



## THE INFLUENCE OF IMPERATIVE HALLUCINATIONS ON SUICIDAL BEHAVIOR OF PATIENTS WITH SCHIZOPHRENIA

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### ABSTRACT

*The article dwells on the influence of auditory pseudohallucinations on suicidal ideation of the patients with schizophrenia.*

*The auditory pseudohallucinations are the most common and clinically significant symptoms of schizophrenia. According to researchers' reports, the auditory pseudohallucinations are among the main factors leading to suicide in schizophrenia. The impact of the auditory pseudohallucinations was investigated on the level of suicidal ideation and the frequency of suicide attempts in patients hospitalized with schizophrenia in the present research. Seventy nine inpatient schizophrenic patients were involved in the study with diagnosis matching ICD-10 criteria. The patients were subjected to clinical examination as well as were assessed by the following questionnaires: The Positive and the Negative Symptoms Scale (PANSS), the Calgary Depression at Schizophrenia Scale (CDSS) and the Montgomery-Asberg Depression Rate Scale (MADRS). The origin of hallucinations: imperative, threatening, accusing, commenting, antagonistic etc., was clarified based on clinical interview.*

*The highest correlation (correlation coefficient – 0.36) with the severity of suicidal ideation and tendencies, assessed with the scale CDSS, has item 3 (hallucinations) of positive symptoms subscale of PANSS. Also statistically significant correlation with the severity of hallucinations was found during the assessment of the same symptoms with MADRS scale (correlation coefficient – 0.29). In addition to hallucinations, a relatively weak, but significant correlation can be traced between suicidal ideas and intensity of delusions. The 8th point of CDSS scale and 10th point of MADRS scale, as items that describe suicidal behavior, are the only ones that correlate with the third item (hallucinations) on the scale of PANSS.*

*Mutual reliability in the assessment of suicidal ideation and actions with the help of two different questionnaires is confirmed by very high coefficient of correlation between points of suicide assessment in both. The levels of suicidal ideation were significantly higher (about 6 times) in patients with imperative hallucinations compared to those who experienced other types of auditory hallucinations. Majority of the patients who attempted suicide had imperative hallucinations despite the total number of patients who had imperative hallucinations, which was less than a half of all selection. Practically all patients who attempted suicide had imperative hallucinations and didn't share it with anyone.*

*Therefore, auditory pseudohallucinations, from all positive symptoms observed in schizophrenia, have the greatest impact on the level of suicidal thoughts and actions. Hallucinations' character has the most important effect on suicidal ideation.*

**KEYWORDS:** schizophrenia, depression, pseudohallucinations, imperative hallucinations, suicide.

### INTRODUCTION

The auditory pseudohallucinations are one of the most common and clinically significant symptoms of schizophrenia. According to reports in scientific literature, the auditory pseudohallucinations are among the factors leading to suicide in schizophrenia. The impact of auditory pseudohallucinations on the level of suicidal ideation and the frequency of

suicide attempts in patients hospitalized with schizophrenia was investigated in present research.

It should be noted that the impact of hallucinations on suicidal ideas and attempts is fairly debated in scientific literature. For example, in a major review, published ten years ago [Hawton K *et al.*, 2005], the auditory hallucinations were not specified among the major clinical manifestations of schizophrenia that increase the risk of the suicide. Hereafter, some researchers also give an overview of the literature data, questioning the role of imperative pseudohallucinations in the de-

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velopment of suicidal ideation [Makara-Studzinska M, Koslak A, 2009].

However, there is a gradual shift of opinion towards the interrelation between hallucinations and suicide over the last few years. Particularly, the presence of intensive auditory hallucinations is one of the most significant factors increasing the frequency of suicide attempts in a large-scale survey [Hor K, Taylor M, 2010]. There is a quantity of data testifying significantly more manifested influence of pseudohallucinations compared with true hallucinations in the stage of acute psychosis or state without hallucinations are accumulated [Penagaluri P et al., 2010].

It is worth mentioning that the case is not just about the number of suicide attempts, but also about suicidal ideation in general. It is not enough to fix only the presence of auditory hallucinations, as their intensity, type (imperative, accusing, blaming, commenting etc.) and specific feeling of being obsessed or exposed, which accompanies auditory pseudohallucinations, have a major impact on the level of suicidal tendencies [Siris S, Acosta F, 2012]. Sufficiently, the high number of verbal pseudohallucinations is also revealed in adolescents who have committed suicide attempts, without previously diagnosed psychotic spectrum disorders [Fujita J et al., 2015].

