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## A Cross Sectional Study of Factors Influencing Duration of Untreated Psychosis in a Tertiary Mental Health Care Institute

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### **Abstract:**

*Background-* There are several factors affecting duration of untreated psychosis (DUP) which may affect the long term prognosis of the patient's illness? Understanding them will help us in early intervention and management at all levels of illness.

*Aim:* To study factors influencing duration of untreated psychosis (DUP) in a tertiary care centre.

*Methods:* Sample collected from inpatients of a tertiary care psychiatric hospital in a purposive way. Socio demographic and illness factors were analysed and correlated with DUP statistically.

*Results:* There was a predominance of males (52%); younger age (16-25 years)-40%; illiterates-40%; Hindus-86%; rural background-80%. Majority (92%) belonged to low economic status; 62% belonged to nuclear families and 60% were married. However there was no significant difference between the sociodemographic factors when compared with DUP except for background being rural or urban area. Family history of mental illness was present in 10%; Schizophrenia and other psychosis constituted 78%. Predominant symptom danger to others was seen in 40%, suicidal risk in 16% and lack of motivation in 6%. 80% patients had no associated substance abuse. Majority of the patients were brought by parents (68%) and by police in 26% cases. There was no statistically significant difference when compared with DUP in all the factors above. Age of onset of illness was 52% in below 25 years age group; 26% in 26-35 years group; 12% in 36-45 years and 10% in 46 years and above group. There was statistically significant difference when compared with DUP.

*Conclusion:* Age of onset of psychosis was the only illness factor and background being rural or urban was associated with DUP in a statistically significant way; others not being significant.

*Limitations:* Study was done in a tertiary care setup with a small sample which is not representative of the whole population

*Future Directions:* Need to increase awareness about mental illness in the public with improving general practitioner's ability to identify symptoms for early diagnosis.

**Keywords:** DUP (duration of untreated psychosis), sociodemographic factors, tertiary care hospital

### **1. Introduction**

Duration of untreated psychosis (DUP) refers to the duration between the onset of first psychotic symptom and the initiation of adequate antipsychotic drug treatment. <sup>(1)</sup> Delay in seeking appropriate treatment is influenced by many factors which are studied earlier.

Identifying the factors that prolong the DUP will help in decreasing DUP and potentially improve the long-term outcome. <sup>(2)</sup> In a review done by Barker and colleagues it is found that individual factors, such as personal beliefs, internalised gender norms, coping skills, self-efficacy, and perceived stigma interact with structural factors like the national health system, accessibility and affordability of services, and social support. <sup>(3)</sup> Longer duration of DUP predicts poorer prognosis for the patient. 'The decision to seek care' which is the first stage of help seeking is found to be prone to delays and may be because of avoidant coping styles and pessimistic beliefs about health services, as studied by McGerry. <sup>(4)</sup> Longer DUP is being associated with poorer outcome with steady fall in clinical and global outcomes. <sup>(5)</sup> DUP correlated with a weak earlier social network, instability of professional identity, long duration of prodromal

symptoms, psychological dependency on the family, and criticism by the parents of the patient. In this same study longer DUP is associated with insidious onset, poor global functioning, and labour incapability.<sup>(6)</sup>

It is suggested that increasing the ability of general practitioners to identify early/prodromal symptoms may lead to reduced DUP.<sup>(7)</sup> In an Indian study it is found that shorter duration of untreated illness predicts favourable clinical outcome.<sup>(8)</sup> Increasing public awareness of psychosis and the importance of early treatment may help avoidant youngsters to seek treatment without delay.<sup>(7)</sup>

Male gender, unemployed status, co morbid substance abuse, family factors, lack of public awareness, lower education social stigma attached with visit to psychiatrist etc are found to influence DUP. With the need to understand different factors influencing DUP and their effect on patient's prognosis this study was undertaken. There are few Indian studies done in this regard.

## 2. Aims

To study the factors influencing DUP in a tertiary psychiatric care centre in a metropolitan city.

