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Adaptation of BRIAN-interview (Ukranian language version) for biological rhythms assessment in acute psychosis patients

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Abstract

Background. In the last years, the scientific interest in studying human biological rhythms have renewed with the increase in number of publications devoted to people's "internal rhythms". For psychological practice, it is necessary to determine the patient's condition qualitatively and quantitatively. So, we offer an adapted Ukrainian language version of the BRIAN-interview. This is a pilot study, aimed to evaluate general structure, reliability, and validity of the scale and its items.

Methods. BRIAN-interview allows to assess the frequency of problems related to the maintenance circadian rhythm regularity in patients with acute psychosis. We have translated English version into Ukrainian and conducted an assessment of the 60 patients with schizophrenia using this scale.

Results. During 6 months patients with psychotic disorders (ICD-10 F20-29) and average age 35.2 years were examined in general psychiatric department. The evaluation was conducted during first 4 days after admission. The total average BRIAN score ranged 41 points. Assessment revealed mild alterations in sleep patterns, daily and social activities, eating habits and chronotype. Determined the clear patterns dependence in different age groups.

Conclusions. The BRIAN-interview (Ukrainian version) results among patients with acute psychosis were obtained. Interview evaluates the biological rhythms of the patient during the last 15 days by major domains: sleep, daily and social activity, diet and identify preferred chronotype.

Keywords: `biological rhythms`, `psychosis`, `BRIAN-interview`, `Scale`, `insomnia`, `schizophrenia`

1 Introduction

Daytime rhythms have a great importance for sleep/waking cycle, body temperature, hormone levels, cognitive functions, and emotions.

According to the Frank et al. (2005) theory [1], biological rhythm disorders are associated with mood disorders and its relapses. Grandin et al. 2006 [2] pointed out that irregular circadian rhythms lead to mood disorders in vulnerable individuals. Some authors drew attention to the relationship between behavior, cognition, affect and impairment of biological rhythms [3],[4], others noted that inner rhythm is essential component of everyday human life [5]. There are evidences that impairment of the biological rhythm predicts

poor functioning and quality of life [6].

In fact, behavioral changes among psychiatric patients, are often observed before exacerbation. As an example - a sleep/waking cycle impairment, i.e., patients sleep in the daytime and, conversely, are active at night. The question is, how daily rhythms affect psychosis and how can we measure this effect?

The study aimed to determine the effect of rhythms in patients with acute psychosis and assess the frequency of problems, associated with maintaining the regularity of circadian rhythm in patients with acute schizophrenia.

2 Materials and methods

For evaluation was used the BRIAN interview (Ukrainian version) - Biological Rhythm Interview of Assessment in Neuropsychiatry.

There are several tools for measuring circadian rhythms. Most of these questionnaires define only one element of circadian rhythms, such as sleep (Brief social rhythm scale or Epworth's sleepiness scale), and, unfortunately, does not take into account other elements needed for optimal circadian rhythm evaluation. Social rhythms include certain events at work, in public, leisure or physical activity. All of these components can affect circadian regularity, which is consistently associated with sleep disturbance. In this context, an adequate understanding of mental factors influence on biological rhythms and the development of specific tools for their evaluation is necessary. Therefore, the BRIAN interview was developed for the clinical evaluation of biological rhythm disturbances (sleep, social activity and nutrition structure) among patients with mental disorders [7].

The BRIAN is a simple questionnaire that is easy to use in a short time and suitable for clinical practice and research. The interview is also useful in clinical studies to assess circadian rhythm.

The five main domains of interviews are described below:

1. Sleep - determines the ability to maintain regular sleep.
2. Activity (daily activity) - determines the capacity to keep the regularity of daily activities, including domestic and work responsibilities, physical activity and sexual relations.
3. Social rhythms - determine the ability to maintain the regularity of social activities and interpersonal relationships.
4. Nutrition - determines the capacity to maintain regular eating habits.
5. Dominant rhythm (chronotype) - determines the choice of work or social behavior during the day or night.

The BRIAN contains five areas that are listed above that can be scored between the maximum of 12 and 20 points for each. In particular, the interview evaluates the frequency of problems associated with maintaining the regularity of the circadian rhythm (for example: Do you have problems with falling asleep at regular time? How often? Elements are evaluated using a 4-point scale: (1) - never, (2) - rarely (3) - sometimes, (4) - often. The overall score is in the range from 1 to 84, the higher scores are associated with more severe circadian impairments.

The interview can be conducted by a psychologist or psychiatrist. Investigated time period refers to the last 15 days before the evaluation. The scores are given at each point. The researcher should evaluate the frequency of difficulties experienced by the patient in comparison with the same sex, age and socio-cultural status healthy person's circadian rhythms.

The scale is currently available in English, Portuguese, and Spanish. We introduce the Ukrainian version (translated by Orlova N., Table 1).

