Association of stressful life events in the onset of illness in acute and transient psychotic disorders(ATPD),schizophrenia and affective psychotic disorders

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Abstract:
 Introduction: Stressful life events are considered as one of the etiological factors triggering the onset of psychotic disorder. This study examines the role of stressful life events preceding the onset of ATP, first episode schizophrenia and affective psychosis.
Aim: To assess the Association of Stressful Life Events In the onset of illness in ATP, First Episode Schizophrenia and Affective Psychosis.
Methodology: A cross-sectional comparative study conducted at government hospital for mental care, Andhra medical college, Visakhapatnam with a study sample consisting of 150 patients of which 50 patients had diagnosis of ATP,50 patients had diagnosis of first episode schizophrenia and 50 patients had diagnosis of affective psychosis, who were diagnosed according to ICD-10 criteria for research and who were attending to government hospital for mental care as both out patients and inpatients.
Study tools: ICD-10 Diagnostic criteria for research, Presumptive Stressful Life events Scale (PSLES), Expanded-Brief Psychiatric Rating Scale (BPRS).
Results:72.0 %(n=36) Subjects with diagnosis of Acute and transient psychotic disorders had experienced stressful life events preceding the onset of illness followed by 42%(n=21) subjects with diagnosed schizophrenia and 38%(n=19) subjects with diagnosis of affective disorders and this association was statistically significant.
Conclusion: Our study showed significant percentage of patients in all the three groups had stressful life events preceding the onset of illness. So there is a clear need to develop preventive strategies and early intervention in management of psychosocial stressors.
Keywords: Stressful life events, Acute and Transient Psychosis, First Episode, Schizophrenia, Affective Psychosis.

I.   Introduction:

Stressful life events were considered as one of the etiological factors in triggering the onset of psychotic disorder. Life events are "objective experiences that disrupt or threaten to disrupt an individual's usual activities, causing a substantial readjustment in that individual's behaviour[1]. However, the ICD-10 (WHO, 1992) conceptualization of acute and transient psychotic disorders (ATPD) fails to recognize this, apart from providing classifiers like "with/without" stressors. Another study from India by Kapur RL, Pandurangi.AK etal [2] considered the existence of 2 types of acute psychosis, namely, acute psychosis with and without stress.

The acute and transient psychotic disorder has certain key features, such as acute onset (within two weeks) and rapidly changing, polymorphic variable picture, which was accepted as defining criteria; stress may or may not be present with the condition. There have been few studies examining the specific connection between stressful life events and ATPD and also with schizophrenia and other affective psychotic disorders onset.

A study done by Raune etal[3] concluded that stressful events, especially in the preceding three months, may trigger the first episode of ATPD psychosis. A study done by Chakraborty et al[4] demonstrated that stressful life events occur more frequently in the six months prior to the onset of an ATPD episode than the six months before the onset of mania.

In spite of Increased research attention on ATPD over the last few years, There are few comparative studies are done between ATP, first episode schizophrenia and affective psychotic disorders for association with

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stressful life events. This study examines the role of stressful life events preceding the onset of ATP and also compares with schizophrenia, affective psychosis in the emergence of illness.

Aim of the study:
To assess the association of stressful life events in the onset of illness in ATPD,first-episode schizophrenia, and affective psychosis.

II. Materials and methods:

Study design: Cross-sectional observational study
The study was conducted at government hospital for mental care, Andhra medical college, Visakhapatnam with a study sample consisting of 150 patients of which 50 patients had diagnosis of ATPD,50 patients had diagnosis of first episode schizophrenia and 50 patients had diagnosis of affective psychosis who were diagnosed according to ICD-10 criteria for research who were attending to government hospital for mental care as both out patients and inpatients.

Inclusion criteria :
* The patients who had given written informed consent
* The patients diagnosed with the first episode of ATPD, schizophrenia & affective psychotic disorders according to ICD-10 diagnostic criteria for research.
* Age -18 to 60years

Exclusion criteria :
* Patients with comorbid medical or neurological illness.
* H/o head trauma
* Mental retardation
* Patients meeting the international classification of diseases-10 criteria for drug dependence
* Patients diagnosed with organic mental disorders.
* Patients who are not given consent for study.

