Help-seeking · Pathways · Early psychosis · Schizophrenia · Duration of untreated psychosis

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Introduction

Help-seeking pathway refers to the initiations or attempts made by the distressed person or significant others in contacting with individuals or organizations [1]. The duration of untreated psychosis (DUP) is a measure of treatment delay in psychosis and it can be conceptualized into waiting time and help-seeking duration. Waiting time is the time between the occurrence of first psychotic symptoms and the first help-seeking behavior. Help-seeking duration is the period from the first help-seeking behavior until the receipt of effective psychiatric treatment. In psychosis, longer DUP is related to more severe positive and negative symptoms [2], poorer response to treatment [2, 3], as well as poorer social and occupational functioning [3–5]. Exploration of factors which delayed help-seeking is hence important to inform us about the intervention strategies during this untreated phase.

However, in a recent systematic review of first-episode psychosis, results on the three commonly measured determinants for care pathway, namely ethnicity, gender, and socio-economic status were conflicting [6]. For instance, while some studies did not suggest gender to be a

determinant, some found male gender to be associated with more emergency involvement [7], fewer contacts with general practitioner [8], and more compulsory admission during first contact [9]. Despite this, care pathways are shown to be varied by geographical region due to differences in social, cultural, and health service [6]. In Chinese, some traditional illness beliefs such as explaining the causes of mental illness by supernatural powers [10], and fearing of losing face in the families are found to be associated with a longer treatment delay [11].

Systematic review on DUP across countries varied widely from a median of 27.3 to 350 days, depending on factors such as definition and measurement used, population included, and availability of local service [12]. In Hong Kong, DUP has not been shortened in the past decade, from a median of 150 days as reported in 2005 [13] to 180 days as reported more recently [14]. In this study, alongside the establishment of the Early Intervention service for adult-onset patients with psychosis (Jockey Club Early Psychosis Project, JCEP) in 2009 [15], we attempted to explore factors which might be related to help-seeking delay in this population. The exploration is of particular importance among this adult-onset cohort because some evidence suggests that adult-onset psychosis differed from early-onset in terms of psychopathology, illness onset, premorbid functioning and treatment outcome [16, 17]. Data generated may assist better tailored intervention strategies.

Our primary objective was to investigate factors which might be related to long waiting time and long help-seeking duration in adult-onset Chinese patients with psychosis. We postulated that factors which affect either type of help-seeking delay might differ. We therefore hypothesized that factors which are related to the illness manifestation (e.g., mode of onset) were predictive of waiting time, while factors which are related to one's knowledge about mental health services (e.g., migrant status) were predictive of help-seeking duration.

Methods

Participants

This study was conducted as part of the Jockey Club Early Psychosis (JCEP) Project, which aims to provide a phase-specific early intervention to first-episode psychosis patients aged 26 and 55 years. It is a territory-wide service covering the entire population of over 7 millions in Hong Kong [15]. Referred by general practitioners, patients presented to public outpatient or inpatient psychiatric clinics were screened and recruited between June 2009 and August 2011. Eligible patients had to be diagnosed with first-episode schizophrenia, schizoaffective disorder, schizophreniform disorder, delusional disorder, brief psychotic disorder, psychosis not otherwise specified or manic episodes with psychotic features according to the Structured Clinical Interview for DSM-IV (SCID) [18]. Using the best-estimate consensus approach [19] with information from the validated Chinese version of the SCID [20], medical records, history from informants and case workers, two experienced psychiatrists determined a consensus diagnosis for each subject. Those who were having organic brain disorder, known history of intellectual disability, a diagnosis of drug-induced psychosis, or suicidal or violence risks were excluded. The study was approved by the institutional review boards, carried out in accordance with Good Clinical Practice and the Declaration of Helsinki. All patients gave written informed consent to participation.

Assessments

Patients' characteristics, including gender, age, place of birth, education level, current and highest occupational status, marital status, living situation, mode of illness onset, family history of schizophrenia and household income, were collected at baseline.

Pathways to care

Understanding toward treatment delay in the ill persons has been gained through participating in the cross-national study—the International Pilot Study of the Onset of Psychosis (IPSOS) in 2005. Following this development, an instrument called "Pathways to Care in Psychosis" was developed. Through semi-structured interview, trained research assistants asked patients to report retrospectively all help-seeking behaviors since their first onset of psychotic symptoms from both formal (e.g., GP, social workers, counselors) and informal supports (e.g., family members, friends, religion priests), inclusive of the last psychiatric consultation leading to an effective treatment. The scale was developed and refined based on in-depth interviews with psychosis patients (see Appendix 1 for details of the instrument).

