Original Article

Evaluation of Dream Content among Patients with Schizophrenia, their Siblings, Patients with Psychiatric Diagnoses other than Schizophrenia, and Healthy Control

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Objective: Schizophrenia is a chronic psychotic disorder with unknown etiology that causes cognitive impairment, affecting thinking, behavior, social function, sleep and dream content. This study considered the dream content of patients with schizophrenia, siblings of patients with schizophrenia, patients with psychiatric diagnoses other than schizophrenia, and a group of healthy controls. The aim of this study was to compare the dream content of patients with schizophrenia with dream content of individuals with other mental disorders, first degree relatives of patients with schizophrenia, and community controls .
Method: Seventy-two patients were selected and placed in 4 groups. The first group consisted of 18 inpatients with schizophrenia whose medications were stable for at least four weeks; the second group consisted of 16 nonpsychotic mentally ill inpatients; the third group consisted of 18 individuals who were siblings of patients with schizophrenia; and the fourth group consisted of 20 healthy individuals in the community with no family history of mental or somatic disorders. The four groups were matched by age and gender. A 14-item dream content questionnaire was administered for all the participants, and the Positive and Negative Symptoms Scale (PANSS) was also administered for the two groups of hospitalized patients .
Results: Results showed that there were significant differences in dream content among groups included friends acquaintances, females and colorful components. No significant differences were found between the positive and negative subscales of PANSS and any of the dream questionnaire subscales.
Conclusion: Our results suggest that there were a few changes in the dream content of the patients with schizophrenia compare to other groups.

Keywords: *Dream, Psychopathology, Schizophrenia*

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Dreaming is a subjective experience during sleep which can often be recalled and accessed after awakening. It is a topic that has been of interest to psychologists and psychiatrists for many years. Popularized especially by early psychoanalytic thinkers, the interpretation of dreams remains an important part of assessment and treatment for researchers and clinicians (1-3). In particular, similarities between clinical symptoms of psychotic disorders like schizophrenia, including hallucination and bizarre thinking, and dream content in both mentally well and mentally ill individuals have led to recognition of this issue in these patients (4,5).

A few studies have analyzed differences in dream content of patients with schizophrenia versus those without mental illness (4-7). Researchers have reported that dreams in patients with schizophrenia tend to be simpler and less elaborate (2,8), less emotionally sophisticated and self-involved (2,9), more bizarre (10-12), and more negative, violent, and unfriendly (9,11,13) compared to dreams of healthy individuals. In many cases, patients with schizophrenia see themselves as victims of hostility from outside in their dreams (11,14).
Some studies compared the dream content of patients with schizophrenia to dream content of other patients

with non-psychotic mental illnesses. Hadjez and Stein found no differences between the groups in most aspects of dream content (including anxiety, cognitive disturbance and recall), although they reported differences in involvement of patients (e.g. patients with schizophrenia showed less involvement) and also emotional expression in dreams (patients with schizophrenia had less emotional content) (2). Kay and colleagues have reported that patients with schizophrenia had more negative content in their dreams than patients with non-psychotic illnesses. They found no relationship between the positive symptoms and dream content (15).

The present study was designed to study the dream content of patients with schizophrenia compared to three other groups of participants (patients with non-psychotic mental illness, first degree family members of patients with schizophrenia, and healthy controls). We were particularly interested to identify whether dream content was driven by states (a transient, non-permanent state of mental illness) or traits (a genetically-based characteristic that is unlikely to dissipate and might also be present in family members of patients with mental illness). This evaluation was not reported before. Comparing patients with schizophrenia with their siblings offers an opportunity to examine a possible role of genetic traits in dream content. In addition, comparing patients with schizophrenia with patients with non-psychotic illnesses and with healthy controls may offer good evidence for the role of schizophrenic state at the time of dream interpretation.

We hypothesized that patients with schizophrenia would have less coherent and less sophisticated dreams than the control group. In addition, we hypothesized that some dream characteristics may be common to patients with schizophrenia and their siblings, indicating some trait dependent aspects of dreaming. Based on work of Hadjez and colleagues (2), we also hypothesized that increased numbers of negative symptoms in patients with schizophrenia may be associated with an increase in the amount of dream content.

Materials and Method

A total of 72 individuals with age range of 20-45 years were selected using convenience sampling and placed in four groups: patients with schizophrenia, patients with non-psychotic mental illness, first-degree relatives of patients with schizophrenia, and healthy control individuals. All participants were studied at the Sleep Research Center in Farabi Hospital of Kermanshah University of Medical Sciences, Iran from September 2007 to October 2008. The 18 patients with schizophrenia were admitted for psychiatric treatment to Farabi Hospital. All patients were being treated with atypical antipsychotic medication and their dosage was stable for at least four weeks. The 16 patients with non-psychotic mental disorders were admitted to the same hospital for treatment of other mental illnesses. They were being treated with a wide range of pharmaceutical and behavioral treatments. The 18 siblings of patients with schizophrenia were recruited through personal contact. The community controls contained 20 individuals, and were recruited from the hospital's catchment area. A brief screening with each individual showed no evidence of present or previous psychiatric disturbance in the subjects or their immediate families (Table 1). All patients were included in stable phase, and no one was in acute phase. The four groups were matched by age and gender. The power of sample size for many of variables was 80% and confidence level was 95% . Informed consent was obtained from all the participants. The study was approved by the ethical committee of Kermanshah University of Medical Sciences.

