**Case report** **UDC: 616.895-053.6**
**doi: 10.5633/amm.2023.0412**

# PSYCHOSIS RISK ASSESSMENT FOR ADOLESCENTS IN CLINICAL PRACTICE

*Jelena Kostić[1,2], Olivera Žikić[1,2], Vladimir Djordjević[1,2], Sofija Stevanović[1]*

The importance of Ultra High Risk (UHR) state for psychosis has been increasingly acknowledged to such an extent that Attenuated Psychosis Syndrome (APS) is being considered as a new diagnostic category in the DSM-5. The suggested criteria for attenuated psychosis syndrome presuppose the presence of at least one of three attenuated positive psychotic symptoms (disorganized speech, delusions and/or hallucinations) with a frequency of at least once weekly in the past month. These symptoms would exacerbate in the past year, cause disability, distress or help-seeking behavior, and could not be explained by another mental disorder.

The paper aimed to present the assessment of attenuated psychosis syndrome in a male adolescent aged 17 and its implications in diagnosis and management. Apart from clinical examination, the assessment was performed using the Comprehensive Assessment of At-Risk Mental States (CAARMS version 2006) and the Social and Occupational Functioning Assessment Scale (SOFAS).

Structured assessment of Attenuated Psychosis Syndrome, especially in adolescence, represents a delicate task for mental health professionals. It gives an opportunity to identify high-risk individuals for psychosis, provide early intervention targeting the present symptoms, reduce stress, improve functioning and at least delay the progression to the clinical picture of full-blown psychosis.

*Acta Medica Medianae 2023;62(4):92-97.*

***Key words:*** *psychosis risk, adolescence, attenuated psychosis syndrome, assessment*

[1]University Clinical Centre Niš, Centre of Mental Health Protection, Niš, Serbia
[2]University of Niš, Faculty of Medicine, Niš, Serbia

*Contact:* Jelena Kostić
48 Dr. Zorana Djindjića Blvd., 18000 Niš, Serbia
E-mail: jelenakostic73@gmail.com

## Introduction

Being able to identify and intervene at early stages in the course of psychosis has brought about "close-in" methods for identifying young people with an at-risk mental state for psychosis. The concept “At Risk Mental State” (ARMS) is described as “a state that indicates a high but not imminent risk of developing psychotic disorder in the near future” (1). Individuals in the ARMS can be more precisely defined as being at Ultra High Risk (UHR) state for psychosis (2) with a specific set of criteria known as the Ultra High Risk criteria (UHR criteria). According to Yung et al. (3) UHR criteria involve young individuals, between 14 and 30 years old, reported to meet one of the following criteria—experiencing attenuated positive symptoms during the past year; experiencing Brief Limited Intermittent Psychotic Symptoms (BLIPS) lasting no longer than 1 week and abating spontaneously; or presence of a genetic risk factor (family history of psychosis; schizotypal personality disorder of the individual) in combination with a recent significant drop in psychosocial functioning (GRFD) during the previous year. In general, individuals who present any of these three risk conditions are at risk of developing a psychotic disorder.

The conversion rate in UHR samples to first-episode psychosis, mainly of the schizophrenia spectrum, regardless of applied UHR criteria, was estimated to run from 18% at 6 months, 22% at 12 months, 29% at 2 years, to 36% at 3 years, no matter what psychometric instruments are used (4). About 60% of UHR individuals who do not develop psychosis continue to exhibit subthreshold psychotic symptoms or meet criteria for other mental health disorders (5) with social functioning impairments as common as in other mental disorders (6). Poor social functioning and a drop in social functioning as well as poor cognition have been shown to be predictors of transition to psychosis together with some environmental fac-

tors, primarily trauma, bullying, and cannabis abuse (7 – 9). The conversion rate of psychosis in adolescents is lower and the risk for psychosis is 10.4% at 6 months, 20% at 12 months and 23% at 24 months (10).