Duration of untreated psychosis

Onset information was retrieved using the Interview for the Retrospective Assessment of the Onset of Schizophrenia (IRAOS) [21]. This is a standardized, semi-structured interview capturing patient's age of first illness onset, duration of untreated psychosis (DUP, as defined as the duration between the onset of first psychotic symptoms and first effective psychiatric treatment received) and duration of untreated illness (DUI, the time period between the

onset of first non-psychotic symptoms and first effective psychiatric treatment received). To minimize recall bias, apart from using collateral information from medical records, carers and informants; memory cues such as major local events happened (e.g., the outbreak of Severe Acute Respiratory Syndrome, SARS), and the twelve popular Chinese Zodiac animal signs (e.g., rat, ox, tiger), where each sign is assigned by year, were used.

Premorbid functioning and premorbid traits

Premorbid adjustment and traits were assessed with the Premorbid Adjustment Scale (PAS) [22] and the Premorbid Schizoid and Schizotypal Traits (PSST) [23], respectively. The PAS assesses the five domains of premorbid functioning, according to one's developmental stages including childhood, adolescence, late adolescence and adulthood. Ratings were made on a 7-point Likert scale. Overall and domain scores were calculated by the following formula: total scores/possible score for the items rated [24]. The range of final score was therefore re-scaled to 0–1, with greater rating indicating poorer adjustment. The PSST focuses on the seven aspects of premorbid personality: social isolation, affect, suspiciousness/sensitivity, thought content/beliefs, speech, socialized and unsocialized antisocial behavior. They were rated on a 4-point scale, with greater rating for greater impairment. The mean of all items was used for analysis.

Statistical analysis

To analyze the primary objectives of exploring the potential predictors for waiting time and help-seeking delay (dependent variables), two-step linear regression models were used. Independent variables included gender, age of illness onset, education in years, whether married, born locally, having family history of schizophrenia, living alone, living with one or more parent, living with spouse, self as decision maker in initiating help-seeking, household income, PSST, PAS (social domain, academic domain and overall), mode of onset, and insight as measured with PANSS item G12. Only those demographic indicators with a p value of 0.1 or smaller in the univariate regressions were selected to enter into the final multivariate regression model (stepwise method). Due to the skewness of the two dependent variables, outlier cases, defined as observations beyond the range of Quartile $1 - 1.5*$interquartile range (IQR) to Quartile $3 + 1.5*$IQR, were excluded from the regression analysis. Similarly, two-step logistic regression models were used to explore factors associating with the characteristics of first help-seeking contact with psychiatrists. The same set of independent variables was used. Coefficients and their 95 % confidence interval (CI) were reported. Hypothesis tests were performed at 5 % significance level unless otherwise specified.

Results

Subjects

The demographic and baseline clinical characteristics of 360 first-episode patients are described in Table 1. All participants were ethnic Chinese. About one-third of the participants were born in Mainland China, with many of them from Guangdong, a province with similar geographical and cultural characteristics to Hong Kong. Migrant participants have lived in Hong Kong for a mean (SD) of 16.7 (10.7) years.

Help-seeking patterns

The participants had an average of 2.5 help-seeking contacts (SD = 1.0; median = 2.0, IQR 2–3) inclusive of the last effective treatment in the psychiatric service. The maximum number of help-seeking was 6. While 14 % ($n = 52$) of the participants had only one help-seeking action, most of them had two ($n = 141$, 39 %) to three ($n = 116$, 32 %) help-seeking actions. Approximately 11 % ($n = 38$) had four and 3 % ($n = 11$) had five help-seeking initiations. Two patients (1 %) had six help-seeking actions. Overall, the mean duration of all help-seeking pathways was 95 days (SD = 215; median = 30, IQR 1–74) for the whole population (Fig. 1).

Time lapses and help-seeking duration were examined. The averaged time lapse between the end of the first help-seeking and the initiation of the second one (gap 1) was 32 days (SD = 86; median = 1, IQR 0–18). The mean between end of the second help-seeking and initiation of the next one (gap 2) was 37 days (SD = 115; median = 7, IQR 0–18). Likewise, the means for gaps 3, 4, and 5 were 11 days (SD = 16; median = 2, IQR 0–17), 13 days (SD = 20; median = 7, IQR 1–19) and 0 day, respectively. The overall time gaps in between each help-seeking action (gaps 1–5) plus the waiting time preceding the first help-seeking behavior gave a mean of 507 days (SD = 1291; median = 91, IQR 20–326).

