



Risk of suicide among young patients with psychotic experiences in a mental health clinic

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【Background】 Recent studies suggested psychotic experiences could be a risk for suicide among youth. However, there has been a lack of clinical research, particularly, in Asia.

And, any studies have not examined the associations between psychotic experiences and suicidal behaviors considering the effect of psychopathologies which are also known as risk for youth suicide.

【Aims of study】 This was a cross-sectional study in child and adolescent mental health settings. We investigated the association for suicidal ideation with depression, deliberate self-harm behavior, and auditory hallucination. Then, we also investigated the association for suicidal attempt with depression, deliberate self-harm behavior, and auditory hallucination among patients with suicidal ideation.

【Methods】 We conducted a cross-sectional study of 814 first referrals aged 10-15 years in psychiatric clinics of Kanagawa Children's Medical Center (KCMC), and Yokohama City University Medical Center (YCUMC), which are public hospitals located in Yokohama city, suburb of the capital city of Japan. 623 first referrals attended at KCMC between December 2010 and November 2012 (24 months-timeframe), 191 first referrals attended at YCUMC between December 2011 and November 2012 (12 months time-frame). We administered a battery of self-report questionnaires to consecutive participants to measure suicidal ideation and attempt, auditory hallucination as a proxy for psychotic experience, deliberate self-harm behavior, and depression by single items as follows. And, as other variables, we collected data of age, sex, family status from medical records. The study was approved by the ethics committee of KCMC and YCUMC.

Inclusion criteria of this study is as follows.

- 1) patients with any psychiatric disorders diagnosed by the International Statistical Classification of Disease 10th Revision (ICD-10) except mental retardation (F00-69, 80-99).
- 2) patients who could complete the self-reported questionnaires on the subject of necessary information for this study.

Finally, 121 patients were excluded by criteria 1, 88 patients were excluded by criteria 2. Remaining 605 patients were analyzed.

Self-reported questionnaires for first referrals aged 10-15 years

Auditory hallucination; "Over the last 2 weeks, have you ever heard voices that no one else can hear?" ["no", "yes, likely" and "yes, definitely"] "yes, definitely" defined as positive.
 Suicidal ideation; "Over the last 2 weeks, have you ever felt you want to die?" [%yes+or %no+] "yes" was defined as positive.
 Suicidal attempt; "Over the last 2 weeks, have you ever attempted suicide?" [%yes+or %no+] "yes" was defined as positive.
 Deliberate self-harm behavior; "Over the last 2 weeks, have you ever intentionally hurt your body?" [%yes+or %no+] "yes" was defined as positive.
 Depression (Patient health questionnaire 2 items; PHQ-2);
 "Over the last 2 weeks, how often have you been bothered by the following problems?"
 Question 1 "Have you ever felt little interest or pleasure in doing things?"
 Question 2 "Have you ever felt being down, depressed, or hopeless?"
 [0; "not at all," 1; "at several days," 2; "more than half the days," 3; "nearly every day"]
 Cutoff point was 3 to define depressive state according to the previous study.

【Statistical analysis】 First, we described demographic characteristics. Second, we calculated the prevalence of suicidal ideation among patients with 1) depression (PHQ-2 \geq 3), 2) deliberate self-harm behavior and 3) auditory hallucination. Both of three groups were analyzed using chi-square test. And, the odds for having suicidal ideation were estimated using logistic regression analysis. Third, stratified analysis was conducted for patients with suicidal ideation to reveal the odds for suicidal attempt. For stratified-analysis, we repeated the same procedure. We defined the level of significance at $\alpha=0.05$. Analyses were performed using SPSS, version 22.0

【Discussion】

~ Strength & Limitation ~

- ★ This was the first clinical study investigated the association of auditory hallucination and suicidal behavior among young psychiatric patients in Asia.
- ★ We conducted analysis with large number of data than the previous studies.
- ★ This was a cross sectional study not conducted in a longitudinal manner.
- ★ We could not assess specific diagnosis, severity of suicidality, anxiety, or depression using the structured interview, or detailed screening questionnaire.
- ★ We could not confirm the content and quality of auditory hallucinatory experience, for instance, omnipotence, malevolence, dissociative tendency among patients.

