

# Relationship between dream contents and positive/negative symptoms in schizophrenic patients

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## ABSTRACT

**Objectives:** The relationship between dreams and schizophrenia has been a subject of discussion for many years ago. Little is known about details of dream contents in schizophrenia. The aim of this study was to assess the relationship between dream contents and positive and negative symptoms in schizophrenia.

**Methods:** Fifty schizophrenic patients in Beheshti Hospital, Kerman, Iran, over a 6-month period from July to December 2002, were evaluated for dream contents using free recall of dreams and a checklist which was provided in a previous pilot study. Positive and negative symptoms were evaluated by the Positive and Negative Syndrome Scale (PANSS). Data were analyzed by the Statistical Package for Social Sciences, version 9 software.

**Results:** Forty-five (90%) patients reported at least one

recurrent dream in the previous 6 months prior to psychiatric hospital admission. The most frequent dream was a familiar person (82%). Dreams which contained homosexuality and dreams in color were related only to a negative scale ( $f=4.1, p<0.05, f=4.6, p<0.05$ ) and dreams which contained wild animals were related to a positive scale ( $f=4.4, p<0.05$ ). Some other dream contents were related to both positive and negative symptoms and some were related to no scores of PANSS.

**Conclusion:** Positive and negative scales as 2 separate dimensions may have specific related symptoms. Each dimension of schizophrenia (positive/negative) could have their own specific dream contents. Future studies may clarify many other aspects of dream contents in schizophrenia.

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Schizophrenic patients have shown many sleep abnormalities. Several polysomnographic abnormalities are seen to occur consistently in schizophrenic patients such as: impaired sleep continuity and reduced total sleep, reduced amounts of slow wave sleep, and reduced rapid eye movement (REM) latency and defective REM rebound following REM deprivation.<sup>1</sup> One aspect of sleep is dreaming. The relationship between dreams and schizophrenia, which has long been a subject of

discussion in philosophy and medicine.<sup>2</sup> Freud paid attention to dream in schizophrenia, he believed when the dementia praecox exists, it facilitates the interpretation of symbols in dream.<sup>3</sup> Descriptive and phenomenological similarities between the severe nightmare attack and an acute psychotic episode have long been noted by clinicians and writers.<sup>4</sup> Sleep disturbances usually as "bad dreams" are frequently cited as an early indicator of schizophrenic relapse. Many psychotic patients had

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frequent nightmares with violent content, particularly during times of agitation, anxiety, and depression.<sup>5,6</sup> In addition to psychodynamic oriented psychotherapy, for neurotics, dreams may be used in supportive psychotherapy of psychosis.<sup>7</sup> Dreams can also be used for better understanding of the psychopathology of schizophrenia. To our knowledge, little is known about the relationship between dreams of schizophrenic individuals and their specific symptoms. The aim of this study was to study the content of dreams and explore the possible relationship between dream contents and positive and negative symptoms in patients with schizophrenia.

**Methods.** Fifty psychiatric inpatients with the diagnosis of schizophrenia, who were admitted for the first time and not on any medication, were enrolled in this study. This study was conducted over 6-month period from July to December of 2002 in Beheshti Psychiatric Hospital, Kerman, Iran. Their diagnoses were confirmed by 2 psychiatrists, according to the Diagnostic and Statistical Manual [of Mental Disorders], fourth edition criteria. First, patients' demographic factors were assessed. Patients were allowed to remember their dreams, and then were evaluated by means of a checklist, which was prepared in an unpublished pilot study. The aim of this pilot study was determining frequent dreams in medication free patients with schizophrenia. Frequent dreams in the previous 6 months prior to admission were recorded. Dreams contained persecution, heterosexuality, homosexuality, religious themes, familiar and unfamiliar persons, wild animals, domestic animals, death, anxious materials, flying, and foretelling items, and were grouped in different categories. An additional group of dreams in color were also considered. Positive and negative symptoms were assessed by means of Positive and Negative Syndrome Scale (PANSS). The standardized clinical interview was performed using the Standardized Clinical Interview for the PANSS form. The PANSS was developed and standardized for typological and dimensional assessment of schizophrenic phenomena. This 30-item, 7-point rating instrument was conceived as a carefully defined and operationalized method that evaluates positive, negative, and other symptom dimensions on the basis of a formal semi-structured clinical interview and informational sources. Three supplemental items are also included on the PANSS to assess aggression risk. Thus, the 33 items were scored for 1-positive scale, 2-negative scale, 3-composite (positive minus negative), 4-general psychopathology scale, and 5-supplemental aggression risk. Additional scores are available for clusters of symptoms including; anergia, thought disturbance, activation, paranoid/belligerence, and