First help-seeking behavior

Agents

Information such as agents involving the first help-seeking contacts was analyzed. While most participants sought professional help from general practitioners (42 %, $n = 151$) and psychiatrists (41 %, $n = 147$), very few of

Table 1 Demographic and clinical characteristics of study population

Characteristics[a]	N = 360
Gender, male, *n* (%)	156 (43)
Age, years, mean (SD)	38.3 (8.4)
Age of illness onset, years, mean (SD)	36.6 (8.7)
Place of birth, *n* (%)	
Hong Kong	243 (68)
Guangdong, Mainland China	77 (21)
Outside Guangdong, Mainland China	36 (10)
Others	4 (1)
Years living in Hong Kong if not born in Hong Kong (1), *n* = 117	16.7 (10.7)
Age arrived HK if not born in HK (30), *n* = 117	22.6 (10.9)
Education, years, mean (SD)	10.7 (3.8)
Marital status, *n* (%)	
Single	178 (49)
Married	124 (34)
Divorced	47 (13)
Widowed	9 (3)
Separated	2 (1)
Family history of psychosis/schizophrenia, *n* (%)	
Yes	41 (11)
No	319 (89)
Living situations, *n* (%)	
Living alone	48 (13)
Not living alone[c]	312 (87)
Living with one or more parents	153 (43)
Living with spouse	119 (33)
Living with siblings	104 (29)
Living with children	129 (36)
Mode of onset, *n* (%)	
1–3 days	59 (16)
4–7 days	24 (7)
8–14 days	20 (5)
15–30 days	42 (12)
31–90 days	50 (14)
>90 days	165 (46)
Duration of untreated psychosis, days, median (IQR)	93 (20–382)
Duration of untreated illness (4), days, median (IQR)	255 (62–1,135)
Clinical diagnosis, *n* (%)	
Schizophrenia	157 (44)
Schizoaffective disorder	4 (1)
Schizophreniform disorder	60 (16)
Brief psychotic disorder	42 (12)
Psychotic disorder not otherwise specified	20 (6)
Delusional disorder	72 (20)
Manic episodes with psychotic features	5 (1)
Current/highest occupational status, *n* (%)	
Full-time	112 (31)/331 (92)
Part-time	30 (8)/22 (6)
Unemployed	180 (50)/3 (1)
Homemaker	35 (10)/2 (1)
Full-time student	1 (0.3)/2 (1)
Rehabilitation	2 (1)/–

Table 1 continued

Characteristics[a]	N = 360
Household income (8), n (%)	
<HKD 4,000	71 (20)
HKD 4,000–7,999	72 (21)
HKD 8,000–14,999	89 (25)
HKD 15,000–24,999	61 (17)
>HKD 25,000	59 (17)
Positive and negative syndrome scale (PANSS),[b] mean (SD)	
Total	46.0 (12.8)
Positive symptom	9.2 (3.6)
Negative symptom	10.2 (4.4)
General psychopathology	23.0 (7.3)
Insight	2.0 (1.5)
Premorbid Adjustment Scale (PAS) (6),[d] mean (SD)	
Social	0.17 (0.2)
Academic	0.19 (0.2)
Overall	0.18 (0.2)
Premorbid schizoid and schizotypal traits (PSST) (6), mean (SD)	1.1 (0.2)

IQR interquartile range, *SD* standard deviation, *n* number

[a] Number of missing observations in brackets

[b] Participants were assessed with the Positive and Negative Syndrome Scale (PANSS) (26) at baseline. Insight is one of the items in the PANSS (G12). Total score ranges from 33 to 231. Score of positive symptom subscale, negative symptom subscale, general psychopathology subscale range from 7 to 49, 7 to 49, 16 to 112, respectively

