

# Cerumen Impaction in Patients with Schizophrenia

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## Abstract

Cerumen impaction may cause hearing loss and pain. We investigated the prevalence of cerumen impaction in a population of outpatients with schizophrenia spectrum psychoses and studied factors contributing to it. As a part of our study—"The Living Conditions and Physical Health of Outpatients with Schizophrenia"—we performed a thorough medical examination including otoscopy of the ear canal for patients treated in the community mental health center of one Finnish municipality. Out of a total of 61 patients, cerumen impaction was found in 12 (19.7%). In a logistic regression model, living in a group home (OR 13.7, 95% confidence interval 3.0–64.0,  $p=0.0008$ ) significantly predicted cerumen impaction. Cerumen impaction was also associated with male gender and lower GAF scores. Cerumen impaction is common in patients with schizophrenia, and is associated with low level of functioning. Diagnosis and treatment of cerumen impaction among schizophrenia patients is essential in avoiding this easily treatable cause of hearing loss and its consequences such as difficulties in cognition and social interaction.

**Key Words:** Cerumen, Ear, Hearing, Schizophrenia, Group Homes

## Introduction

Schizophrenia patients have been shown to suffer from several somatic complaints. Lately, research has mainly focused on life-threatening and metabolic diseases (1). Less severe somatic conditions that may also have adverse effects on patients' well-being mostly have been overlooked. There is some evidence of association between psychosis and deafness or impaired hearing. In population-based studies, impairments in hearing have been linked to an elevated risk of

developing schizophrenia or experiencing psychotic symptoms such as hallucinations and/or delusional ideations (2, 3).

Cerumen (earwax) consists of ear canal's glandular secretions along with exfoliated squamous epithelial cells, and it may obstruct the ear canal causing cerumen impaction (CI). The diagnosis of CI is made when an accumulation of cerumen causes symptoms that prevent a needed assessment of the ear(s) (4). The prevalence of CI is 2–6% in the general population (5). Among many other symptoms, CI can cause significant conductive hearing loss (6). Impairment in hearing can, in turn, lead to difficulties in communication with others, cognitive decline, depression, paranoid tendencies and poorer quality of life (7). Previously, CI has been shown to be more common in the elderly living in nursing homes and in patients with mental retardation (8, 9). The aim of this study was to assess the prevalence and determinants of CI in outpatients with schizophrenia.

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Submitted: October 6, 2011; Revised: February 8, 2012;

Accepted: February 9, 2012

## Methods

As a part of our study—“The Living Conditions and Physical Health of Outpatients with Schizophrenia”—we offered a thorough medical examination for all patients treated in the psychosis rehabilitation clinic of the community mental health center in the municipality of Mäntsälä, Finland. This clinic provides outpatient care for all patients with chronic psychotic disorders in the area. The study protocol was approved by the Ethics Committee of the Hospital District of Helsinki and Uusimaa and by Hyvinkää Hospital Area.

non-organic psychotic disorders (F29) were reassessed by an experienced psychiatrist (ES).

Differences in mean age and GAF scores between patients with or without CI were compared using the t-test, and for studying differences in gender distribution and living arrangements between the groups the  $\chi^2$ -test was used. Logistic regression with backward selection was applied to investigate which of these variables predicted CI. All statistical analyses were performed with SAS software, version 9.2 for Windows.

Variable	Cerumen Impaction	No Cerumen Impaction	T-Test (cont.) or $\chi^2$ -Test (cat.)	d.f.	P-Value
<b>Sex</b>					
Male	10	25	4.12	1	0.043
Female	2	24			
<b>Living conditions</b>					
Group home	9	8	16.5	1	<0.0001
Living with families or alone	3	41			
<b>Age, years</b>	49.8 (SD 9.0)	43.7 (SD 12.5)	1.57	59	0.12
<b>GAF score</b>	42.4 (SD 13.8)	57.6 (SD 12.5)	-3.57	59	0.0007

The recruitment procedure consisted of an invitation letter and a telephone call to all patients treated at the clinic. Of the eligible 82 patients, 61 (35 men) completed the study protocol, the participation rate being 74.4%. After complete description of the study to the participants, written informed consent was obtained. The mean age of the participants was 44.9 years (95% CI 24.5–68.0). All patients were Caucasian, 75% (n=46) had schizophrenia, 13% (n=8) had schizoaffective disorder and another 11% (n=7) had other schizophrenia spectrum psychoses. All patients reported use of antipsychotic medication, and 54% of the study group reported use of second-generation antipsychotics. Nineteen patients (31%) lived in a group home and the rest lived with their families or alone. The data were collected between June 2009 and February 2010.

