

## Original Article

# The impact of mode of onset of psychosis on pathways to care in a hospitalized, predominantly African-American, first-episode sample

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**Abstract**

**Aim:** Given recent findings that mode of onset is a determinant of duration of untreated psychosis (DUP), along with a dearth of research coupling the mode of onset and pathways to care constructs, this study explored the possible effects of mode of onset on pathways to care.

**Methods:** The study included 76 patients hospitalized for first-episode, nonaffective psychosis in two urban, public-sector psychiatric units. Consensus-based best estimates were derived for mode of onset, pathways to care variables and DUP. Associations between mode of onset and several types of pathways to care variables were examined: (i) two key duration variables during the pathway; (ii) four variables pertaining to services contacted, sources of help and reasons for psychiatric contact; and (iii) the number of help-seeking contacts during the pathway.

**Results:** None of the sociodemographic or clinical variables examined (except DUP) were associated with mode of onset. In further assessing the association between mode of onset and DUP, mode of onset was related to the first component of DUP – delay in initiating any help contact – but not with the duration from initiating the first help contact until hospitalization. Mode of onset was not significantly associated with a number of other key pathways to care variables (e.g. type of first help-seeking contact, number of help-seeking contacts).

**Conclusion:** The present findings suggest that both community-wide informational campaigns and early intervention programmes may benefit from focusing on gradually developing psychosis, which confers a longer delay to initiating care.

**Key words:** help-seeking, mode of onset, pathways to care, psychosis, schizophrenia.

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**INTRODUCTION**

It is now widely accepted that a longer duration of untreated psychosis (DUP) is associated with unfavorable outcomes in the early course of schizophrenia, such as poorer response to antipsychotic treatment, lower likelihood of achieving remission, poorer overall functioning and lower quality of life;<sup>1–8</sup> though some studies have not found an association between DUP and neurocognitive perfor-

mance, illness course, or quality of life.<sup>9–17</sup> The preponderance of evidence, summarized by two meta-analyses,<sup>1,2</sup> suggests that DUP may be a modifiable predictor of outcome in first-episode psychosis,<sup>8,18</sup> and reducing treatment delay therefore may be a crucial public health goal. Understanding the complex factors that underlie treatment-seeking and DUP will benefit the early intervention paradigm. The study of treatment delay and DUP has been informed by the *pathways to care* construct, or

the various help-seeking contacts made between the onset of illness and engagement in treatment.<sup>19,20</sup> Previous studies indicate that routes to procuring professional help are markedly varied in first-episode patients,<sup>19</sup> which may be due to influences of race/ethnicity and other sociodemographic variables, as well as heterogeneous aspects of the early course of the disorder, such as mode of onset of psychosis.

Although definitions of the *mode of onset* concept in the literature have varied, in this paper we define it as the rapidity with which psychotic symptoms emerge. As such, it is different from DUP in that the start of DUP (beginning-point of frank psychosis) marks the end of mode of onset of psychosis, or how quickly the frank psychosis had emerged. Mode of onset may be, but is not necessarily, related to the duration of the prodrome. That is, if the particular prodrome is characterized by attenuated psychotic symptoms (e.g. ideas of reference, suspiciousness, perceptual abnormalities, brief and intermittent hallucinations), then the duration of prodrome and mode of onset of psychosis are conflated constructs. However, when the prodrome involves non-psychotic symptomatology (e.g. sleep disturbance, irritability, dysphoria, social withdrawal), then the duration of prodrome does not necessarily equate with mode of onset of psychosis. Mode of onset appears to be associated with outcomes of psychosis – an acute mode of onset is thought to be associated with a better prognosis compared with an insidious mode of onset.<sup>21–24</sup>

Although pathways to care in first-episode, non-affective psychosis are increasingly studied as critical, modifiable early course features, the way in which variability in mode of onset impacts upon pathways to care has yet to be addressed. Research on pathways to mental health care among specific racial and ethnic minorities, such as African-Americans, remains extremely limited.<sup>25</sup> Given recent findings that mode of onset is a determinant of DUP,<sup>26,27</sup> along with a complete dearth of research coupling the mode of onset and pathways to care constructs, this study used an exploratory, descriptive, hypothesis-generating design to examine the possible effects of mode of onset of psychosis on several pathways to care variables in a predominantly African-American sample.