[c] Options are not mutually exclusive

[d] Social score comprised of PSST items of isolation and peer relations; academic score consists of scholastic performance and adaptation to school/interests
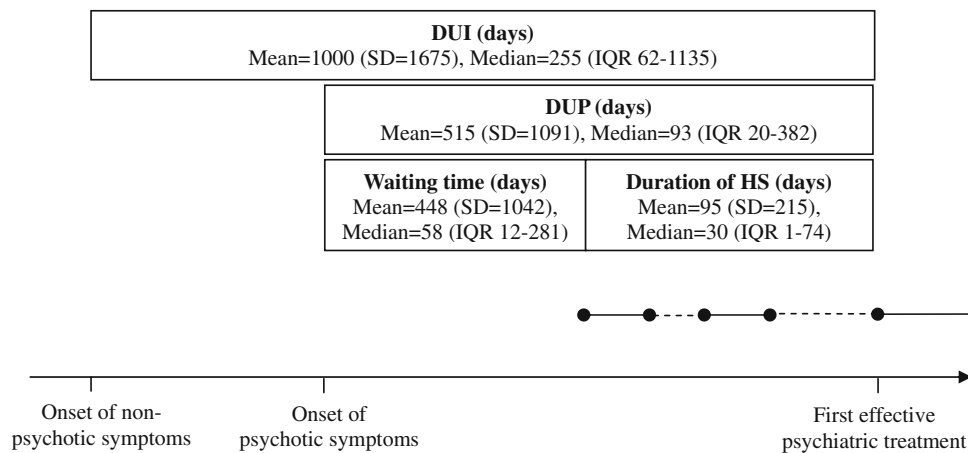

Fig. 1 Help-seeking patters in 360 adult-onset psychosis patients. ●——● Full line represents one help-seeking action. In this population, the maximum and minimum number of HS is six and one, respectively. ------ Broken line represents the gap/the delay between each help-seeking action. Since the maximum number of HS actions was six, therefore the maximum number of gaps/delays was five. Specifically, Gap 1 is the difference between the initiation date of the second HS behavior and the end date of the first HS behavior. A negative value means there is no overlapping or delay in between the two help-seeking actions and hence a '0' value was given, while a positive value refers to the action days of delay between two actions. Gaps 2 to 5 are defined in the same way. *SD* standard deviation, *IQR* interquartile range, *DUI (days)* is defined as the first appearance of non-psychotic symptoms until receiving the first effective psychiatric treatment, *DUP (days)* is defined as the first appearance of psychotic symptoms until receiving the first effective psychiatric treatment, *Waiting time (days)* refers to the waiting time between the onset of psychotic symptoms and initiation of the first help-seeking action, *HS (days)* help seeking, defined as the period from the initiation of the first help-seeking action until the initiation of the last help-seeking action leading to effective treatment (all delays/gaps in between HS were included)

them approached social workers (5 %, n = 17), clinical psychologists (1 %, n = 3) and counselors (<1 %, n = 1). Intriguingly, only 1 % of them sought help from either religious priests (0.8 %, n = 3) or traditional healers (0.3 %, n = 1). Around 1 % (n = 2) sought help from their friends and the remaining 10 % (n = 35) from other parties.

The data suggested that both psychiatrists and general practitioners were the two most commonly consulted agents during the first help-seeking action. In particular, first help-seeking action to psychiatrists was significantly related to shorter help-seeking duration (Mann–Whitney U test; z = −2.126, p = 0.034). Further univariate and multivariate logistic regression analyses were performed to study if the basic demographics would be related to first consultation with psychiatrists. Only patients with more years of education were related to first consultation with psychiatrists (odds ratio 1.07, 95 % CI 1.011–1.131, p = 0.019).

Influential decision makers

Influential decision makers involved in this first help-seeking action was also studied. About one-third of the patients (32 %) initiated the help-seeking action themselves. Other influential decision makers were siblings or children (17 %), mother (14 %) and spouse (12 %). Father (6 %) and official agent (4 %) played a less significant role in the decision for seeking help. Only 2.2 % of the first help-seeking action were decided by friends, and 2.5 % by colleagues.

Precipitating circumstances

After onset of psychosis, the precipitating circumstances or reasons of the first help-seeking action were explored. Multiple answers were allowed. Among all circumstances, gross abnormal behavior (44.4 %) and distress from overt psychotic symptoms (37.2 %) were the most common. It was then followed by anxiety symptoms (6.7 %) and physical/somatic symptoms (7.2 %). Other precipitating circumstances included deliberate self-harm (5.8 %), violence (2.5 %), gross neglect (1.9 %) and changes in occupational functioning (1.9 %).