Operational procedure:
        Patients fulfilling the inclusion criteria were taken up for the study. These cases were enrolled after taking informed consent from them to be included in the study. After taking a detailed history and mental status evaluation, a diagnosis of acute and transient psychosis(ATP), Schizophrenia, Mania/BPAD-mania with psychotic symptoms/major depressive disorder with psychotic symptoms was confirmed according to the international classification of diseases-10 research criteria.

Study Tools:
1.**Semi-structured Proforma** –it is self-designed proforma which includes socio-demographic data and illness history like duration of untreated psychosis(DUP), age of onset of illness, family history, H/o of consanguinity,presence/absence of stressful life events before the onset of illness.

2.**International classification of diseases-10 research criteria**[5]
3.**Presumptive stressful life event scale - A New Stressful Life Events Scale**
* Developed by Gurmeet Singh &kaur(1984)[6]
* Consists of 51 life events that were commonly experienced by the normal Indian adult population.
* Presumptive stress full life events scale is administered by collecting information on Stressful life events preceding the onset of illness during one year and lifetime.
* It includes a direct patient interview, information from family members, and caregivers at the time of diagnosis.
* Information was verified from reliable informants to eliminate recall bias.
* The scale was further divided into desirable, undesirable, and ambiguous and also into personal and impersonal Categories.
* These estimates were done in a lifetime, within six months, within three months and within two weeks preceding the index psychotic episode
* Hundred was kept as highest stress score and zero as no perceived stress.
* The scale is simple to administer to literate and illiterate subjects.
* The scale had a Sensitivity of 83.7% and specificity 79%

3.Severity of symptoms was rated by using **an expanded-brief psychiatric rating scale(BPRS)[7] and CGI-S scale[8]** for all patients of ATPD, schizophrenia, and affective psychotic disorders.
4.Baseline level of functioning was assessed in all patients using the **Global Assessment of Functioning (GAF)scale**. This is rated on a 0-100 scale. It is used to assess global functioning considering psychological, social, and occupational functioning on a hypothetical continuum of mental health-illness. This does not include impairment in functioning due to physical or environmental limitations.

Statistical analysis:
Statistical analysis of the data was carried out using SPSS software version 23. Mean and the standard deviation was presented for all continuous variables. Chi-square statistics were applied to examine the association between stressful life events with onset of ATP, Schizophrenia, affective psychotic disorders, and also to examine the relationship between duration of untreated psychosis with the severity of illness and level of functioning.

III. Results:

The mean age of the total study population(n=150) is 30.09years(SD:9.75) with males 54.0%(n=81) and females 46.0%(n=69).The mean age of the subjects with a diagnosis of acute and transient psychotic disorders was 28.20 years(SD:9.138); in subjects with a diagnosis of first-episode schizophrenia, it was 32.34 years(SD:10.091); in subjects with a diagnosis of affective disorders, it was 29.74 years(SD:9.764).

In patients with a diagnosis of ATPD, 60%(n=30) subjects were females and 40%(n=20) were males. In patients with a diagnosis of schizophrenia, half of the subjects belonged to the male gender(n=25) and another half to the female gender(n=25). In patients with diagnosis affective psychotic disorders, 72%(n=36)subjects were males, and 28%(n=14) were females. These differences are statistically significant with a p-value of 0.005(<0.05)

40.6% (n=61) of the study subjects belonging to the lower socioeconomic status of which 38%(n=19) subjects with a diagnosis of acute and transient psychotic disorders.,44%(n=22) subjects with a diagnosis of schizophrenia, and 40%(n=20)subjects with affective diagnosis disorders. 56.7%(n=85) study subjects were married , 42.7%(n=64)were unmarried and 0.67 %(n=1)were married and separated with 61.3%(n=90)of the total study subjects belonging to the rural background,38.7%(n=58) belonging to the urban background and 1.3%(n=2) subjects belongs to the tribal region.