The importance of the UHR stage for psychosis has been acknowledged to such an extent that an Attenuated Psychosis Syndrome (APS) is being admitted as a new diagnostic category in the DSM-5 (11). APS and its diagnostic structure reside primarily on the risk criteria from the Structured Interview for Psychosis Risk Syndromes, SIPS (12) and the Comprehensive Assessment of At-Risk Mental States, CAARMS (3) which relate to subthreshold psychotic symptoms and the prodromal states of schizophrenia. The proposed criteria for APS involve the presence of at least one of three attenuated positive psychotic symptoms (disorganized speech, delusions and/or hallucinations), occurring at least once a week in the last month. Furthermore, these symptoms have aggravated in the past year, causing distress, disability, or help-seeking behavior, and are not better explained by another DSM-V disorder (11). APS features often have an onset in adolescence (13, 14) on average, at the age of 15 or 16 (11).

The aim of the paper was to present the APS assessment in a male adolescent aged 17 and to discuss its implications in diagnosis and management. The assessment was conducted at the Child and Adolescent Psychiatry Department of the Centre for Mental Health Protection, University Clinical Centre Niš. Apart from the clinical examination, the following assessments were used: The Comprehensive Assessment of At risk Mental State (the CAARMS 2006 version) and The social and Occupational Functioning Assessment Scale (SOFAS). CAARMS is a semistructured interview designed to assess ultra-high-risk criteria for psychosis and a range of other psychopathological conditions considered to suggest the imminent development of a first-episode psychotic disorder (3). There are seven CAARMS subscales that include: positive symptoms (unusual thought content, non-bizarre ideas, perceptual abnormalities and disorganised speech), cognitive change attention/concentration, emotional disturbances, negative symptoms, behavioural change, motor/ physical changes and general psychopathology. This four positive symptoms are used for the assessment of APS and BLIPS. The intensity and frequency of symptoms are scored on a 7-point Likert scale (ranging from 0 to 6), and distress caused by the symptom is scored on a 0-100 scale. The CAARMS separates three subgroups of patients with an ARMS for psychosis 1) vulnerability group, 2) group 2a—APS (subthreshold intensity) and group 2b—APS (subthreshold frequency) and 3) BLIPS. The CAARMS is designed for repeated use over time, for example monthly to six-monthly.

To assess the drop in global patients functioning we used the Social and occupational functioning assessment scale (SOFAS).

**Case presentation**

We presented a case of 17-year-old NN male attending the third, final year of vocational chemistry high school, living with his parents in an urban environment. He said at the time of his interview that he visited a psychiatrist for the first time and that he would have come earlier “to require help”, but his movement and contact with health services were limited because of the COVID-19 Pandemic. His parents stated that the adolescent had exhibited changes in behavior in the previous year but those changes were tolerated and considered to be a consequence of growing up and puberty. The mother said that the adolescent had occasionally complained of hearing voices but she thought that he was dreaming them. The adolescent claimed to have been feeling tense, empty and languorous for a prolonged period of time (over 6 months). He did not complete his school duties regularly and he would often skip school. He was "under very high pressure" at school and had “unusual experiences” there. Multiple times a week during school time, he was afraid that his classmates controlled his thoughts, but wondered if they could do it and if they could know his thoughts. That experience, he stated, had caused severe anxiety. He often believed to be the center of their interest, he was suspicious of their intentions and occasionally thought they were fixing him bad grades. Being in their company provoked tension, impending danger and increased anxiety. He neglected school material, but he was interested in and read philosophical works and topics related to the occult. He revealed that he had had a serious alcohol intoxication a few months before, which required a one-day hospital treatment. He stated that he had occasionally used alcohol with alprazolam "to calm down". He had previous experience with occasional cannabis abuse, but stated that he had not used it in the previous six months. He often engaged in self-harm, he cut himself with a razor and put out cigarettes on his arms to relieve tension, but as he stated, “self-harm does not bring me relief as before”. He heard voices that were getting more intense in the last two months, usually in the evening, before going to bed, and intermittently—at times almost daily, and at other times he did not hear them at all. The voices he heard were male, and came from the outside as if someone was saying them in his ear, sometimes there was one, sometimes more; the voices repeated his thoughts "to hurt someone mentally or physically" or repeated parts of the conversation he had during the day. He believed that everyone had voices like the ones he heard, but he got used to them, did not fear them, but was afraid that he might obey them. He also stated that he had been struggling with them