Predictors for waiting time and help-seeking duration

The univariate analysis showed that living alone, PSST score and mode of onset were associated with the waiting time to initiate help-seeking behavior. Only mode of onset (odds ratio = 12.6) remained significant in the final multivariate regression model (Table 2).

The univariate predictors of help-seeking duration included whether one was born in Hong Kong, living with a parent and higher PSST score. In the multivariate model, patients who were born outside Hong Kong (odds ratio = −12.2) and those who scored higher in the PSST (odds ratio = 25.5) were significant predictors for longer help-seeking duration (Table 3).

Conclusions

This is one of the largest studies conducted locally in Hong Kong to investigate the extent of treatment delay and explore its clinical and socio-demographic correlates in 360 adult-onset psychosis patients. In line with our hypotheses, while patients who have a gradual mode of onset had a longer waiting time to first help-seeking, those with more premorbid schizoid and schizotypal traits and being migrants had a longer period of help-seeking.

Overall help-seeking patterns

Upon the first appearance of psychotic symptoms, patients waited for a median of approximately 2 months (58 days) to initiate help-seeking, and took around a median of 1 month (30 days) before reaching an effective psychiatric treatment. It is worth noting that waiting time accounts for the largest proportion of the treatment delay period (DUP of ~3 months), suggesting that effective treatment is likely to follow once the first help-seeking action took place. The data were similar to another unpublished local study on younger patients with psychosis, where the median waiting time and help-seeking delay were 83 and 42 days, respectively. In contrast to younger patients with onset between 15 and 25 years, the current findings on older adults with onset beyond 25 years show marked differences in shortening waiting time to help-seeking but no change in help-seeking duration. In other words, improvements have been made in symptoms detection but not in access to care. Early intervention program should focus to investigate the potential barriers in accessing care; whether it is due to the complicated procedures involved in the referral system or a lack of knowledge in the general public needs further investigation. Future studies will be required to compare populations with earlier and older onset, and to examine if similar processes are contributing to the delay in both populations.

Likewise, while early onset local data reported an average of help-seeking action to be 2.2 to 2.9 [25, 26], we found a mean of 2.5 in our adult-onset patients. Nevertheless, our sample has a relatively small help-seeking number compared to international studies involving early onset psychosis (mean ranged from 2.4 to 4.9) [27–29].

Table 2 Univariate and multivariate regression models for waiting time to help-seeking action

| | Univariate regression | | Multivariate regression | |
| | | | N = 278 (stepwise) | |
	Coefficient (95 % CI)	p	Coefficient (95 % CI)	p
Education	−0.8 (−4.5, 2.9)	0.7		
Age of illness onset	−0.4 (−2.1, 1.4)	0.7		
Gender	10.2 (−20.2, 40.6)	0.5		
Married	−10.3 (−41.2, 20.5)	0.5		
Hong Kong born	−12.6 (−44.3, 19.2)	0.4		
Household income	−3.1 (−8.4, 2.2)	0.2		
Family history of schizophrenia	−10.4 (−59.6, 38.9)	0.7		
Living alone	45.3 (−1.6, 92.1)	0.058	Excluded in the stepwise model	
Living with a parent	−13.0 (−43.1, 17.2)	0.4		
Living with spouse	−10.0 (−41.0, 21.6)	0.5		
PSST	64.1 (−3.7, 131.8)	0.064	Excluded in the stepwise model	
PAS social	29.1 (−49.5, 107.6)	0.5		
PAS academic	21.5 (−64.6, 107.5)	0.6		
PAS overall	39.1 (−52.3, 130.4)	0.4		
Mode of onset	11.4 (4.7, 18.2)	0.001	12.6 (5.8, 19.5)	<0.001
PANSS insight	3.0 (−7.3, 13.3)	0.6		
Self as decision maker	21.4 (−9.8, 52.7)	0.2		

Outlier of the dependent variable, defined as values outside the range of 1st quartile − 1.5*(interquartile range) and 3rd quartile + 1.5*(interquartile range), will be excluded from analysis

CI confidence interval, *PSST* premorbid schizoid and schizotypal traits, *PAS* premorbid adjustment scale, *PANSS* positive and negative syndrome scale

Anderson et al. [30] has found that patients of Asian ethnicity made fewer contacts on the care pathway, and postulates if this lower number is related to the involvement of informal helpers such as friends and relatives. Our data of only 1 % of patients had sought help from friends suggest that may be unlikely. Alternatively, the unwillingness in disclosing to friends or relatives may be related to some traditional Chinese belief such as fearing of losing face in the families [11].