It should be noted that pseudohallucinations, in comparison with popular belief, do not have depressing impact on patients, which is also confirmed in present study. The reports about the dependence of depression level on positive psychopathological symptoms in patients with schizophrenia and schizophrenic form disorders are rather contradictory, but it is clear that sufficiently convincing interrelation is not revealed between these two phenomena at present [Addington D, 1997; Stamouli S, Martin-Reyes M et al., 2011;

Monestes J et al., 2015]. So, the influence of hallucinations, first of all, is explained by their provocative factors and, particularly by mandatory guidelines to actions aimed to self-harm.

#### MATERIALS AND METHODS

The study included 79 patients (50 men and 29 women) with diagnosis of "Schizophrenia" (F-20 according to ICD-10), which were hospitalized in psychiatric clinics. Patients with a diagnosis of "schizophrenia", who did not fully match with the criteria of ICD-10 on clinical examination, were excluded from the sample. The average age of patients was 45 years. After clinical examination the condition of patients were described and estimated using the following questionnaires: to assess the schizophrenic symptoms – the Positive and the Negative Symptoms Scale (PANSS), to assessment of depression – Calgary Depression at Schizophrenia Scale (CDSS) and the Montgomery-Asberg Depression Rate Scale (MADRS). The origin of hallucinations: imperative, threatening, accusing, commenting, antagonistic etc., was clarified based on clinical interviews. In order to calculate the statistical data the statistical program IBM SPSS Statistics 21.0 was used.

#### RESULTS

As it can be seen from Table 1, the highest correlation with the severity of suicidal ideation and tendencies, assessed with the scale CDSS, has item 3 (hallucinations) of positive symptoms subscale of PANSS. A bit lower, but also statistically significant correlation with the severity of hallucinations was shown while assessment with the MADRS scale. In addition to hallucinations, a relatively weak, but significant correlation can be traced to the intensity of delusions. At the same time, the 8th point of CDSS scale and 10th point of MADRS scale, as items that describe suicidal be-

Link of suicidal ideas with PANSS positive symptoms subscale

Types of depression		P1	P2	P3	P4	P5	P6	P7
CDSS suicide	Correlation	0.287	0.054	0.365	0.110	-0.079	0.077	0.121
	Reability	0.010	0.636	0.001	0.333	0.489	0.500	0.287
MADRS suicide	Correlation	0.303	0.054	0.282	0.038	-0.027	0.026	0.057
	Reability	0.007	0.634	0.012	0.742	0.814	0.818	0.615

TABLE 1.

TABLE 2.

Correlation of suicidal ideas and general depression assessment methods with severity of hallucinations

Types of depression		PANNS hallucinations	CDSS suicide	MADRS suicide	CDSS	MADRS
PANNS hallucinations	Correlation	1	0.365	0.282	0.023	0.190
	Reability		0.001	0.012	0.840	0.094
CDSS suicide	Correlation	0.365	1	0.914	0.590	0.633
	Reability	0.001		<0.001	<0.001	<0.001
MADRS suicide	Correlation	0.282	0.914	1	0.549	0.571
	Reability	0.012	<0.001		<0.001	<0.001
CDSS	Correlation	0.023	0.590	0.549	1	0.681
	Reability	0.840	<0.001	<0.001		<0.001
MADRS	Correlation	0.190	0.633	0.571	0.686	1
	Reability	0.094	<0.001	<0.001	<0.001	

havior, are the only ones that correlate with the third item on the scale of PANSS. Cross significance of the assessment of suicidal ideation and actions of two different questionnaires is confirmed by very high coefficient of correlation between the points of suicide assessment in both (table 2), which is 0.914, i.e., close to absolute. It becomes evident from table 2, that the severity of hallucinatory disorders does not impact on the overall level of depression of patients.

Interesting data are revealed while separating patients with relatively intense hallucinations (at least 4 points per item PANSS, that is "hallucinatory episodes are frequent, but not constant and only slightly affect on ideation and behavior of the patient"), into two groups – with imperative hallucinations (n=18) and any other provocative factors of hallucinations (n=34).