more and more and that he believed that there was a high probability of acting upon them. The adolescent reported having had difficulties to fall asleep, it took him more than an hour to fall asleep and he woke up early in the morning (around 3 – 4 am), not being able to fall asleep until he went to school. He had nightmares, but he did not want to talk about their content because they were filled with aggression. He was feeling indisposed, irritable, easily aggravated and angry lately, which was why he came into conflict with the people around him. During the first term at school, his conduct grade was reduced and he was reprimanded by the school principal. He admitted having had suicidal thoughts and considered ways to commit suicide, but still had no definite plan.

Personal history showed that he was the only child of his parents, without any significant behavioral and emotional problems in his early life years. The family denied the existence of any previous stress situations in the family or at school. There were difficulties adapting to peer groups during growing up. Family history showed no records of psychiatric heredity.

## Discussion

Diagnostic and clinical assessment of individuals with suspected UHR state for psychosis often requires extensive backing information to distinguish the often nuanced symptoms in the prodromal period and differentiate not only psychosis from prodrome but also prodrome from normal adolescent behavior (15). The psychopathology described in the aforementioned presentation fulfils the criteria for APS. Considering the CAARMS criteria subscales, the psychopathology meets score 4 (moderately severe) on unusual thought content due to the fact that he has ideas that other people have particular and unusual significance and feels that his experiences may be coming from outside. There is a score 3 on the frequency and duration scale as the psychopathological symptoms occur 3 to 6 times a week—less than one hour per episode. Non-bizarre ideas that included increased self-consciousness and suspiciousness were present as moderate (score 3) and their frequency and duration were twice a week over one hour per occasion. On the perceptual abnormalities scale, the symptoms were rated with a 4 (moderately severe) as attenuated range, given that the adolescent confirmed auditory changes and was able to give plausible explanations for these experiences. The frequency and duration were rated as 3 due to the fact that symptoms occur 3 to 6 times a week and last less than one hour per occasion. It was estimated that the above mentioned positive symptoms had no relation to substance abuse and the level of distress was nearly 80% in relation to symptoms. There was no evidence of disorganization of thoughts. Although the process was coherent throughout the interview, the assessed adolescent was engaged and was able to answer questions and recall his past without difficulties. He maintained good eye contact.

Given that psychopathology symptoms started within the past year, occurred at least once a month to twice a week and lasted over one hour per occasion or at least 3 to 6 times a week and lasted less than one hour per occasion, caused distress and were irrespective of relation to substance abuse or another mental disorder, these symptoms qualify for an APS. More precisely, these symptoms qualify as—attenuated psychosis group 2a/subthreshold intensity. Subthreshold intensity is defined over Global Rating Scale Score of 3 – 5 on Unusual Thought Content Subscale, 3 – 5 on Non-Bizarre Ideas Subscale, 3 – 4 on Perceptual Abnormalities Subscale or 4 – 5 on Disorganized Speech Subscale plus Frequency Scale Score of 3 – 6 on Unusual Thought Content, Non-Bizarre Ideas, Perceptual Abnormalities or Disorganised Speech for at least a week. Considering the patient's social and occupational functioning due to these mental health problems, we calculated a 30% drop in SOFAS score from premorbid level, sustained for a month within the past year (in the past year his highest score was 80 and the current was estimated at 50).