depression. Theoretically, the PANSS serves the need for focused evaluation of positive and negative dimensions of schizophrenic disorder, as conceptualized by Crow<sup>8</sup> and Andreasen & Olsen.<sup>9</sup> Thus, of the 30 items, 7 are grouped to form a positive scale, measuring symptoms that are superadded to a normal mental status, and another 7 items constitute a negative scale, assessing features absent from a normal mental status. Based on the differential between these scales, a bipolar composite scale specifies the degree of preponderance of one syndrome over the other. Finally, a fourth index, the general psychopathology scale, gauges the overall severity of schizophrenic disorder by summation of the remaining 16 items.<sup>10</sup> Depression was assessed by PANSS scale and no other instrument was used for assessing depression. This method did not assess the severity of depression. Each interview took an average of 60 minutes to complete. Data were analyzed by chi-square, analysis of variance, and Pearson regression tests using Statistical Package for Social Sciences version 9 software.

**Results.** Fifty patients were included in this study, 36 (72%) of them were male [age: 32.3±9.9 (mean±SD)] and 14 (28%) were female (age: 31.7±9.9). Fifteen (30%) were married, and 35 (70%) were single, divorced, or widowed. Forty-four (88%) were unemployed and 6 (12%) were employed. The mean±SD duration of illness was 9.5±7.7 years. Forty-five (90%) reported at least one recurrent dream in the previous 6 months and 5 (10%) did not remember any dream. The maximum dream content that could be remembered by patients was 3 themes. The most frequent dream was familiar persons (82%) (**Table 1**). Dreams that contained persecution were significantly correlated to the scales of PANSS (*p* value<0.05). Dreams that contained religious themes and dreams of flying have no relationship with the scales of PANSS. Dreams that contained persecution, heterosexuality

**Table 1 -** Frequency distribution of dream contents in schizophrenic patients.

Dream contents	n	(%)
Familiar persons	41	(82)
Persecution	38	(76)
Heterosexuality	24	(48)
Wild animals	22	(44)
Anxious themes	22	(44)
Religious themes	20	(40)
Death	18	(36)
Colorful	16	(32)
Foretelling	11	(22)
Flying	11	(22)
Unfamiliar	8	(16)
Homosexuality	7	(14)
Domestic animals	3	(6)

**Table 2 -** Relationship between dream contents and syndrome scores of PANSS.

Dream contents	Positive		Negative		General psychopathology		Composition	
	M±SD	P	M±SD	P	M±SD	P	M±SD	P
Persecution	32.18± 5.18	<0.0001	28.95±7.87	<0.05	56.53±7.16	NS	3.23±10.16	<0.0001
Heterosexuality	33.46±4.36	<0.001	26.17±7.73	<0.0001	55.58±7.64	NS	7.29±9.21	<0.0001
Homosexuality	32.43±5.16	NS	24.57±9.25	<0.05	57.86±5.58	NS	7.85±12.40	NS
Colorful	31.31±5.72	NS	26.75±9.2	<0.05	54.12±6.77	NS	4.56±12.05	NS
Religious	31±5.26	NS	27.90±7.35	NS	55.50±7.29	NS	3.10±9.92	NS
Flying	33.18±3.54	NS	29±6.66	NS	55.09±7.16	NS	4.18±6.19	NS
Familiar persons	31.24±6.21	<0.005	29.22±8.27	0.05	56.22±6.78	NS	0.5±13.3	<0.01
Unfamiliar persons	31.38±4.37	NS	31.75±4.13	NS	60.25±4.83	<0.05	-0.3±6.69	NS
Wild animals	32.27±5.93	<0.05	31.18±8.49	NS	55.77±7.98	NS	1.09±11.36	NS
Domestic animals	26.33±2.52	NS	30.67±6.11	NS	52.33±3.06	NS	-4.3±8.1	NS
Foretelling	32.45±7.74	NS	26.45±7.53	NS	58.27±5.26	NS	6±13.52	NS
Death	31.72±5.54	NS	28.50±6.51	NS	58.11±5.62	0.05	3.22±9.78	NS
Anxious	30.95±5.69	NS	30.55±8.08	NS	56.82±8.19	NS	6.4±11.09	NS