## 3. Methods

Appropriate permission was first obtained from the hospital authorities to conduct this study. This cross sectional study was conducted between 2013 and 2014. Inpatients from closed and open wards in a tertiary hospital were selected by purposive sampling. Information was collected by interviewing the patient and caregiver if available. Informed consent was obtained from the patients and caregivers before the interview. The inclusion criteria was patients with psychosis (one of the categories in the International Classification of Disorders( ICD-10) of psychotic episode arising from a functional or substance misuse cause which could be affective or non affective in nature); who consented for the study, patients who did not receive any formal treatment earlier and aged between 18 and 60 years. Exclusion factors were patients who received allopathic treatment earlier, patients who did not give consent, organic brain syndromes (OBS) and patients not having psychosis. A semi structured intake proforma was prepared to collect sociodemographic data and illness details which included age of onset, first consultation, referral mode, symptom profile, co morbidity and diagnosis. The data collected was subjected to statistical evaluation and results were compiled. The level of significance was set at  $P \leq 0.05$ .

## 4. Results

(Table no.1) Males represented 52% and females were 48 % of the sample. Ages between 16-25 years represented 40 %; 26-35 years 28 %; 36-45years 20% and > 46 years were 12 % of the whole sample. Regarding education illiterate represented 40 %; SSC, 36 %; intermediate 4% and degree holders were 20% of the sample. Occupation being farmers represented 18%; manual labourer, 28%; skilled/semi skilled, 14%; unemployed, 12% and home makers were 28% of the sample. Majority (86%) belonged to Hindu religion while Muslims were 12 % and Christians were 2% of the sample. There was no difference in all the above factors when compared with DUP. 80% came from rural background whereas 20% from urban background. This difference was significant when compared with DUP. Majority (92%) belonged to low economic status and only 8% belonged to high economic status. This was not significant statistically. 62% belonged to nuclear and 38 % belonged to joint family. The difference was not significant. 60% were married, 30% were unmarried and 10% had marital conflict. There was no significant difference between sociodemographic factor when compared with DUP except for background being rural or urban. Family history of mental illness was present in 10% and was absent in 90%. This difference was not significant statistically. (Table no 1)

Parameter	DUP <1month n(%)	DUP 1m-1 y n(%)	DUP >1year n(%)	Total n(%)	Chisquare P value (df)	Significance
<b>Gender</b>						
Male	13(26)	9(18)	4(8)	26(52)	0.143 (2)	Not significant
Female	6(12)	10(20)	8(16)	24(48)		
Total	19(38)	19(38)	12(24)	50(100)		
<b>Age</b>					0.19 (6)	Not significant
16-25 years	9(18)	9(18)	2(4)	20(40)		
26-35 years	5(10)	3(6)	6(12)	14(28)		
36-45years	2(4)	6(12)	2(4)	10(20)		
≥46 years	3(6)	1(2)	2(4)	6(12)		
Total	19(38)	19(38)	12(24)	50(100)		
<b>Education</b>					0.84 (6)	Not significant
Illiterate	6(12)	8(16)	6(12)	20(40)		
SSC	8(16)	7(14)	3(6)	18(36)		
Intermediate	1(2)	0(0)	1(2)	2(4)		
Degree	4(8)	4(8)	2(4)	10(20)		
Total	19(38)	19(38)	12(24)	50(100)		

<b>Occupation</b>						
Farmer	3(6)	3(6)	3(6)	9(18)	0.086 (8)	Not significant
Manual labourer	7(14)	6(12)	1(2)	14(28)		
Skilled /semiskilled	5(10)	1(2)	1(2)	7(14)		
Unemployed	0(0)	2(4)	4(8)	6(12)		
Homemaker	4(8)	7(14)	3(6)	14(28)		
Total	19(38)	19(38)	12(24)	50(100)		
<b>Religion</b>						
Hindu	16(32)	17(34)	10(20)	43(86)	0.585 (4)	Not significant
Muslim	3(6)	1(2)	2(4)	6(12)		
Christian	0(0)	1(2)	0(0)	1(2)		
Total	19(38)	19(38)	12(24)	50(100)		
<b>Background</b>						
Rural	12(24%)	16(32%)	12(24%)	40(80%)	0.037 (2)	Significant
Urban	7(14%)	3(6%)	0(0%)	10(20%)		
Total	19(38%)	19(38%)	12(24%)	50(100%)		
<b>Economic status</b>						
High	1(2%)	1(2%)	2(4%)	4(8%)	0.447 (2)	Not Significant
Low	18(36%)	18(36%)	10(20%)	46(92%)		
Total	19(38)	19(38)	12(24)	50(100)		
<b>Family type</b>						
Joint	10(20)	6(12)	3(6)	19(38)	0.232 (2)	Not significant
Nuclear	9(18)	13(26)	9(18)	31(62)		
Total	19(38)	19(38)	12(24)	50(100)		
<b>Marital status</b>						
Unmarried	6(12)	7(14)	2(4)	15(30)	0.367 (4)	Not significant
Married	10(20)	10(20)	10(20)	30(60)		
Marital conflict	3(6)	2(4)	0(0)	5(10)		
Total	19(38)	19(38)	12(24)	50(100)		
<b>Family H/O mental illness</b>						
Present					0.544 (2)	Not significant
Absent	1(2)	3(6)	1(2)	5(10)		
Total	18(36)	16(32)	11(22)	45(90)		
	19(38)	19(38)	12(24)	50(100)		