APS in adolescence is associated with a high level of internalizing symptoms, bullying, substance abuse, and comorbid mental disorders (6, 16, 17). In this case, the adolescent showed self-harm behavior and suicidal ideation. Literature notes that adolescents with APS have a high prevalence of self-harm behavior and suicidal ideation (65.70%), as well as a significantly higher incidence of suicide attempts (18.5%) compared to adolescents with psychosis (18). High prevalence of suicidal ideation and risk of self-harm are similar among adolescents and adults with APS (19). High suicidality may precede the first psychotic episode in both groups (19). The profile and presentation of negative symptomatology (e.g. social withdrawal) in adolescents, aged 13 to 18, with APS is similar to that in young people with a first psychotic episode (18). Children and adolescents with APS show a significant prevalence of negative symptoms combined with significant functional impairment, as it is in adults (19).

Studies examining the treatment for individuals at UHR state, including both UHR individuals and first episode psychosis, show that treatment modalities vary significantly and include cognitive remediation, family interventions, cognitive behavior therapy (CBT), integrative psychological therapy, antipsychotics, omega-3 fatty acids, glycine and d-serine, as well as combinations of these interventions (20). Treatments target existing symptoms, improve functioning, reduce stress and regulate potentially emerging diseases. There is a lot of evidence that places CBT as the most successful treatment of UHR individuals (21, 22). EPA also recommends CBT as the first-choice therapy in adult clinical high-risk patients. In cases where psychological interventions are insufficient, these are combined with a low-dose second-generation antipsychotic to manage symptoms and prevent first-episode psychosis (FEP) (23).

## Conclusion

Psychosis risk assessment using both clinical experience and screening instruments can be challenging for mental health professionals. This is especially relevant for adolescence, when changes in emotional well-being and functioning are frequent and when nuanced symptoms in the prodromal period need to be differentiated not only from mental disorders but also from normal adolescent behavior. The CAARMS relies on the frequency of psychopathological symptoms, recent onset or worsening as well as distress or impairment to differentiate threshold-attenuated psychotic symptoms from typical and subthreshold experiences. It is important to note that psychosis risk assessment does not end with the completion of CAARMS or other screening instruments. Monitoring the psychopathology symptoms and the development of the clinical manifestation, comorbid disorders, and the effects of social-risk factors in all developmental stages of UHR individuals allows timely interventions that could delay, improve or even prevent the progression to a fully manifested psychotic disorder.