Consulting professionals in the first help-seeking

Consistent with other studies [25, 28, 29, 31], most of our patients (83 %) had sought professional help from general practitioners or psychiatrists during their first help-seeking. There were less than 1 % of patients that had sought help from traditional healers or religious priests despite higher endorsement to the traditional Chinese culture were expected from this older population. In fact, the result concurred with a local qualitative study on early onset psychosis [26]. We postulate too blatant supernatural beliefs about mental health and help-seeking are no longer acceptable in the community, irrespective of peoples' age groups.

Importantly, we found that patients with more years of education were associated with a higher likelihood of approaching psychiatrists during the first help-seeking action. A 9-year free compulsory education is offered in Hong Kong; and the current population has obtained an average of 11 years of education (SD 3.8). Not surprisingly, normal schooling is unlikely to be affected by the illness as patients had their first illness onset at around mid-thirties. Further studies could look into the specific aspects of formal schooling in this help-seeking initiation, as well as the possibility of reviewing existing curriculum.

Influential decision makers in the first help-seeking

It has been suggested that over half of first-episode patients are unaware of their own psychotic illnesses [32]. In other words, successful help-seeking relies heavily on friends and families surrounding the ill person. The previous unpublished local data have pointed out that 'mother' and 'father' were identified as the two most influential decision makers in the first help-seeking action. Similarly, our adult-onset data found that nearly 50 % of the first help-seeking were initiated by family members, while only one-third was self-initiated. Although 34 % of the samples were

Table 3 Univariate and multivariate regression models for overall help-seeking duration

| | Univariate regression | | Multivariate regression | |
| | | | N = 295 (stepwise) | |
	Coefficient (95 % CI)	p	Coefficient (95 % CI)	p
Education	−0.3 (−1.6, 0.9)	0.6		
Age of illness onset	0.1 (−0.4, 0.7)	0.6		
Gender	−3.6 (−13.1, 5.8)	0.4		
Married	−2.9 (−12.7, 7.0)	0.6		
Hong Kong born	−9.4 (−19.4, 0.7)	0.068	−12.2 (−22.4, −1.9)	0.02
Household income	−0.4 (−2.0, 1.2)	0.6		
Family history of schizophrenia	−7.6 (−23.0, 7.8)	0.3		
Living alone	−1.4 (−16.4, 13.6)	0.9		
Living with a parent	−7.7 (−17.2, 1.7)	0.1	Excluded in the stepwise model	
Living with spouse	2.1 (−7.8, 12.0)	0.7		
PSST	21.2 (−0.8, 43.2)	0.059	25.5 (3.4, 47.6)	0.024
PAS social	13.3 (−10.2, 36.7)	0.3		
PAS academic	−10.0 (−35.6, 15.5)	0.4		
PAS overall	6.4 (−21.4, 34.2)	0.7		
Mode of onset	0.3 (−1.9, 2.5)	0.8		
PANSS insight	−0.9 (−2.2, 4.1)	0.6		
Self as decision maker	5.9 (−16.1, 4.4)	0.3		

Outlier of the dependent variable, defined as values outside the range of 1st quartile − 1.5*(interquartile range) and 3rd quartile + 1.5*(interquartile range), will be excluded from analysis

CI confidence interval, *PSST* premorbid schizoid and schizotypal traits, *PAS* premorbid adjustment scale, *PANSS* positive and negative syndrome scale

married, half of them were actually living with either one or both parents. Caution has to be exercised if family support and involvement is a facilitating [33] or inhibiting factor in help-seeking [26].

Predicting long waiting time and help-seeking delay

Consistent with our hypothesis, the single predictor identified for prolonged waiting time was a gradual illness onset, a factor related to the illness manifestation. It has been proposed that the gradual manifestation of non-specific features was less likely to be recognized, and that patients might not seek help until the situation became disruptive and unmanageable [29]. Psychoeducation to the general public in detecting early signs of psychosis appears to be a logical next step. However, data from Scandinavia do not lend much support to these awareness campaigns [34]. The authors explained that on one hand, the prevalent rate in psychosis is too low; on the other hand, while early signs such as psychotic symptoms are more prevalent in the general population, they lack the specificity in predicting conversion to psychosis. Further effort in providing additional training and psychoeducation to GP gatekeepers in the UK is proven to be effective in reducing the delay in reaching early intervention service, however, referral rates

and DUP have not been significantly shortened [35]. Another barrier to initiate help-seeking may be stigma [36, 37]. Local attempt to reduce stigma by introducing a Chinese translation for the term "psychosis" [38] is deemed insufficient. Even though mode of onset is significantly related to a longer waiting time to help-seeking, it remains to be a challenge.