## METHODS

### Setting and sample

The study included 76 patients hospitalized for a first episode of non-affective psychosis in two

urban, public-sector psychiatric units. Exclusion criteria included: (i) age < 18 or > 40 years; (ii) inability to speak English; (iii) known mental retardation; (iv) Mini-Mental State Examination<sup>28,29</sup> score of < 23; (v) the presence of a medical condition that could compromise ability to participate; (vi) inability to give informed consent; and (vii) prior outpatient anti-psychotic treatment lasting > 3 months or any prior hospitalization(s) for psychosis more than 3 months before the index admission.

## Materials

The Structured Clinical Interview for DSM-IV Axis I Disorders<sup>30</sup> was used to confirm schizophrenia-spectrum diagnoses and evaluate substance use disorder diagnoses. In addition to a comprehensive semistructured interview, researchers consulted other sources of information including patients' hospital charts and data from family members.<sup>31</sup> The Positive and Negative Syndrome Scale (PANSS)<sup>32</sup> was utilized to measure positive, negative and general psychopathology symptoms. The PANSS is a widely used measure of symptoms of schizophrenia, and several studies have documented its acceptable psychometric properties.<sup>32–34</sup>

The Symptom Onset in Schizophrenia inventory<sup>35</sup> was used to date onset of prodrome and onset of psychosis. The Symptom Onset in Schizophrenia contains detailed definitions of 15 prodromal symptoms and thresholds (ranging from '1 = rare' to '4 = continuous') for establishing the onset of the prodrome. The dating of the onset of illness was operationalized as the first prodromal symptom that was contiguous (without clearly discernable intervals of wellness intervening) with the subsequent onset of psychosis.<sup>36</sup> The duration of untreated illness (DUI) was defined as the number of weeks from the onset of illness/prodromal symptoms until first hospital admission. The DUP was defined as the number of weeks from the onset of positive psychotic symptoms (operationalized as hallucinations or delusions meeting a threshold PANSS score of  $\geq 3$ ) until first hospital admission. Systematic methods were used to resolve difficulties in obtaining exact dates for the onset of illness and prodrome, such as cross-referencing with milestones and memorable events.

Mode of onset of psychosis was operationalized using the definitions developed for the World Health Organization's International Pilot Study of Schizophrenia.<sup>37</sup> *Acute* was defined as 'a florid psychotic state developing within days (up to a week)'. Within this category, mild ('suggestive', non-psychotic) prodromal signs or symptoms may have been absent

(*sudden* onset) or present (*precipitous* onset). *Subacute* indicated 'symptoms appearing and developing into a clear-cut psychotic state over a period of up to one month.' *Gradual* was defined as 'slow, incremental development of psychotic symptoms over a period exceeding one month; prodromal signs or symptoms (if any) cannot be clearly distinguished from overt psychotic symptoms as regards their timing because of a gradual transition from one to the other.' *Insidious* indicated 'no clear demarcation between premorbid personality and mental illness.' For the purposes of the analyses, the latter two categories were combined into a *chronic* category. Patients for whom a mode of onset could not be confidently determined were not included in the analysis.

Pathways to care were assessed using semistructured interviews with patients and family members when available. Three types of pathways to care variables were examined: (i) two duration variables during the pathway; (ii) four variables pertaining to services contacted, sources of help and reasons for psychiatric contact; and (iii) the number of help-seeking contacts during the pathway.

### Procedures

All interviews were conducted during the patient's hospitalization, once psychotic symptoms were adequately stabilized to allow for informed consent. For many of the patients, family members also provided collateral reports. Consensus-based best estimates were utilized for variables in which there may be discrepancies between clinician, patient and family reports (i.e. DUI, DUP, pathways to care and mode of onset). The study was approved by the university's institutional review board, and all participants provided written informed consent.

### Data analysis

Sociodemographic and clinical characteristics were summarized using basic descriptive statistics. Bivariate tests (analysis of variance, chi-square tests) were conducted to assess for significant associations between mode of onset and sociodemographic and clinical characteristics. The three types of pathways to care variables were assessed vis-à-vis mode of onset using Kruskal-Wallis tests owing to the positively skewed distributions of the duration variables, as well as chi-square tests.