**References**


1. Chow J, Kabani R, Lithgow K, Sarna MA. Yung AR, McGorry PD. The prodromal phase of first-episode psychosis: past and current conceptualizations. Schizophr Bull 1996;22(2):353-70. [CrossRef][PubMed]
2. Miller TJ, McGlashan TH, Rosen JL, Cadenhead K, Cannon T, Ventura J. et al. Prodromal assessment with the structured interview for prodromal syndromes and the scale of prodromal symptoms: predictive validity, interrater reliability, and training to reliability. Schizophr Bull 2003; 29(4):703-15. [CrossRef][PubMed]
3. Yung AR, Yuen HP, McGorry PD, Phillips LJ, Kelly D, Dell'Olio M et al. Mapping the onset of psychosis: the comprehensive assessment of at-risk mental states. Aust N Z J Psychiatry 2005; 39(11-12):964–71. [CrossRef][PubMed]
4. Fusar-Poli P, Bonoldi I, Yung AR, Borgwardt S, Kempton MJ, Valmaggia L. et al. Predicting psychosis: meta-analysis of transition outcomes in individuals at high clinical risk. Arch Gen Psychiatry 2012;69(3):220-9. [CrossRef][PubMed]
5. Addington J, Stowkowy J, Liu L, Cadenhead KS, Cannon TD, Cornblatt BA et al. Clinical and functional characteristics of youth at clinical high-risk for psychosis who do not transition to psychosis. Psychol Med 2019; 49(10):1670-77. [CrossRef][PubMed]
6. Fusar-Poli P, Salazar de Pablo G, Correll CU, Meyer-Lindenberg A, Millan MJ, Borgwardt S et al. Prevention of Psychosis: advances in detection, prognosis, and intervention. JAMA Psychiatry 2020;77(7):755-65. [CrossRef][PubMed]
7. Fusar-Poli P, Rocchetti M, Sardella A, Avila A, Brandizzi M, Caverzasi E. et al. Disorder, not just state of risk: meta-analysis of functioning and quality of life in people at high risk of psychosis. Br J Psychiatry 2015;207(3):198-206. [CrossRef][PubMed]
8. Carrión RE, Auther AM, McLaughlin D, Olsen R, Addington J, Bearden CE et al. The global functioning: social and role scales-further validation in a large sample of adolescents and young adults at clinical high risk for psychosis. Schizophr Bull 2019;45(4):763–72. [CrossRef][PubMed]
9. Koutsouleris N, Kambeitz-Ilankovic L, Ruhrmann S, Rosen M, Ruef A, Dwyer DB et al. Prediction models of functional outcomes for individuals in the clinical high-risk state for psychosis or with recent-onset depression: a multimodal, multisite machine learning analysis. JAMA Psychiatry 2018;75(11):1156–72. [CrossRef][PubMed]
10. Catalan A, Salazar de Pablo G, Vaquerizo Serrano J, Mosillo P, Baldwin H, Fernández-Rivas et al. Annual Research Review: Prevention of psychosis in adolescents - systematic review and meta-analysis of advances in detection, prognosis and intervention. J Child Psychol Psychiatry 2021;62(5):657-73. [CrossRef][PubMed]
11. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition. Washington, DC: American Psychiatric Association; 2013. [CrossRef]
12. Miller TJ, McGlashan TH, Woods SW, Stein K, Driesen N, Corcoran CM, et al. Symptom assessment in schizophrenic prodromal states. Psychiatr Q 1999;70(4):273-87. [CrossRef][PubMed]
13. Arango C. Attenuated psychotic symptoms syndrome: how it may affect child and adolescent psychiatry. Eur Child Adolesc Psychiatry 2011;20(2):67–70. [CrossRef][PubMed]
14. Ziermans TB, Schothorst PF, Sprong M, van Engeland H. Transition and remission in adolescents at ultra-high risk for psychosis. Schizophr Res 2011;126:58–64. [CrossRef][PubMed]
15. Cadenhead KS, Mirzakhanian H. A Case of Attenuated Psychosis Syndrome: A Broad Differential Diagnosis Requires Broad-Spectrum Treatment. Am J Psychiatry 2016;173(4):321-9. [CrossRef][PubMed]
16. Kraan T, Velthorst E, Smit F, de Haan L, van der Gaag M. Trauma and recent life events in individuals at ultra high risk for psychosis: review and meta-analysis. Schizophr Res 2015;161(2-3):143-9. [CrossRef][PubMed]
17. Fusar-Poli P, Borgwardt S, Bechdolf A, Addington J, Riecher-Rössler A, Schultze-Lutter F, et al. The psychosis high-risk state: a comprehensive state-of-the-art review. JAMA Psychiatry 2013;70(1):107-20. [CrossRef][PubMed]
18. Poletti M, Pelizza L, Azzali S, Paterlini F, Garlassi S, Scazza I et al. Clinical high risk for psychosis in childhood and adolescence: findings from the 2-year follow-up of the ReARMS project. Eur Child Adolesc Psychiatry 2019:28(7):957-71. [CrossRef][PubMed]
19. Taylor PJ, Hutton P, Wood L. Are people at risk of psychosis also at risk of suicide and self-harm? A systematic review and meta-analysis. Psychol Med 2015;45(5):911- 26. [CrossRef][PubMed]
20. Addington J, Devoe DJ, Santesteban-Echarri O. Multidisciplinary Treatment for Individuals at Clinical High Risk of Developing Psychosis. Curr Treat Options Psychiatry 2019;6(1):1-16. [CrossRef][PubMed]
21. Addington J, Epstein I, Liu L, French P, Boydell KM, Zipursky RB. A randomized controlled trial of cognitive behavioral therapy for individuals at clinical high risk of psychosis. Schizophr Res 2011;125(1):54-61. [CrossRef][PubMed]
22. Bechdolf A, Wagner M, Ruhrmann S, Harrigan S, Putzfeld V, Pukrop R et al. Preventing progression to first-episode psychosis in early initial prodromal states. Br J Psychiatry 2012;200(1):22-9. [CrossRef][PubMed]
23. Schmidt SJ, Schultze-Lutter F, Schimmelmann BG, Maric NP, Salokangas RK, Riecher-Rossler A et al. EPA guidance on the early intervention in clinical high risk states of psychoses. Eur Psychiatry 2015;30(3):388–04. [CrossRef][PubMed]