48%(n=24)subjects with a diagnosis of acute and transient psychotic disorders,56%(n=28) subjects with a diagnosis of first-episode schizophrenia, and 50%(n=25) subjects with a diagnosis of affective disorders were unemployed.
Among the three diagnostic groups, the subjects with a diagnosis of schizophrenia had a higher percentage 32.0%(n=16)of positive family history of mental illness, followed by affective disorders 24.0%(n=12) and ATPD 20.0%(n=10)but not significant statistically (p-value:0.373)
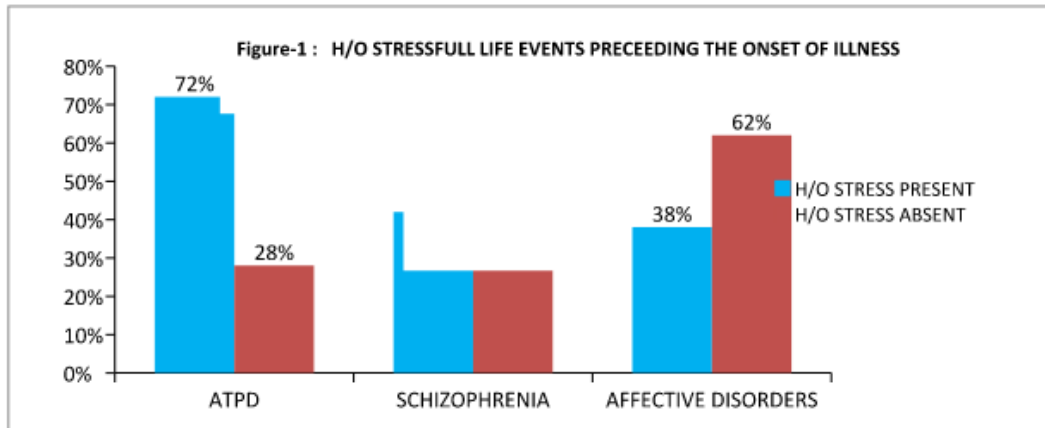
26.0%(n=13) subjects with a diagnosis of ATPD were born out of a consanguineous marriage followed by 10.0%(n=5) affective disorders and 8.0%(n=4)schizophrenia, and it was significant statistically with p-value-0.020(p=<0.05).In our study on the CGI-S scale, among the three diagnostic groups, the majority of the subjects with the diagnosis of ATPD were having severe illness at the baseline based on the CGI-S scale compared to other diagnostic groups, and this difference in the severity of illness was significant statistically with p-value 0.03 On BPRS scale majority of patients in all three groups were presented as severely ill(severe psychopathology).

14%(n=7)subjects with a diagnosis of acute and transient psychotic disorders,18%(n=9)subjects with affective disorders, and 4%(n=2) subjects with a diagnosis of schizophrenia had gross impairment in functioning on baseline assessment.

Association of stressful life events : (table-1&figure-1)
72.0 %(n=36) Subjects with a diagnosis of acute and transient psychotic disorders had experienced stressful life events preceding the onset of illness, followed by 42%(n=21) subjects with a diagnosis schizophrenia and 38%(n=19) subjects with a diagnosis of affective disorders and this association was statistically significant on chi-square test with p-value 0.001.
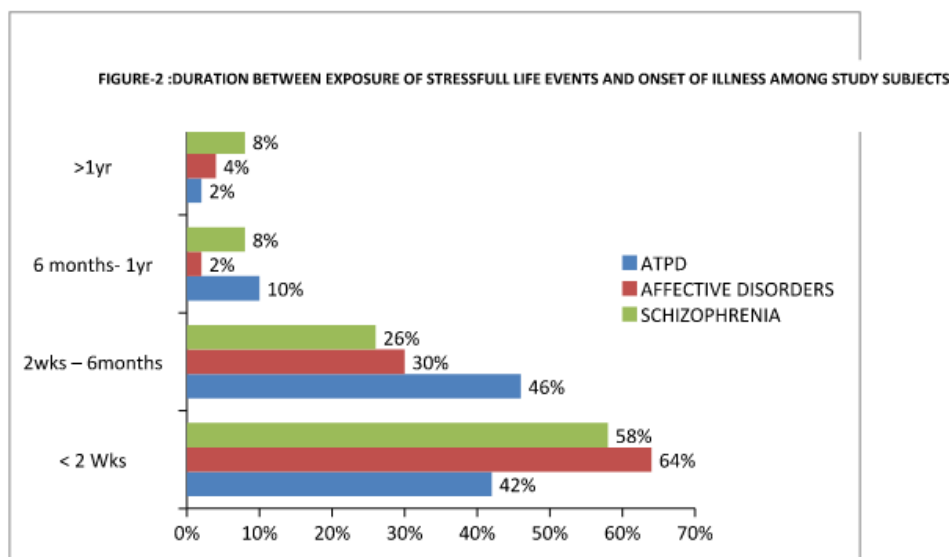
TABLE-1: H/O STRESSFUL LIFE EVENTS PRECEEDING THE ONSET OF ILLNESS					
DIAGNOSIS ACC TO ICD-10 DCR		N	%	Valid Percent	Cumulative Percent
ATPD(N=50)	NO	14	28.0	28.0	28.0
	YES	36	**72.0***	72.0	100.0
AFFECTIVE DISORDERS(N=50)	NO	31	62.0	62.0	62.0
	YES	19	**38.0***	38.0	100.0
SCHIZOPHRENIA (N=-50)	NO	29	58.0	58.0	58.0
	YES	21	**42.0***	42.0	100.0
P-value	**0.001***				