【Results】

Table1. Sample characteristics

	n = 605	(%)
Depression (PHQ-2 \geq 3)		
Positive	186	30.7
Deliberate self harm behavior (DSH)		
Positive	104	17.2
Auditory hallucination (AH)		
Yes	78	12.9
Suicidal orientation		
no suicidality	419	69.3
suicidal ideation without suicidal attempt	117	19.3
suicidal ideation with suicidal attempt	69	11.4

Female patients were 295 (48.8%). Patients with both parents were 447(73.9%). Patients belonging elementary school were 235 (38.8%), and others were junior high school students.

Fig.1. The prevalence of suicidal ideation with each psychopathology (N=605)

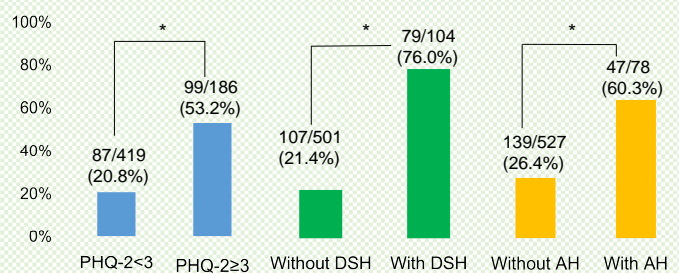


Table2. The odds for suicidal ideation with each psychopathology

Explanatory variables	Odds for suicidal ideation (N=605)	
	Crude OR (95% CI)	Adjusted OR (95% CI) ^a
Depression (PHQ-2 \geq 3)	4.3 (3.0-6.3)*	3.9 (2.6-6.0)*
Deliberate self-harm behavior	11.6 (7.1-19.1)*	9.3 (5.4-16.1)*
Auditory hallucination	4.2 (2.6-6.9)*	2.5 (1.4-4.5)*

Fig.2. Prevalence of suicide attempt among patients with each psychopathologies, stratified analysis for patients with suicidal ideation (N=186)

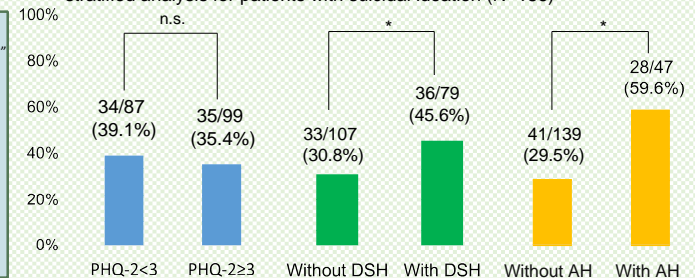


Table3. The odds for suicide attempt among patients with each psychopathologies, stratified analysis for patients with suicidal ideation

Explanatory variables	Odds for suicidal attempt (N=186)	
	Crude OR (95% CI)	Adjusted OR (95% CI) ^a
Depression (PHQ-2 \geq 3)	0.9 (0.5-1.5) ^{n.s.}	0.8 (0.4-1.4) ^{n.s.}
Deliberate self-harm behavior	1.9 (1.0-3.4)*	1.7 (0.9-3.3) ^{n.s.}
Auditory hallucination	3.5 (1.8-7.0)*	3.2 (1.6-6.6)*

Note: OR=Odds ratio n.s.= not significant * p<0.05
^a The 3 explanatory variables and 3 covariates (school grade, gender, family status) were simultaneously entered into the model.

~ Significant findings ~

- ★ The odds for suicidal ideation were significantly higher among patients with depression, deliberate self-harm behavior, and auditory hallucination.
- ★ Among patients with suicidal ideation, the odds for suicidal attempt were significantly higher among patients only with auditory hallucination, but with depression, and deliberate self-harm behavior.

~ Conclusion ~

- ★ Clinicians should make more vigilance to auditory hallucination as a risk factor for suicide among child and adolescent patients with suicidal ideation.