Our results also revealed that more schizoid and schizotypal traits and a migrant status were associated with longer help-seeking delay. Peculiarity such as heightened level of magical thinking before illness onset is related to a longer help-seeking delay. In addition, in line with our hypothesis that one's knowledge and accessibility to local mental health service may affect help-seeking duration, we found that patients born locally had shorter treatment delay as compared with those who born outside Hong Kong. In our migrant population, almost all of them come from Mainland China. For decades, Hong Kong is regarded as a melting pot of Western and Chinese cultures due to the historical development of being a British colonial for more than 100 years before its sovereignty transfer to China in 1997. Since then, the number of migrants coming from China has been increasing, accounting for over 90 % of the population growth in Hong Kong [39]. Chinese immigrants have been perceived as competing for resources such as

health care and education with the local people. Immigrants and their children may also be stigmatized in school or at work. Whether the delay is due to the stigmatization in the community or the migrants' unfamiliarity to the local healthcare facilities is unknown. The data call for a further investigation into their perception and knowledge toward mental illness, familiarity with local healthcare system, the obstacles they encounter in the community, and the disparities in accessing mental health services between the immigrants and the local residents.

Limitations and conclusions

Since help-seeking and onset information were collected retrospectively, recall bias including omission and inclusion are unavoidable in patients and carers. It may also be true that recalling help-seeking from medical professionals is easier than recalling those from friends and families. We minimize the recall bias by facilitating memory retrieval processes and collecting collateral information from casenote, carers and informants. The present study investigates broadly the distress from overt psychotic symptoms leading to help-seeking; the specific kind of symptoms patients seek help for, other psychiatric diagnoses and whether they are receiving medication could be examined in future studies.

We propose that psychoeducation should target nuclear families and provide training to general practitioners in referring at risk individuals. Specific to adult-onset patients, prodromal preventative measures should tackle factors specifically related to a prolonged waiting time and treatment delay. Care pathways are by no means a random process and that multifactorial factors are likely to be involved [6]. Hong Kong is a place where a variety of cultures and traditions are constituted, future studies should focus to breakdown these traditional conceptions for better treatment delay prediction.

Appendix 1. Pathways to care instrument

The instrument has two parts. Part One is a diagram summary of all help-seeking actions along a timeline. Each action is marked sequentially and indicated using a box. Spaces between boxes represent time lag between the help-seeking actions. Beginning and ending dates for each help-seeking action were also recorded. Since patients may seek help from different agents concurrently, the instrument is therefore designed such that overlapping help-seeking actions could be represented along the timeline. It is aimed that the schematic diagram would better facilitate patients in visualizing and delineating the sequence of each help-seeking action retrospectively.

In Part Two, each help-seeking action was recorded in detail using a separate worksheet in chronological order. In each action, the following information was tapped:

i. Help-seeking agent: psychiatrist, general physician, social worker, clinical psychologist, counselor, religious priest, traditional healer, friends, or others.
ii. Date and termination (with reasons) of the help-seeking behavior
iii. Economic costs involved
iv. Influential decision unit for this help-seeking behavior: patient, spouse, father, mother, other members in the nuclear family or non-nuclear family, friends, colleagues, general public, official agents, police, or others.
v. Precipitating circumstances leading to this help-seeking action: violence, deliberate self-harm, gross abnormal behavior, distress from overt psychotic symptoms, gross neglect, change in occupational functioning, anxiety symptoms, physical/somatic symptoms, or others.
vi. Outcome of this help-seeking: effective or ineffective in addressing the precipitating circumstances, leads to another help-seeking action, leads to deterioration, inhibits further help-seeking action, or others.
vii. Major decision consideration for supporting and inhibiting this help-seeking: financial, influences of other people, influence of religion, stigmatization, concern about risks of self-harm/violence behavior, or others.
viii. Relationship to other help-seeking action: simultaneous, one by one, one by one without delay
ix. Reasons for delay (if any): cost, stigma, hope things will improve by itself, negative feelings about existing mental health service, lack of knowledge, fear that it may get worse, or others.

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