The mean presumptive stress score on the PSLES scale was higher in subjects with a diagnosis of ATPD 38.9(30.8SD), followed by affective disorders26.02(34.3SD)and schizophrenia 21.34(29.69SD)respectively, which was significant statistically with p-value 0.018(<0.05)

The duration between exposure to stressful life events and the onset of illness in study subjects: (figure-2)
The majority of study subjects in all the three diagnostic groups experienced the Stress full life events mostly within 2 weeks to 6months preceding the onset of illness.(n=32)subjects with a diagnosis of affective disorders had experienced stress full life events within two weeks preceding the onset of illness, followed by subjects with first-episode schizophrenia(n= 29) and acute and transient psychotic disorders (n=21). However, this association was not significant statistically, with a p-value of 0.114(>0.05).

Various types of stressful life events and their association preceding the onset of illness among study subjects:
The mean number of undesirable life events experienced by study subjects within less than 2weeks duration preceding the onset of illness was higher in subjects with a diagnosis of ATPD(0.570.92SD) followed by subjects with a diagnosis of affective disorders(0.160.57SD)and schizophrenia(0.070.25SD).

The mean number of undesirable life events experienced by study subjects between 2 weeks to 6months preceding the onset of illness was higher in subjects with a diagnosis of first-episode affective disorders (2.201.52SD)followed by subjects with first-episode schizophrenia(1.511.12SD)and ATPD(1.041.06SD).

Various types of life events and their association among diagnostic groups of the study : (table-2)

Subjects diagnosed with an acute and transient psychotic disorder were associated with more number of undesirable, personal, and impersonal stress full life events preceding the onset of illness than the subjects with first-episode affective disorders and subjects with first-episode schizophrenia; however, this association was not significant statistically (P= >0.05)

There was no significant statistical association of any type of stress full life events based on the PSLES scale (undesirable, personal, impersonal, and ambiguous) with the three diagnostic groups in our study.

TABLE- 2		Various types of life events and their association among diagnostic groups				
VARIOUS TYPES OF STRESSFUL LIFE EVENTS		ATPD (n=50)	AFFECTIVE DISORDERS (n=50)	SCHIZOPHRENIA (n=50)	TOTAL LIFE EVENTS	P-VALUE
UNDESIRABLE EVENTS (N=117)	N	42	42	33	117	0.597
	%	35.9	35.9	28.2	100.0	
DESIRABLE EVENTS (N=15)	N	9	3	3	15	0.305
	%	75.0	25.0	20.0	100.0	
AMBIGUOUS EVENTS (N=13)	N	6	3	4	13	0.440
	%	46.0	23.0	31.0	100.0	
IMPERSONAL EVENTS (N=64)	N	23	24	17	64	0.559
	%	36.0	37.5	26.5	100.0	
PERSONAL EVENTS (N=77)	N	34	23	20	77	0.221
	%	44.0	30.0	26.0	100.0	

The mean number of stressful life events experienced by study subjects according to the PSLES scale (Table-3):

The mean number of undesirable life events in subjects with a diagnosis of ATPD was 0.90±1.01, followed by subjects with a diagnosis of affective disorders 0.84±1.3 and schizophrenia 0.66±0.91, but these association of undesirable life events among the diagnostic groups was not significant statistically (p=>0.05)

The mean number of total stressful life events experienced by subjects with a diagnosis of ATPD was 2.34±2.41, followed by affective disorders1.9±2.8 and schizophrenia 1.54±2.45. Still, this association was not significant statistically, with a p-value of 0.301(>0.05)(table-13).