Table 1: Comparison of DUP with sociodemographic parameters

DUP- duration of untreated psychosis

SSC- secondary school Certificate

Duration of Untreated Psychosis		Diagnosis			Total
		Schiz & Other Psychosis	Mood Disorder	Substance Abuse	
less than a month	Count	16	2	1	19
	% of Total	32.0%	4.0%	2.0%	
1m to 1year	Count	14	4	1	19
	% of Total	28.0%	8.0%	2.0%	
more than 1 year..	Count	9	3	0	12
	% of Total	18.0%	6.0%	.0%	
Total	Count	39	9	2	50
	% of Total	78.0%	18.0%	4.0%	

Table 2: Comparison of DUP with Diagnosis of patient

Chi-Square P value=0.773 df=4 Not Significant

Schizophrenia and other psychosis constituted 78 %; mood disorders 18 % and substance induced psychosis were 4 % of the sample. When compared with DUP there was no significant difference. (Table no 2)

Predominant symptom suicidal risk was seen in 16%; danger to others in 40%; lack of motivation in 6 %, Lack of awareness of illness in 6% and other symptoms in 32% of the sample. There was no difference when compared with DUP.(Table no 3)

Duration of Untreated Psychosis		Symptom Profile					Total
		Suicidal Risk	Danger to Others	Lack of Motivation	Lack of Awareness of Illness	Others	
Less than a month	Count	1	9	1	1	7	19
	% of Total	2.0%	18.0%	2.0%	2.0%	14.0%	38.0%
1m to 1year	Count	4	6	1	2	6	19
	% of Total	8.0%	12.0%	2.0%	4.0%	12.0%	38.0%
more than 1 year	Count	3	5	1	0	3	12
	% of Total	6.0%	10.0%	2.0%	.0%	6.0%	24.0%
Total	Count	8	20	3	3	16	50
	% of Total	16.0%	40.0%	6.0%	6.0%	32.0%	100.0%

Table 3: Comparing DUP with the predominant symptom profile at presentation  
Chi-Square P value =0.785; df=8. Not Significant

Duration of Untreated Psychosis		Age of Onset in Yrs				Total
		Below 25	26-35	36-45	46 & Above	
less than a month	Count	10	6	0	3	19
	% of Total	20.0%	12.0%	.0%	6.0%	38.0%
1m to 1year	Count	12	1	5	1	19
	% of Total	24.0%	2.0%	10.0%	2.0%	38.0%
more than 1 year..	Count	4	6	1	1	12
	% of Total	8.0%	12.0%	2.0%	2.0%	24.0%
Total	Count	26	13	6	5	50
	% of Total	52.0%	26.0%	12.0%	10.0%	100.0%

Table 4: Comparison of duration of untreated psychosis with age of onset  
Chi-Square P value =0.02; df=6. Significant

Duration of Untreated Psychosis		1st Consultation		Total
		Faith Healer	Allopathic & Ayush	
less than a month	Count	10	9	19
	% of Total	20.0%	18.0%	38.0%
1m to 1year	Count	10	9	19
	% of Total	20.0%	18.0%	38.0%
more than 1 year..	Count	3	9	12
	% of Total	6.0%	18.0%	24.0%
Total	Count	23	27	50
	% of Total	46.0%	54.0%	100.0%