TABLE 1. Sociodemographic characteristics of hospitalized, first-episode patients ( $n = 76$ )

Age (years, mean $\pm$ SD)	23.2 $\pm$ 4.8
Gender, male	59 (77.6%)
Race/ethnicity	
Black/African-American	69 (90.8%)
White/Caucasian	6 (7.9%)
Asian-American	1 (1.3%)
Educational attainment	
Did not graduate high school	33 (43.4%)
High school graduate	15 (19.7%)
Some trade/technical school/college	21 (27.6%)
College graduate	7 (9.2%)
Marital status, single/never married	70 (92.1%)
Living with parents or other relatives	54 (71.1%)
Employed during month prior to hospitalization	28 (36.8%)
Ever incarcerated	49 (64.5%)

## RESULTS

### Sociodemographic and clinical characteristics of the sample

Sociodemographic characteristics of the sample are provided in Table 1. Most participants were male and African-American. Many had not graduated from high school (even though all were  $\geq 18$  years of age), and less than one-tenth of the sample had completed college. Most participants were single and had never been married, and were living with parents or other relatives prior to hospitalization. Most patients were unemployed during the month prior to hospitalization, and more than half reported having been incarcerated at least once. None of the sociodemographic variables were significantly associated with mode of onset of psychosis (acute, subacute, or chronic).

Regarding clinical characteristics of the sample (Table 2), the majority were involuntarily admitted to the hospital. The modal diagnosis was schizophrenia, followed by schizophreniform disorder. Eleven patients (14.7%) met criteria for alcohol abuse or dependence, and nearly half (42.7%) met criteria for cannabis abuse or dependence. None of the clinical variables shown in Table 2 were significantly associated with mode of onset.

Of the 73 patients for whom mode of onset data were available, 23 (31.5%) were classified as having had an acute (sudden or precipitous) mode of onset of psychosis, 31 (42.5%) had a subacute onset, and 19 (26.0%) had a chronic (gradual or insidious) mode of onset. The median DUI was 128.0 weeks, or nearly two and a half years. The median DUP was 27.7 weeks, or roughly 7 months.

## Mode of onset and pathways to care

TABLE 2. Clinical characteristics of hospitalized, first-episode patients ( $n = 76$ )

Involuntarily admitted ( $n = 74$ )	62 (83.8%)
SCID diagnosis	
Schizophrenia	44 (57.9%)
Schizophreniform disorder	18 (23.7%)
Schizoaffective disorder	7 (9.2%)
Psychotic disorder not otherwise specified	7 (9.2%)
Alcohol use disorders ( $n = 75$ )	
Abuse	3 (4.0%)
Dependence	8 (10.7%)
Cannabis use disorders ( $n = 75$ )	
Abuse	8 (10.7%)
Dependence	24 (32.0%)
PANSS scores (mean $\pm$ SD)	
Positive subscale	23.9 $\pm$ 4.3
Negative subscale	22.5 $\pm$ 7.0
General psychopathology subscale	42.9 $\pm$ 9.1

SCID, Structured Clinical Interview for DSM-IV Axis I Disorders; PANSS, Positive and Negative Syndrome Scale.

### Mode of onset and pathways to care

As presented in more detail in a prior report,<sup>27</sup> mode of onset was significantly associated with DUP (Table 3). To further explore this duration variable, two time periods were calculated: (i) the duration from the onset of psychosis to the first professional help-seeking contact; and (ii) the duration from the first help-seeking contact to hospital admission. As shown in Table 3, mode of onset was significantly associated with the former – patients with an acute mode of onset had a shorter median duration from psychosis onset to first help-seeking contact than those with a subacute mode, or a chronic mode of onset. However, the duration from the first help-seeking contact to hospital admission did not differ significantly across the three groups.

### Services contacted, sources of help and reasons for psychiatric contact

Among 74 patients with available data, 24 (32.4%) had a first contact with a psychiatric hospital, psychiatric emergency room, or general emergency room; 19 (25.7%) with a psychiatrist, counselor, or outpatient mental health clinic; 15 (20.3%) with police; 10 (13.5%) with emergency medical services (EMS) or a mobile crisis unit (MCU); and 6 (8.1%) with a family physician. Using a trichotomized first help-seeking contact variable (hospital/emergency room services, police/EMS/MCU and outpatient services), there were no differences in first contact by mode of onset (Table 4).