PANSS - Positive and Negative Syndrome Scale, M±SD - mean ± standard deviation, F - F distribution, P - p-value, NS - not significant

**Table 3 -** Relationship between dream contents and cluster scores of PANSS.

Dream contents	Anergia		Thought disturbance		Activation	
	M±SD	P	M±SD	P	M±SD	P
Persecution	15.08±8.20	NS	17.39±8.9	<0.05	8.39±2.46	NS
Heterosexuality	15±10.20	NS	16.79±3.49	NS	8.33±2.88	NS
Homosexuality	12.71±5.50	NS	17±2.89	NS	9.57±3.60	NS
Colorful	13.44±4.84	NS	15.13±3.72	NS	7.75±2.82	NS
Religious	16.80±10.65	NS	15.40±3.95	NS	8.45±3.07	NS
Flying	13.91±3.02	NS	17.09±3.65	NS	7.91±2.60	NS
Familiar persons	14.58±8	NS	16.68±8.79	NS	8.37±2.32	NS
Unfamiliar persons	15.75±3.28	NS	16.38±2.45	NS	8.88±2.75	NS
Wild animals	17.09±9.92	NS	16.73±4.1	NS	8.50±2.26	NS
Domestic animals	16.33±2.31	<0.05	12.33±2.08	NS	5±3.46	<0.05
Foretelling	13.18±3.63	NS	17±4.10	NS	9.18±3.16	NS
Death	16.39±11.25	NS	16.61±3.81	NS	8.78±2.4	NS
Anxious	16.64±10.06	NS	18.05±10.95	NS	7.95±2.34	NS

**Table 3 -** Cont' d.

Dream contents	Paranoid		Depression		Supplemental	
	M±SD	P	M±SD	P	M±SD	P
Persecution	11.97±2.95	<0.005	13.11±4.83	<0.05	22.97±4.61	0.001
Heterosexuality	12.13±2.49	NS	13.67±4.82	0.05	23.46±4.66	<0.05
Homosexuality	12±3.74	NS	15.14±4.91	NS	25.43±3.46	0.05
Colorful	11.75±2.69	NS	14.06±5.45	NS	22.31±4.60	NS
Religious	11.40±3.52	NS	13.05±4.44	NS	22.30±5.73	NS
Flying	12.09±2.59	NS	12.27±4.69	NS	23.91±3.75	NS
Familiar persons	11.68±13.5	0.01	12.93±4.76	<0.05	22.68±4.94	<0.005
Unfamiliar persons	11.13±2.36	NS	14.38±3.54	NS	24±4.28	NS
Wild animals	11.09±2.97	NS	12.73±4.59	NS	21.73±5.35	NS
Domestic animals	12.33±3.79	NS	9.67±8.14	NS	19.33±4.16	NS
Foretelling	11.28±4.38	NS	14.64±4.8	NS	24.8±4.19	NS
Death	11.28±2.76	NS	14.67±4.34	<0.05	24.06±4.18	0.01
Anxious	10.91±3.41	NS	13.86±4.86	<0.05	22.45±6.07	NS

PANSS - Positive and Negative Syndrome Scale, M±SD - mean ± standard deviation, F - F distribution, P - p-value, NS - not significant

and familiar persons were significantly correlated to both positive and negative scales ( $p$  value $<0.05$ ) and dreams that contained homosexuality and dreams in color were related to only the negative scale ( $p$  value $<0.05$ ). Dreams that contained wild animals were related only to the positive scale ( $p$  value $<0.05$ ). The paranoid/belligerence scale related only to dreams that contained persecution and familiar persons ( $p$  value $<0.05$ ). Dreams that contained death and anxious themes were not related to the positive and negative scales but correlated with the depression scale ( $p$  value $<0.05$ ). The supplemental scale that showed aggressive behavior was correlated to the dreams that contained persecution, heterosexuality, familiar persons and death (**Table 2 & 3**). With the increment of positive score, the number of dream contents reported increased ( $r=82.65$ , degrees of freedom (df)=1,  $p=0.001$ ). With the increment of negative score, the number of dreams reported decreased ( $r=46.97$ , df=1,  $p=0.01$ ).