Table 5: Comparison of DUP with patient's first consultation  
Chi-Square Test P value=0.246; df=2. Not Significant

Age of onset of illness was 52% in below 25 years age group; 26 % in 26-35 years group; 12 % in 36-45 years and 10 % in 46 years and above group. There was significant difference when compared with DUP.(Table no 4) Patients were first taken to faith healers in 46 % and to Allopathic /Ayush physicians in 54% of the sample. However there was no difference between the groups when compared with DUP. (Table no 5)

Duration of Untreated Psychosis			Substance Abuse		Total
			Present	Absent	
less than a month	Count		3	16	19
	% of Total		6.0%	32.0%	38.0%
1m to 1 year	Count		6	13	19
	% of Total		12.0%	26.0%	38.0%
more than 1 year..	Count		1	11	12
	% of Total		2.0%	22.0%	24.0%
Total		Count	10	40	50
		% of Total	20.0%	80.0%	100.0%

Table 6: Comparison of different groups with associated substance abuse  
Chi-Square Test P value=0.244; df=2 .Not Significant

History of substance abuse was present in 20% and 80% patients had no associated substance abuse. There was no difference when compared with DUP. (Table no 6) Patients were brought for consultation by parents in 68% cases; by relatives in 6 % cases and by Police in 26% cases. There was no difference when compared with DUP. (Table no 7)

DUP		Brought By			Total	
		Parents	Relatives	PC		
less than a month	Count	11	2	6	19	
	% of Total	22.0%	4.0%	12.0%	38.0%	
1m to 1 year	Count	14	1	4	19	
	% of Total	28.0%	2.0%	8.0%	38.0%	
more than 1 year..	Count	9	0	3	12	
	% of Total	18.0%	.0%	6.0%	24.0%	
Total		Count	34	3	13	50
		% of Total	68.0%	6.0%	26.0%	100.0%

Table 7: Comparison between groups on brought by whom for consultation  
DUP=Duration of untreated psychosis. Chi-Square P value=0.68

## 5. Discussion

In our study males represented 52 % and females were 48 %; 50% of the males received treatment before 1 month while female patients were 25% but with no statistical significance. Another study also did not find any difference as far as gender was concerned.<sup>(9)</sup> But other studies found that a longer DUP was associated with male gender.<sup>(10,11)</sup> Madianos MG,<sup>(12)</sup> in their study found that females had shorter DUP. Mackenzie,<sup>(13)</sup> in their study found that females exhibited more favourable intentions to seek help from mental health professionals than men, which was opined to be due to their positive attitudes concerning psychological openness. Negative attitudes related to psychological openness was opined to contribute to men's underutilization of mental health services.

In our study patients aged between 16 -25years and 26-35 years represented 68 %; which reflected the young population base of India. Early intervention before one month of illness onset was sought in younger age 47.4% below 25yrs compared to older 15.8% above 46yrs. There was no significant difference when compared with DUP. Other studies also did not find any difference as far as age was concerned.<sup>(9,11)</sup>

Age of onset of illness was mostly (52%) below 25 years of age; least (10 %) in the age group of 46 years and above. Onset of illness was seen more in young age. Majority of the patients aged above 46yrs (60%) were with DUP less than 1 month. There was a significant difference when compared with DUP. Larsen T K,<sup>(10)</sup> and Jagdeo A,<sup>(14)</sup> found in their study that patients with a long DUP (> 1 year) were young males with poor social network, social withdrawal, and a more deteriorating course. They were also found to be single lesser educated, socioeconomically challenged with comorbid substance abuse.<sup>(14)</sup> But Madianos MG,<sup>(12)</sup> found that younger age of onset predicted a shorter duration without psychiatric treatment and more positive views about the necessity of help-seeking.

Illiterates constituted 40% of the patients while intermediate qualified constituted lowest 4%. Illiterates were majority reflecting the level of education of the rural population but it was not significant. Lower education was also found in another study which was significantly associated with prolonged DUP.<sup>(15)</sup> Higher education predicted shorter DUP in a study done by Madianos MG.<sup>(12)</sup>

Majority of the sample were either farmer & manual labour (46%) or home maker (28%) while unemployed (12%) and skilled/semiskilled (14%) were lowest. Unemployed who received treatment before 1 month were nil though jobless constituted only 12% of the total sample. Unemployment was significantly associated with longer DUP in earlier studies.<sup>(6,11)</sup> Barnes,<sup>(16)</sup> also found that unemployment was associated with longer DUP which he reasoned to be due to social isolation and withdrawal caused by illness.