As it can be seen from the figure, there is a significant difference in the level of suicidal ideation at the practically same level of hallucinatory phenomena in both groups: six times higher when evaluated with CDSS scale and five times higher in the evaluation with MADRS scale, than in patients without imperative hallucinations. The difference is explained by the provocative factors of hallucinations. For example, 8 of 18 patients with imperative hallucinations noted that in the course of the disease, "voices" directly or indirectly forced them to commit suicide or self-harm, and

they all receive direct and specific instructions. Particularly, the method and time of doing self-harm was mentioned, generally the actions that made possible to perform those actions without the privity of family members or supervising staff.

Fourteen patients from 27 without significant hallucinations, but experiencing them in the past, noted episodes with imperative hallucinations and 4 of them also received orders to commit suicide or cause serious self-damage during the study. Only one patient out of 79 committed suicidal attempt during the current hospitalization. Nevertheless, 15 patients admitted that they conceived and have made suicide attempts in the past. However, based on the stories of patients, only 6 of them followed through actions aimed to commit suicide. Thus, 12

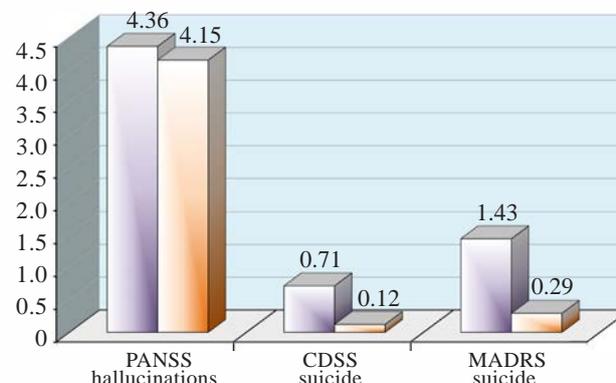


FIGURE. Dependence of suicidal behavior from character of hallucinations.

NOTES: Imperative hallucinations – purple column  
Other hallucinations – orange column

of 15 patients (80%), that made at least unfinished suicide attempts, experienced imperative auditory pseudohallucinations. Wherein, the percentage of surveyed patients with imperative hallucinations from total group is less than half – 32 of 79 (40.5%).

The concern is the fact that 11 of 12 patients who received direct instructions to commit suicide, did not share their thoughts with anyone before the attempt, although all of them were registered at the district psychiatrist and visited him at least once a month if were not staying in hospital at that moment. What is more, seven patients were prohibited by the “voices” to talk about it with anyone. Among the explanations were the following: “I was afraid that I would be hospitalized” (4 patients), “Nobody asked me” (2 patients), “I didn’t attach importance to that” (1 patient). As you can see, it is extremely important not only to be aware of the danger of imperative hallucinations presence, but also make sufficient and qualified efforts to identify them and clarify their provocative factors.

The findings match with the results of study [Wong Z *et al.*, 2013], which states that imperative pseudohallucinations significantly increase the risk of suicide. It is necessary to note that in present sample the number of patients who have committed a suicide attempt ever, is lower than usual: 15 of 79 (19%), with an average of 25-35% [Bouhleb S *et al.*, 2013; Kredentser M *et al.*, 2014; Martin J *et al.*, 2014; Monestès J *et al.*, 2015]. However, these figures are in accordance with the data of general low level of suicides in the country.

In addition to the negative impact of hallucina-

tions at the development of suicidal ideation and implementation of suicide, it is reported about some “protective effect” of actual delusions of persecution and impact, which is explained due to decrease of volitional activity and initiative in patients with an intense delusion [Madsen T, Nordentoft M, 2012]. In present sample, as shown in table 1, a high level of delusion in PANSS scale has a mild positive correlation with suicidal tendencies. However, taking into account that the average term of current hospitalization of studied patients is large enough and is 5.9 months, it can be assumed that the high level of delusion persists mainly in patients with treatment-resistant cases. But in these cases the level of suicidality is significantly higher [Kennedy J *et al.*, 2014; Yahyaten O, 2014], which queries the direct dependence of suicidal ideation severity on the intensity of delusions.

#### CONCLUSION

Auditory pseudohallucinations, from all positive symptoms observed in schizophrenia, have the greatest impact on the level of suicidal thoughts and actions. The most important influence on suicidal ideation has the character of hallucinations. The level of suicidal ideation and actions is substantially higher in the presence of imperative auditory hallucinations than in the absence thereof. Most patients who have attempted suicide, had hallucinations of imperative character, the provocative factors of which is not shared with anyone. Thus, in clinical practice it is necessary to focus on the identification of experienced auditory hallucinations’ character and organization of an appropriate monitoring of patients at high risk of suicide.

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