Next, the agency responsible for securing hospitalization was examined. Among 68 patients with

available data, 37 (54.4%) were admitted directly from a psychiatric hospital, psychiatric emergency room, or general emergency room; nine (13.2%) were admitted by a psychiatrist, counselor, or outpatient mental health clinic; 17 (25.0%) were delivered to the hospital by police; and five (7.4%) by EMS or MCU. When this variable was trichotomized as described above, there were again no differences in agency ultimately responsible for hospitalization by mode of onset (Table 4). Furthermore, the proportion brought to the hospital by self, family members, or friends versus others (e.g. police, EMS) did not vary by mode of onset.

The primary reason for first psychiatric hospitalization was examined. Among 72 patients with available data, 20 (27.8%) were brought to the hospital for symptoms only; 8 (11.1%) for having attempted self-harm or suicide or having a high risk for harming self; 14 (19.4%) for violent, aggressive, or dangerous behavior; 12 (16.7%) owing to others' judgment of disturbing behavior; and 18 (25.0%) due to strange, peculiar, or bizarre behavior. This variable was dichotomized into a primary reason for first hospitalization related to attempted self-harm, high risk for self-harm, or violent or dangerous behavior versus symptoms only, others' judgment of disturbing behavior, or strange or bizarre behavior. Mode of onset was not predictive of this dichotomized reason for initiation of hospital care (Table 4).

### Number of help-seeking contacts during the pathway

The total number of help contacts during the pathway to care ranged from one to eight (mean: 2.2  $\pm$  1.5 contacts). When dichotomized into those with only one contact and those with two or more contacts, mode of onset was not significantly associated with the number of help-seeking contacts (Table 4).

## DISCUSSION

Given recent findings that mode of onset is a determinant of DUP,<sup>26,27</sup> along with a prominent lack of research including both pathways to care and mode of onset, this study explored the possible effects of mode of onset on several key pathways to care variables. Interestingly, none of the sociodemographic or clinical variables examined (except DUP) were associated with mode of onset of psychosis. In further examining the association between mode of onset and DUP, it became apparent that mode of



TABLE 3. Duration variables during the pathway to care, by mode of onset, in weeks

	Acute ( <i>n</i> = 23)	Subacute ( <i>n</i> = 31)	Chronic ( <i>n</i> = 19)	Kruskal–wallis $\chi^2$	d.f.	<i>P</i>
DUP: onset of psychosis to first hospital admission ( <i>n</i> = 69)	20.6 ± 25.9 Median: 10.4 Range: 0.4–104.3	65.9 ± 87.4 Median: 32.9 Range: 2.3–337.7	121.3 ± 143.6 Median: 100.8 Range: 11.0–590.3	15.76	2	<0.001
Onset of psychosis to first professional help-seeking contact ( <i>n</i> = 66)	18.9 ± 38.2 Median: 6.0 Range: 0.0–169.4	49.1 ± 58.8 Median: 28.2 Range: 0.0–212.1	114.9 ± 187.5 Median: 30.4 Range: 0.0–587.1	9.74	2	0.008
First professional help-seeking contact to hospital admission ( <i>n</i> = 62)	9.2 ± 24.7 Median: 0.0 Range: 0.0–104.3	18.7 ± 64.2 Median: 0.0 Range: 0.0–320.3	31.8 ± 60.9 Median: 0.6 Range: 0.0–202.4	3.72	2	0.16

DUP, duration of untreated psychosis.