3 Results

The study lasted for six months and was conducted at the Acute Psychoses Department, TMO "Psychiatry," Kyiv. 60 patients with ICD-10 F20-29 diagnostic criteria were evaluated, most of them were diagnosed with acute schizophrenia (F 20.0). The mean patients' age was 35.2 years. Evaluation was carried out in the first four days after hospitalization. To all respondents and their close relatives (in case of full legal capacity loss by the patient) were given informed consent before participation in the study. In general, patients did not have difficulties answering the questions.

Patients were rated in five main BRIAN domains: sleep, daytime and social activity, diet, and dominant rhythm or chronotype.

Below are the results of evaluation among patients with schizophrenia [8] (Fig. 1).

The total average score for the interview was 41 points (max. 84). In patients were noted sleep disorders, i.e., problems with falling or staying asleep. Daytime activity disturbances included difficulties in completing work, household, physical and sexual activities. Among negative diet patterns were noted inappropriately scheduled time, missed meals, excessive stimulants consumption (coffee, coca cola). Disturbances in social activities included difficulties in interactions with family, friends or spouse. The dominant rhythm or chronotype, defined for the last 12 months, was characterized by more vigorous work and overall activity at night. There was noted and inversion of day/night cycle.

The data for investigation of circadian activity, depending on the patients age, are presented in Figure 2 [8].

A clear dependence of the circadian rhythm peculiarities, at all age patient groups, was determined. Among patients under the age of 40 (groups <30 and 31-40) prevailed the inverse day/night cycle, they were more active at night. In addition, these respondents experienced problems in interpersonal communications and relationships. 40-50-year-old patients noticed difficulties in their work, everyday life, and sexual relations. Patients aged 51 and older more often experienced marked day/night cycle alterations.

4 Discussion

In the modern scientific world, the fundamental mechanisms of time "synchronization and sensation" by living organisms are actively discussed. Today it is already known that striatum is an important part of the basal ganglia associated with learning and motor function [9]. Other studies have shown that a corpus striatum is necessary for the normal synchronization behavior among rats [10]. The issue of subjective time perception mechanisms still present. And the search for its evaluation methods, especially among patients suffering from psychotic disorders, remains open and actively studied. In this publication, we made the first step in determining the possibility of using interviews in Ukrainian-speaking patients and obtained the first generalized conclusions from this sample. Our next step will include assessment of this scale's reliability and validity in Ukrainian population.

5 Conclusion

The BRIAN is a simple clinical tool that allows you to evaluate the biological rhythms in mentally ill patients. The interview is useful for assessing the patient's mental condition during the last 15 days prior to admission. In this study BRIAN was translated and adapted for use in Ukrainian population. The interview has shown social activities disorganization, difficulties in communication and interpersonal relationships, alterations in day/night cycle in examined patients. Respondents did not have problems in answering questions. The next step is assessing the reliability and validity of BRAIN in Ukrainian population.

Competing interests

The authors declare that no competing interests exist.

Figure 1: The BRIAN interview assessments.

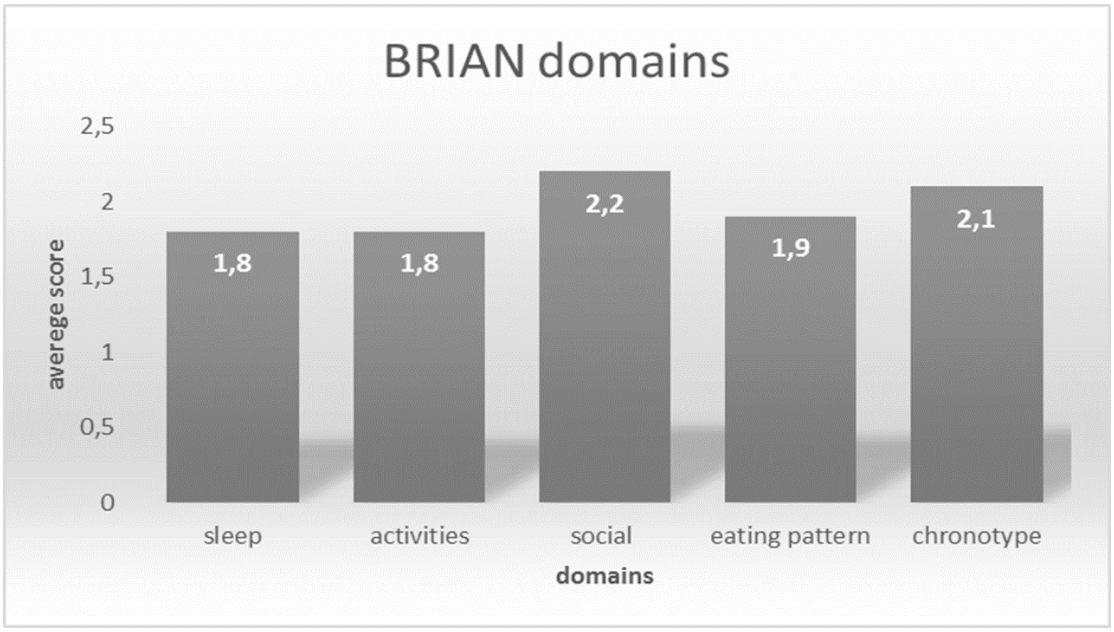

Figure 2: BRIAN interview results in all age groups.