Table -3: MEAN NUMBER OF STRESSFUL LIFE EVENTS EXPERIENCED AMONG THREE DIAGNOSTIC GROUPS				
STRESSFUL LIFE EVENTS	ATPD (MEANSD)	AFFECTIVE DISORDERS (MEAN SD)	SCHIZOPHRENIA (MEANSD)	P-VALUE
DESIRABLE EVENTS	0.18±0.438	0.06±0.24	0.060.24	0.099
UNDESIRABLE EVENTS	0.90±1.01	0.84±1.3	0.66±0.91	0.535
AMBIGUOUS EVENTS	0.12±0.385	0.6±0.24	0.8±0.44	0.708
IMPERSONAL EVENTS	0.46±0.78	0.48±0.78	0.34±0.74	0.621
PERSONAL EVENTS	0.69±0.89	0.46±0.93	0.40±0.80	0.218
TOTAL EVENTS	**2.34±2.41**	**1.9±2.8**	**1.54 2.45**	0.301

IV. Discussion:

The mean age of the subjects in this study was 30.09yrs(9.75SD), of which most of them being in the range of 25 – 34 years, which was consistent with other studies done in this context.

Castagnini et al., 2008 [9]; Esan and Fawole 2014[10], concluded in their studies that the second to fourth decades is the common age of onset of most psychiatric disorders like- schizophrenia and other psychotic disorders; hence this finding is similar to findings of those studies.

The mean age of onset of illness in acute and transient psychotic disorder(ATPD) subjects was 28.66yr(8.33SD). This finding was nearer to the findings study done Amini.H.etal[11], which was done in this context; the mean age of onset of ATPD in their study was 24.7yr(±9.5SD).

The mean age of onset of illness among subjects with the diagnosis of schizophrenia in this study was 29.54yr(10.3SD). This finding was nearer to the findings of the study conducted by B.K.Venkatesh etal[12], in their study, the mean age of onset of schizophrenia was 29.2yr(8.8SD).

The mean age of onset of illness in affective disorders in this study was 29.96yr(10.4SD). This finding was nearer to the findings of K.G. Dube etal[13]; in their study, the mean age of onset of affective disorders was 28.9(10.6SD).

In subjects with a diagnosis of acute and transient psychotic disorders,60% of subjects were females, and 40% of subjects were males, and this finding was statistically significant. This pattern was similar and evident from other Indian studies conducted in this context by Sajith SG etal [14], F Pillaman etal[15], Susser E etal[16], which ranged from 60% to 80%. This may suggest that females are more vulnerable to the development of acute psychotic illness.

In subjects with a diagnosis of schizophrenia, both males and females were in equal number, which parallels the observation by Thara et al[17], who concluded that there is no significant gender difference in the incidence and prevalence of schizophrenia. In subjects with a diagnosis of affective disorders, males were higher in number than females in this study; this finding was similar to the findings of M.Venkataswamy reddy&C.R.Chandrasekhar etal [18], in their study, they concluded that manic affective psychosis was significantly high in males.

Most of the patients attending this hospital were from a rural background, as this is the only government psychiatric hospital in the state. In line with that, this study has 61.33% of participants coming from a rural background.

It was observed that the majority of patients in all the groups were from low and upper-lower socioeconomic status according to Modified Kuppuswamy Classification. The predominance of low and middle socioeconomic status in patients with acute psychoses has been reported in other studies done by Malhotra S etal[19]. This may suggest that along with stressful life events, which they had experienced, and economic burden might increase the vulnerability of onset of acute psychosis in these patients.

In this study, there was no significant statistical difference between all the three diagnostic groups regarding education, marital status, region, and socioeconomic status.