In our study patients were first taken to faith healers in 46 % suggesting delay in seeking formal treatment and to Allopathic or Ayush physicians in 54% of the sample .However there was no difference between the groups when compared with DUP. Earlier studies

found longer DUP was associated with family being less bothered about help seeking.<sup>(11)</sup> Shorter DUP of <12 months was associated with more positive views towards help-seeking than those with longer DUP.<sup>(12)</sup> Another study found that for young people, embarrassment or concern about what others might think was the main barrier to seeking help and in parents it was resistance from the child.<sup>(17)</sup>

In our study Hindus were majority (86%) while Muslims and Christians were 14% in congruence with population statistics, though with no statistical significance with DUP. Patients with rural background were 80% and lower economic status were 92% constituting majority which represents the population base utilising the government services. Majority (70%) of the urban patients received treatment early before 1 month which was statistically significant. Nuclear families constituted 62% while joint families were 38% signifying change in family structure of the society. Majority (52.6%) of the patients from the joint families had DUP less than 1 month though statistically not significant. Regarding marital status majority (60%) were married and living together while minority (10%) had marital conflict but comparing DUP was not significant. Majority (68%) were brought by parents suggesting family support but it was not significant statistically. Poor family support was significantly associated with longer DUP.<sup>(11)</sup> But family's involvement was there in our study so there were other factors like stigma/lack of education/cultural beliefs which could have influenced help seeking. These factors need to be studied with a larger cohort of patients. Having a family history of mental illness was not significant statistically with DUP. Other studies did not compare this aspect.

Comorbid substance abuse was seen only in 20 % of patients. However it was not significant when compared with DUP. Shibu,<sup>(11)</sup> in their study found significant association between longer DUP and comorbid substance abuse. Morgan,<sup>(18)</sup> in his study found that continuous use of illicit drugs could also contribute to difficulties in early recognition and help-seeking. He opined that patients or significant others may think that the psychosis will resolve as soon as drug-taking ceases.<sup>(18)</sup>

In our study majority (78%) were diagnosed as schizophrenia; there was no statistically significant difference when compared with DUP. Similar findings were reported by Loebel,<sup>(9)</sup> in a prospective study. It was suggested in some western studies that there was better control of symptoms/outcome of schizophrenia with reduction in duration of untreated psychosis. The reduction of time between onset of psychosis and start of treatment leads to better outcome of schizophrenia and related disorders.<sup>(4,19)</sup> It was also proposed that psychosis itself may have toxic effects on brain.<sup>(20,21)</sup> The predominant symptom in our study was danger to others at time of presentation(40%) and suicidal risk (16%). In another study, longer DUP was associated with more severe positive symptoms at admission.<sup>(6)</sup> Prolonged DUP association with insidious onset was seen in a study by Morgan,<sup>(18)</sup> who opined that negative symptoms early in the course of illness which precede the positive symptoms could be one of the reason for delay in seeking help.

In another study it was suggested that increasing the ability of general practitioners to identify early or prodromal symptoms may lead to reduced DUP.<sup>(7)</sup> It was also found that intrapersonal variables like denial and avoidance, were common responses to onset of psychosis.<sup>(7)</sup> Increasing public awareness of psychosis and the importance of early treatment may help avoidant youngsters to seek treatment without delay.<sup>(7)</sup>

### 5.1. Future Directions

Increasing GP's expertise to identify early /prodromal symptoms, incorporating psychiatry as a separate subject for examination in undergraduate courses of medicine, increasing public awareness of psychosis and importance of early treatment will help in reducing the stigma associated with mental illness and as such reducing DUP.<sup>(7)</sup> This will decrease the morbidity and improve the prognosis of the patient. These social measures should be undertaken at the national level from prevention point of view

### 5.2. Limitations

Our study was done in a tertiary care set up. We could get only 50 patients who fulfilled the intake criteria. A larger population based sample would help us clearly understand factors influencing DUP so that appropriate measures are adopted for better prognosis for patients.

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