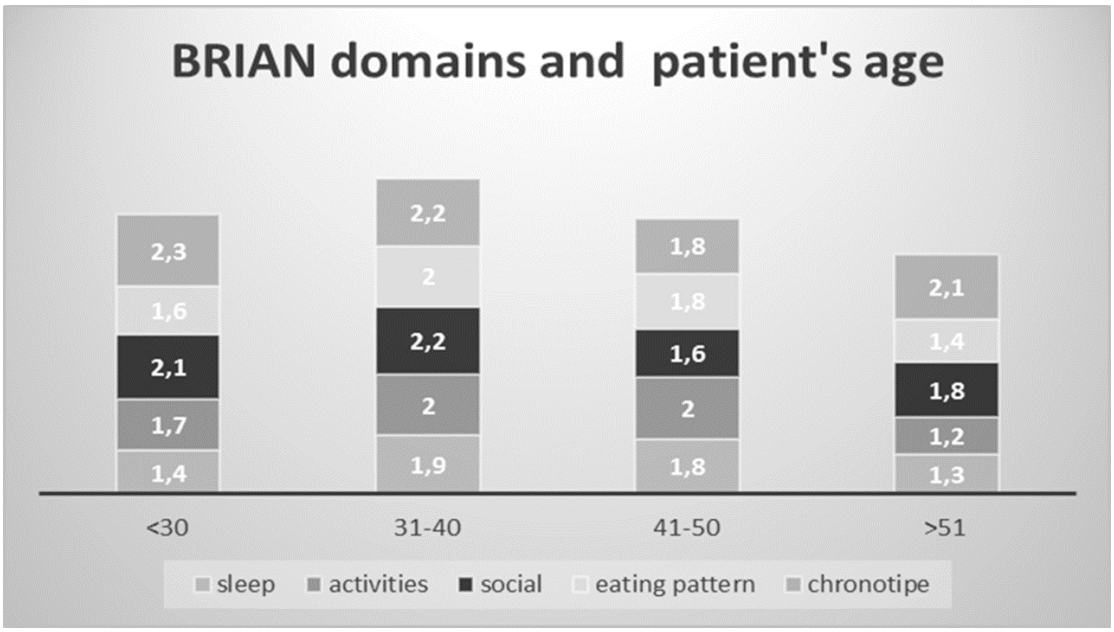

Table 1: Interviews for the assessment of biological rhythms in neuropsychiatry (BRIAN, Ukrainian version).

№	З наведених нижче варіантів, відмітити той, який краще описує стан за останні 15 днів.	ні	рідко	іноді	часто
	Сон				
1	Чи є у вас проблеми з засинанням в звичайний час? Як часто?				
2	Чи тяжко Вам прокидатися в звичайний час? Як часто?				
3	Чи відчуваєте ви труднощі піднятися з ліжка після пробудження? Як часто?				
4	Чи є в вас проблеми з відчуттям відпочинку після сну. (Ви зазвичай відчуваєте себе повним сил і активно займаєтесь повсяденою діяльністю, такою як водіння, робота)? Як часто?				
5	Ви відчуваєте труднощі у «відключенні» під час сну? Як часто?				
	Фізична активність				
6	Чи відчуваєте Ви труднощі в виконанні вашої роботи? Як часто?				
7	Чи є в вас труднощі в виконанні домашніх справ? Як часто?				
8	Чи є у вас труднощі підтримувати в звичайному ритмі фізичну активність (наприклад, знаходження у транспорті або зайнятті спортом)? Як часто?				
9	Чи є у вас труднощі в виконанні вашої повсякденної діяльності в визначенний час? Як часто?				
10	Чи є у вас труднощі з лібідо / сексуальною активністю? Як часто?				
	Соціальна активність				
11	Чи відчуваєте Ви труднощі в спілкування з іншими людьми? Як часто?				
12	Ви все частіше використовуєте електронні прилади (наприклад, телевізор або інтернет), тому менше спілкуєтесь з іншими людьми? Як часто?				
13	Чи є у вас труднощі узгоджувати в часі повсякденне життя і сон та спілкування з важливими людьми (сім'я, друзі, чоловік/дружина)? Як часто?				
14	Чи є у вас час приділяти увагу іншим людям (родичи, друзі, чоловік/дружина)? Як часто?				
	Режим харчування				
15	Чи є у вас труднощі в дотриманні режиму харчування? Як часто?				
16	Ви пропускаєте прийоми їжі? Як часто?				
17	Чи відчуваєте Ви труднощі з використанням визначеної кількості їжі? Як часто?				
18	Чи використовуєте ви харчові стимулятори? (наприклад, кава, шоколад та інші) Як часто?				
	Ритм (Хронотип), який переважає протягом 12ти місяців				
19	Як правило, більш енергійно працюю і спілкуюсь у нічний час.				
20	Відчуваю себе більш продуктивним в першій половині дня.				
21	У мене порушений цикл день-ніч.				

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