**Discussion.** Many observers have noted similarities between dreams and schizophrenia. The most important primary symptom of schizophrenia for Bleuler was the loosening of association like those Freud had noted in dreams.<sup>11</sup> Jung the founder of Jungian psychotherapy, also noted the similarity of schizophrenia and dreaming, and to describe the clinical picture of dementia praecox, he likened the schizophrenic patient to a dreamer who walks and acts like one awakened.<sup>12</sup> Frightening dreams may be a prelude of an impending schizophrenia process.<sup>4</sup> Bleuler has noted that "Before the actual onset of the disease, the patient frequently complained about disturbing dreams, which keep haunting them during their waking hours."<sup>13</sup>

As schizophrenic patients would believe that the dream-events actually happened, one recent theory hypothesized that schizophrenic delusions initially arise because the formation of memories of dream events is defective. Therefore, memories of dream events or fragments would be occasionally made and placed in the normal memory. This theory suggested that a substance with vasotocin-like bioactivity is released in the brain during dreaming and inhibits memory formation; that the lateral habenula is a brain area involved in vasotocin actions and is affected by neuroleptics, and that brain mechanisms involved in vasotocin actions show pathological alterations in schizophrenia.<sup>14</sup>

One other similarity between dream and schizophrenia was explained based on neurochemistry of sleep. This explanation stated that during REM sleep, in which dreaming occurred, the monoaminergic neurons become silent except for the dopaminergic one, this results in a large disinhibition and the maintained dopamine influence may be involved in the psychotic-like mental

activity.<sup>15</sup> For such reasons, the high frequency of dream recall among our subjects may be plausible.

We proposed that dream contents in schizophrenia may have a relationship with different dimensions in the schizophrenic process, for this purpose, relationship between dream contents and positive/negative scales were assessed by PANSS. In the 1980s, Crow<sup>8</sup> and Andreasen & Olsen<sup>9</sup> suggested a dichotomy into positive and negative syndromes in schizophrenia. From one point of view, Crow's independent dual-process model is the best model of positive and negative symptoms in schizophrenia.<sup>16</sup> From another point of view, positive and negative symptoms are best conceived as distinct dimensions rather than distinct diseases.<sup>17</sup> If positive and negative symptoms existed as real subtypes or dimensions, they need specific characteristics. One study showed that positive symptoms were related to distractibility, whereas negative symptoms were associated with lowered processing capacity.<sup>18</sup> In our research, dreams that contained homosexuality and dreams in color were related only to the negative scale and dreams that contained wild animals were related only to the positive scale. These findings supporting previous conclusions that positive and negative symptoms could be categorized separately with specific related symptoms.

Dreams that contained persecution, heterosexuality and familiar persons were related to both positive and negative scales. These findings supported the opinion that other subtypes in relation to positive and negative symptoms rather than positive and negative subtypes may exist. For example, Brazo et al<sup>19</sup> defined 5 subtypes of schizophrenic patients based on examining patients with PANSS. They suggested 5 subtypes: 1. Pure positive, 2. Disorganized positive, 3. Negative, 4. Mixed, and 5. Residual. We concluded at least, that a mixed subtype could exist with specific dreams mentioned above. Dreams of death are frequently seen in mood disorders.<sup>20</sup> In our study, dreams that contained death and anxious materials did not relate to neither positive nor negative scales but they were related only to the depressive subscale of PANSS. We found that the depression dimension can coexist along with the other dimensions of schizophrenia and generate its own dreams. Future studies, with larger groups of patients, may clarify many other aspects of dream contents in schizophrenic patients.

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