A general practitioner (SE) performed a comprehensive physical examination, including an otoscopy of the ear canal to determine the presence of CI. Background data were gathered by interviews and from patient files. The procedure was adapted from the Health 2000 Survey, a large general population study conducted in Finland (10). Global Assessment of Functioning (GAF) (11) was evaluated by specially trained nurses. Patients' psychiatric diagnoses (ICD-10 classification) were clinical diagnoses. Diagnoses of unspecified,

## Results

CI in one or both ears was found in 12 (19.7%) of 61 patients. It was more common in men than women, and patients with CI had lower GAF scores and were more likely to live in a group home (see Table 1). In the logistic regression model, CI was significantly predicted by living in a group home (OR 13.7, 95% confidence interval 3.0–64.0,  $p < 0.001$ ), whereas the other variables were not statistically significantly associated with CI.

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## Discussion and Conclusions

In our study we found high prevalence of CI in a population of outpatients with schizophrenia spectrum psychoses. Males who lived in group homes and had low GAF scores were especially prone to it. This finding has important practical implications as CI can cause hearing loss, and difficulties in hearing substantially affect schizophrenia patients' often already impaired ability to interact socially.

Pain is a common symptom related to CI (5). Schizophrenia patients have been found to be less sensitive to pain, and this has been considered to be one of the reasons of their higher risk for physical morbidity and even mortality (12). Also, the patients' inability to notice their ear problems could be partly explained by the same phenomenon since only one of the patients with the diagnosis of CI had noticed symptoms related to it (loss of hearing and dizziness). Our results indicate that a clinician cannot only rely on a schizophrenic patient's self-report of physical symptoms, especially when there are known patient-related barriers to physical care (e.g., deficits in cognition and psychosocial functioning and inability in describing medical problems) (13).

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There are some weaknesses in this study. The sample size is relatively small, causing limitations in the generalizability of the results. Another limitation is the absence of audiometric evaluation. CI is known to cause hearing impairment (6), and it is reasonable to assume that our patients also had difficulties in hearing due to it. The causality between CI and living in group homes found in this study is unclear. Brewer et al. (14) reported in a sample of schizophrenic in-patients an association between negative symptoms and poor self-care. Residency in a group home points to a more severe form of the psychiatric disease and a higher need of assistance in daily living. It is possible that in our study group CI resulted partly from problems with self-care. In fact, 33.3% of patients with CI reported problems in washing themselves, compared to 12.2% of patients without CI (Fisher's exact test  $p=0.077$ ). These findings point out the need of paying more attention to functions of daily living, including personal hygiene and also proactive behavior from personnel in taking care of physical problems among schizophrenia patients living in group homes.

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Our finding indicates that an otoscopic examination of

the ear canal should be a routine procedure in the annual medical check-up for a schizophrenic patient. CI can often be easily removed by using cerumenolytic agents, by external auditory canal irrigation or by manual removal other than irrigation (4). Removal of impacted cerumen has been shown to improve hearing in a general population sample (6) and to improve cognition in the elderly (15). Avoiding conductive hearing loss by treatment of impacted cerumen is a simple intervention to improve the quality of life of schizophrenic patients.

## Acknowledgments

This study was supported by the Hyvinkää Hospital Area and by an unrestricted research grant from Lundbeck Inc., the Finnish Foundation for Psychiatric Research and the Emil Aaltonen's Foundation. Funding sources had no further role in study design; in the collection, analysis and interpretation of data; in the writing of the report; and, in the decision to submit the paper for publication.

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