In this study, 20%(n=10)of subjects with a diagnosis of ATPD and 32.0%(n=16)subjects of schizophrenia were having a positive family history of mental illness. These study findings were similar to the findings of the study done by Rusaka M etal [20]; in their study, 15.6% (n = 16) of the patients of ATPD were found to have a family history of psychiatric disorder.

These findings similar to the finding ofCastagnini etal[21], wherein ATPD with positive family history vs other acute psychosis was 38.3% vs 52.3%, respectively. These findings also support the findings of Das.k.etal [22]and Malhotra etal [19], whose studies concluded that acute and transient psychotic disorders were also having genetic predisposition like other psychiatric illnesses.

In this study, the mean duration of untreated psychosis was shorter in duration (10.14 in subjects with a diagnosis of acute and transient psychotic disorder compared to affective disorders and schizophrenia, and it was statistically significant. This observation was is similar to the findings of the study done by Chakraborty R etal [4], their study conducted at Ranchi; they concluded that ATPD episodes were shorter in duration compared to manic episodes with statistical significance.Shorter duration of untreated psychosis in subjects with ATPD may be due to acute onset with polymorphic nature psychotic symptoms, which may lead to earlier medical attention by the family members or caregivers.

Association of stressful life events :

72.0% of patients who were diagnosed as ATPD were associated with stressful life events preceding the onset of illness and was significant statistically, whereas in studies done by Rusaka M etal [20], Mehta S etal [23]& Augusto C Castagninietal [21]; Stressful life events preceding the onset illness in ATPD were 51%, 46% & 44.7%.

42%(n=21) subjects diagnosed with schizophrenia and 38%(n=19) subjects with a diagnosis of affective disorders had experienced stress full life events preceding the onset of illness in our study. These findings were nearer to the conclusions from Singhal AK etal [24], in their study "role of stressful life events in mania," concluded that the majority of manic patients (63%) reported having entertained stressful life events of various kinds within one month just before the onset of their illness.

Subjects diagnosed with an acute and transient psychotic disorder were associated with more number of undesirable, personal, and impersonal stress full life events preceding the onset of illness compared to the subjects with first-episode affective disorders and subjects with first-episode schizophrenia, and these Stress full life events mostly occurred within two weeks to 6months preceding the onset of illness. This finding is against the findings of the study done by Chakraborty R etal [4]; in their study, they concluded that subjects diagnosed with ATPD had significantly more number undesirable events, impersonal events, and these Stressful life events occurred within the two weeks preceding the episode. This finding, also similar to the finding of a study done by Raune D etal[3],concluded that stressful events, especially in the preceding three months may trigger the first episode of Acute and transient disorder psychosis.

In this study, there was no significant statistical association of any type of stressful full life events like undesirable, personal, impersonal, and ambiguous events with the three diagnostic groups.

These findings of our study suggest that undesirable and impersonal events like the death of a loved one, lack of a child, unpredicted heavy loss of property on which individual has little control and such uncontrollable events will cause psychological disturbance and leading to a deterioration of their coping abilities and onset of psychiatric illness.

Strengths & Limitations:
Strengths:
• One of the few comparative studies done on stressful life events with all the three groups of ATPD, Schizophrenia, and affective psychosis
• the study was done at tertiary care psychiatry hospital
• PSLES scale was used to assess the Stressful life events, which can be used among patients in the Indian context

Limitations:
• Our study is a Cross-sectional observational study
• A prospective study with a larger sample would have been more useful for more practical implications

V.   Conclusion:

This study showed that a significant percentage of patients in all three diagnostic groups who had stressful life events preceding the onset of illness and also showed a significant association of stressful life events with ATPD followed by first-episode schizophrenia and first-episode affective disorders. Undesirable, personal, and impersonal stressful life events occurred within 2weeks to 6months prior to the onset of illness; this may suggest the close temporal association of stressful life events and the onset of illness. So there is a clear need to develop preventive strategies and early intervention in the management of psychosocial stressors. Earlier treatment interventions were needed in patients with schizophrenia because the level of functioning decreases, and the severity of illness increases as the duration of untreated psychosis(DUP) increases.

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