TABLE 4. Services contacted, sources of help, reasons for psychiatric contact and number of help-seeking contacts during the pathway to care, by mode of onset

	Acute	Subacute	Chronic	$\chi^2$	d.f.	<i>P</i>
First help-seeking contact						
Hospital/emergency room services	6 (27.3%)	8 (33.3%)	7 (28.0%)	3.72	4	0.93
Police/EMS/MCU	10 (45.4%)	11 (45.8%)	10 (40.0%)			
Outpatient services	6 (27.3%)	5 (20.8%)	8 (32.0%)			
Agency responsible for hospitalization						
Hospital/emergency room services	10 (27.8%)	6 (28.6%)	5 (55.6%)	6.73	4	0.15
Police/EMS/MCU	21 (58.3%)	8 (38.1%)	2 (22.2%)			
Outpatient services	5 (13.9%)	7 (33.3%)	2 (22.2%)			
Who brought the patient to the hospital						
Self, family members, or friends	10 (52.6%)	13 (48.1%)	7 (38.9%)	0.73	2	0.69
Police/EMS/MCU/others	9 (47.4%)	14 (51.9%)	11 (61.1%)			
Reason for initiation of hospitalization						
Attempted self-harm/aggressive behavior	6 (27.3%)	9 (30.0%)	6 (35.3%)	0.30	2	0.86
Symptoms/strange behavior	16 (72.7%)	21 (70.0%)	11 (64.7%)			
Number of help-seeking contacts						
One	9 (39.1%)	18 (58.1%)	6 (31.6%)	3.84	2	0.15
Two or more	14 (60.9%)	13 (41.9%)	13 (68.4%)			

EMS, emergency medical services; MCU, mobile crisis unit.

onset is related to the first component of DUP – delay in initiating any help contact – but not with the duration from initiating the first help contact to hospitalization. Examination of a number of other key pathways to care variables (e.g. type of first help-seeking contact, number of help-seeking contacts) did not reveal significant associations with mode of onset.

Although these findings are largely ‘negative’ with respect to an influence of mode of onset on pathways to care, it is of great interest that the influence of mode of onset on DUP may be restricted to the component of DUP that signifies a delay in seeking help, rather than the portion of DUP that results from delay in services responding. It appears that an acute mode of onset is associated with a much more

rapid response by the patient and his/her caregivers in seeking help. In light of past literature suggesting that an acute onset is associated with better outcomes,<sup>21–23</sup> further research should test the hypothesis that this relationship may be mediated, at least in part, by more rapid initiation of care. The current finding may suggest that both community-wide informational campaigns and early intervention programmes could benefit from focusing on gradually developing psychosis, which confers a longer delay to initiating care.

Research from the Treatment and Intervention in Psychosis project in Scandinavia suggests that community-based efforts, which include informational campaigns and early intervention teams, can effectively reduce the median DUP in a

circumscribed population.<sup>38–40</sup> However, the Treatment and Intervention in Psychosis study was unique because it was conducted in a health care system that could support such novel programmes, and it still has to be determined whether those programmes could be supported in other areas. At least two studies have failed to demonstrate an ability to reduce the median DUP,<sup>41,42</sup> indicating that further research is needed on essential elements of early intervention programmes in defined populations.

The current study focused on a predominantly African-American sample. Prior research in both the UK and the USA suggests that pathways to psychiatric care may be particularly challenging in racial and ethnic minorities.<sup>25,43–45</sup> Further research is needed both within these socially disadvantaged groups and across various cultural, racial and ethnic communities.

Several methodological limitations should be considered. First, this study was exploratory and descriptive, and additional research using more extensive pathways to care variables is needed. Second, not all patients contributed family member informants, and therefore, key variables were measured primarily based on patients' reports for some participants. Third, the relatively small sample size obviously results in less than ideal power to detect meaningful differences in the eight pathways to care variables examined in relation to mode of onset. Fourth, given that the key constructs in this study (e.g. DUP, mode of onset, pathways to care) had to be assessed retrospectively, reliability studies are clearly needed. Lastly, and perhaps most importantly, these results may not be generalizable to dissimilar populations in different health care systems. For example, all patients were hospitalized and most were involuntarily committed, being treated in a public-sector setting in the southeastern USA. As well, given the inclusion criterion of  $\geq 18$  years of age, younger first-episode patients, who may be more likely to have first help-seeking contact within educational institutions, could not be examined.

Despite these limitations, this exploratory study is the first to describe pathways to care of individuals with first-episode, non-affective psychosis in relation to mode of onset. Future studies would benefit from similarly rigorous measurement of DUI/DUP and mode of onset, as well as more thorough characterizations of pathways to care. The present findings suggest that aside from its influence on delays from the onset of psychosis to first professional help-seeking contact, which may have programmatic implications, mode of onset may not be associated with several other pathways to care variables. Further research is warranted.

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