The purposes of the research were described for patients and their family, and informed consent procedures were conducted. All participants were interviewed by two licensed physicians masked to the patient's mental health condition and they inquired about dream content of the subjects in a detailed semi-structured interview. Dream content interviews were conducted in individual sessions scheduled between 8:00 a.m. and 9:00 a.m. to decrease the effects of time passing following awakening. As part of the interview on dreaming, all items of the dream content questionnaire were completed (2, 16). The interviews were taped for later coding, which was conducted by two trained evaluators. Then, two psychiatrists evaluated the participants' mental functioning and assigned psychiatric diagnoses based on DSM-IV-TR criteria .

Based on work by Hadjez and colleagues, participants completed a 14-item self report questionnaire that assessed dream content. It included questions concerning presence or absence of several characteristics in the dream: familiar (e.g. friends or family) and unfamiliar characters, male or female characters, elements of aggression and violence, enjoyable elements, unpleasant elements, colorful dreams, elements of sadness, elements of happiness, bizarre elements, coherency between dream elements, incoherency between dream elements, and sudden waking because of fearful elements (Table 2) (2,16). Content validity was determined, and correlation coefficient was 81%. In addition, we translated the questionnaire to Farsi and checked its reliability in a small group of participants at two different times ; the coefficient of stability was 75%. Dream content was coded and analyzed independently by two extensively trained judges according to an objective coding scheme. In addition, we measured emotional expression, including the amount of emotions (rather than anxiety), which was reported by the subjects, or appearing in the dream content and also the duration of dream report which was evaluated by our interviewers. The two inpatient groups also completed the Positive and Negative Symptoms Scale (PANSS) (1), a medical scale used for measuring symptom severity of patients

with schizophrenia or other psychopathology . Data were analyzed by Chi square test and one way ANOVA with Tukey post hoc test, using SPSS version 16 (SPSS Inc., Chicago, IL, USA). P-values less than 0.05 were considered as a statistically significant level.

Results

Eighteen patients with schizophrenia (mean age of 31.8±7.9), 16 patients with non-psychotic mental illness (mean age of 25.5±5.8), 18 first-degree relatives of patients with schizophrenia(mean age of 37.2±14.9), and healthy control individuals (mean age of 27.0±3.7 were assessed(Table 1).

The mean of positive PANSS score in patients with schizophrenia was 33.2±4.6 and in patients with non-psychotic mental illness was 20.4±3.7. The mean of negative PANSS score in patients with schizophrenia was 37.25±3.3 and in patients with non-psychotic mental illness was 26.7±4.2. Inter-rater reliability of PANSS was 0.68 (P<0.01).

Resutls of 14-item self report questionnaire that assessed dream content showed that there were significant differences in three areas among different groups: friends acquaintances (p=0.002), female elements (p=0.025) and colorful dreams (p=0.006) (Table 2).

Discussion

We hypothesized that the dream content of patients with schizophrenia might have less pleasurable components, more incoherence, and more negative and violent components. We believed that might be the case because patients with schizophrenia tend to have decentralized and inconsistent thought processes while awake. We also hypothesized that patients with schizophrenia would have less emotional aspects in their dreams. Finally, we expected that the negative symptoms of patients with schizophrenia would create a situation whereby they would remember less content from their dreams. Surprisingly, our hypotheses were not confirmed. We did not find any hypothesized differences in dream content between the groups, and neither positive nor negative schizophrenic symptoms were related to dream content.

However, we did discover three statistically significant findings. First, both sets of patients with mental illness had fewer friends in their dreams than did the family controls or the community controls. This finding may reflect poor social skills and lack of friends in the lives of patients with severe mental illness. Second, there were more female and fewer male characters in the dreams of family members of patients with

Table 1. Demographic characteristics of individuals in all groups.