**Prikaz bolesnika** **UDC: 616.895-053.6**
**doi: 10.5633/amm.2023.0412**

# PROCENA RIZIKA ZA POJAVU PSIHOZE KOD ADOLESCENATA U KLINIČKOJ PRAKSI

*Jelena Kostić[1,2], Olivera Žikić[1,2], Vladimir Đorđević[1,2], Sofija Stevanović[1]*

[1]Univerzitetski klinički centar Niš, Centar za zaštitu mentalnog zdravlja, Niš, Srbija
[2]Univerzitet u Nišu, Medicinski fakultet, Niš, Srbija

Kontakt: Jelena Kostić
Bulevar dr. Zorana Đinđića 48, 18000 Niš, Srbija
E-mail: jelenakostic73@gmail.com

Važnost stanja povišenog rizika (engl. *Ultra Hight Risk* – UHR) za pojavu psihoze prepoznata je do te mere da se sindrom atenuisane psihoze smatra novom dijagnostičkom kategorijom u DSM-5 klasifikaciji. Predloženi kriterijumi za sindrom atenuisane psihoze zahtevaju prisustvo najmanje jednog od triju pozitivnih psihotičnih simptoma (sumanutosti, halucinacije, dezorganizovanog govora) u oslabljenom obliku, ispoljenog najmanje jednom nedeljno u poslednjih mesec dana. Da bi se govorilo o sindromu atenuisane psihoze, potrebno je da je u poslednjih godinu dana došlo do pojave ili pogoršanja simptoma i da simptomi uzrokuju uznemirenost i onesposobljenost osobe koja ih doživljava, kao i traženje pomoći. Jedan od uslova za postavljanje ove dijagnoze jeste i nemogućnost boljeg objašnjenja navedenih simptoma nekim drugim (DSM-5) mentalnim poremećajem.

U radu je prikazana strukturirana procena sindroma atenuisane psihoze kod sedamnaestogodišnjeg adolescenta i diskutovano je o njenim implikacijama u dijagnostici i tretmanu. Za procenu su, pored kliničkog pregleda, korišćene Sveobuhvatna procena rizičnog mentalnog stanja (engl. *The Comprehensive Assessment of At-risk Mental States* – CAARMS, version 2006) i Skala procene društvenog i profesionalnog funkcionisanja (engl. *The Social and Occupational Functioning Assessment Scale* – SOFAS).

Procena sindroma atenuisane psihoze, posebno u adolescenciji, delikatan je zadatak za stručnjake za mentalno zdravlje. Značajno je da ona daje mogućnost da se identifikuju visokorizične osobe, da se rano interveniše ciljanjem prisutnih simptoma, da se smanji stres, da se poboljša funkcionisanje i spreči ili makar uspori progresija psihotičnih simptoma do jasno ispoljene kliničke slike psihoze.

*Acta Medica Medianae 2023; 62(4):92-97.*

***Ključne reči**: rizik za pojavu psihoze, adolescencija, sindrom atenuisane psihoze, procena*