Characteristics		Schizophrenia	Non psychotic	Siblings	Controls	Total
Sex	Male (%)	9 (25%)	8 (22.2%)	9 (25%)	10 (27.8%)	36
	Female (%)	9 (25%)	8 (22.2%)	9 (25%)	10 (27.8%)	36
Mean age(years)		31.8±7.9	25.5±5.8	37.2±14.9	27.0±3.7	30.4±10.0
Total (%)		18 (25%)	16 (22.2%)	18 (25%)	20 (27.8%)	72

Table 2. Dream reports parameters in patients with schizophrenia, patients with other mental disorders, first degree relatives of patients with schizophrenia, and community controls.
*** P<0.05**

Characteristics	Schizophrenia	Non-schizophrenia	Siblings	Controls	P-value between groups
Familiar characters	83.3% (15)	75% (12)	66.7% (12)	90% (18)	0.323
Friends	27.8% (5)	37.5% (6)	61.1% (11)	85 (17)%	0.002 *
Family	72.2% (13)	62.5% (10)	50% (9)	75% (15)	0.373
Unfamiliar characters	44.4% (8)	43.8% (7)	55.6% (10)	50% (10)	0.887
Male	77.8% (14)	93.8% (15)	50% (9)	80% (16)	0.074
Female	83.3% (15)	81.3% (13)	50% (9)	80% (16)	0.025 *
Aggression and violence elements	33.3% (6)	37.5% (6)	38.9% (7)	50% (10)	0.75
Enjoyable elements	61.1% (11)	68.8% (11)	38.9% (7)	75% (15)	0.124
Unpleasant elements	44.4% (8)	43.8% (7)	61.1% (11)	60% (12)	0.584
Colorful dreams	61.1% (11)	100% (16)	50% (9)	80% (13)	0.006 *
Sadness elements	50% (9)	50% (8)	72.2% (13)	65% (13)	0.432
Happiness elements	50% (9)	56.3% (9)	27.8% (5)	65% (13)	0.132
Bizarre elements	33.3% (6)	43.8% (7)	61.1% (11)	65% (13)	0.180
Coherency between dream elements	88.9% (16)	87.5% (14)	61.1% (11)	65% (13)	0.107
Incoherency between dream elements	11.1% (2)	75% (12)	38.9% (7)	35% (7)	0.107
Sudden waking from sleep because of fearful elements	33.3% (6)	37.5% (6)	55.6% (10)	35% (7)	0.208

schizophrenia than there were in the other groups. It is difficult to hypothesize why this finding have emerged, but it might be related to the fact that patients with schizophrenia are more often cared for by mothers, wives, or sisters in Iranian culture, and therefore there were fewer male and more female characters in their dreams because they associated with women more frequently. Last, we found more colorful dreams in the patients with non-psychotic mental illness than in the other three groups. This may reflect some previously undiscovered aspect of non psychotic mental illness, but it is difficult to speculate on its exact meaning.

Several trends in our data are also worth a discussion.

The group of family members of patients with schizophrenia had somewhat more incoherent and bizarre elements in their dreams, more sadness and unpleasant elements, and less familiar elements than the two patient groups.This may be due to more simplistic thinking, lower levels of abstracting, or perhaps because they are reacting to the stressful condition in their family and the social stigma of being related to a patient with mental illness.

In general, there were significant differences in the dream content of different groups in three areas. Dreams of patients with schizophrenia contained more familiar people, more female and more enjoyable components and lesser innocuous components in comparison with other groups. We could not determine which dream content characteristics may have been driven by state or trait factors because most of them were not significantly different between the groups (table 2).

A few of our findings were surprising. The fact that positive and negative symptoms were unrelated to dream content in our study differs from findings reported by Hadjez et al. (2), who found a reduction in recollection of dream content among patients with greater numbers of negative symptoms. The different result in our sample could be due to one of a few reasons. First, our patients were on a stable dose of anti-psychotic medications for at least 4 weeks, so the negative symptoms may have resolved to the point that they could recall dream content at a level similar to the healthier participants in our study. Second, our sample of patients with schizophrenia was rather small (n = 18), and we may have had insufficient power to detect differences.

Another surprising trend in the data was the fact that patients with schizophrenia had fewer bizarre elements in their dreams than the other groups, and particularly less than the two mentally healthy groups. This finding corresponds to a recent report from Lusignan et al. (17), who found that 14 patients with schizophrenia reported their dreams as being less bizarre than healthy controls despite the fact that external judges found the two groups to have equal amounts of bizarre elements in their dreams. In other words, the difference in dream content reporting may not have represented actual differences in the dreams but rather differences in how the two groups reported and interpreted their dreams. Future work should consider ways to accurately measure dream content, a particularly complicated task when the only reporter of dreams is the dreamer him/herself, and the dreamer may have odd or inaccurate thoughts and state of mind when suffering from schizophrenia.

In conclusion, it seems that there were some changes in the dream content of the patients with schizophrenia versus healthy controls. Our findings suggested that dream content characteristics in patients with schizophrenia may reflect neurocognitive, psychological, behavioral and emotional processing associated with schizophrenia.

Limitations

This study had some limitations. We had limited power for some analyses. It is suggested that future investigations be carried out with larger sample sizes. We were not able to detect differences with small effect sizes due to poor statistical power in this investigation. Another limitation was that it seems we did not used the best dream content questionnaire. Further, patients with schizophrenia medicated by psychoactive drugs may be considered as another limiting factor preventing a pure assessment of their dream experience. Moreover, it is suggested that future studies use larger cases with better defined groups and standard questionnaires to compare the dream content of medicated and non-medicated patients with schizophrenia.

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