

## Research Article

# Schizophrenic Patients' Poor Perception in Personal Hygiene

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### ABSTRACT

People suffering from schizophrenia are generally unconcerned with personal hygiene. This state often results in an increase in contracting diseases and infections. In this research, we conducted a cross-sectional study of 122 DSM-IV-diagnosed schizophrenic patients at national Changhua hospital in central Taiwan. All patient participants filled out a questionnaire regarding their self-perceptions regarding their personal hygiene. Then, nurses who cared for these patients assessed their personal hygiene, paying special attention to their hair, fingernails, bodies, mouths, faces, and clothing. The results showed that there was a negative relationship between the patients' personal perceptions and the nurses' assessments ( $r = -0.41$ ,  $p < 0.05$ ). More specifically, the chronic schizophrenic

patients showed a significant negative correlation between their own perceptions and the nurses' assessments ( $r = -0.48$ ,  $p < 0.05$ ) when compared to the acute schizophrenic patients ( $r = -0.196$ ). Additionally, multiple regression models demonstrated that schizophrenic patients who were well-educated believed their personal hygiene was very good, even though the nurses assessed their hygiene as poor. The authors believe that schizophrenic patients should be encouraged to maintain good personal hygiene while hospitalized in order to decrease the risk of contracting diseases and infections.

**MeSh Headings/Keywords:** Personal hygiene; Schizophrenia; Perceptions; Personal hygienic

### Introduction

Schizophrenia is a chronic and debilitating neuropsychiatric disorder, characterized by heterogeneous symptoms, including positive symptoms (e.g., delusions, hallucinations, and disorganized thoughts) and negative symptoms (e.g., flattened affect, poverty of speech, and social withdrawal) [1]. Patients with Schizophrenia typically have poor grooming and self-care skills, which affect their social relationships and their chances of successful incorporation into their communities [2,3]. The characteristics of a negative syndrome in schizophrenic patients are blunted or restricted affect, poverty of speech, loss of drive, social and emotional withdrawal, and apathy. These are what are known as primary negative symptoms, and are a direct manifestation of the pathologic process. Poor grooming and impaired social relationships are secondary negative symptoms [4]. Personal hygiene is an important part of a cleansing process, and is the basis for establishing healthy relationships with family members and friends.

Most hospitals in Taiwan include a psychiatric ward, and in these wards, the overall oral health status of the patients with schizophrenia is generally poor because they tend to be unconcerned about their personal hygiene [5]. One study [6] in Israel reported average DMF-T score was 26.74 (out of 32) in patients with chronic mental problems was the worst higher than for those who do not have mental problems. As learned from this study, there is an urgent need to improve the dental care in difficult-to-treat, chronic psychiatric inpatients. This work is also consistent with previous studies [7] that showed

that psychiatrists are not sufficiently alert to the risk and extent of dental pathology in their hospitalized patients.

Oral health is foremost determinant of health status for psychiatric patients who are not sufficiently alert to the risk and extent of dental pathology in their hospitalized patients [7]. Although hospitalized mental patients try to maintain good personal hygiene, lack of self-recognition and insufficient facilities were hard to assess their own hygiene. Additionally, their hygiene has not been objectively evaluated by nurses. Because schizophrenia in patients often results in increases in the contraction of diseases and infections, one Taiwan study [8] found that there was high comorbidity, with 20.2% of patients with schizophrenia experiencing concurrent atopic disorders (atopic dermatitis, urticaria and allergic rhinitis). The objective of this study was to investigate the relationship between self-assessed hygiene in schizophrenic patients and nursing assessments of the hygiene of those patients with schizophrenia.

### Method

A cross-sectional study involving 144 schizophrenic patients diagnosed using the DSM-IV [9] was performed at national Changhua hospital in central Taiwan. There were 122 patients (84%) who filled out a questionnaire regarding their self-perceptions of their own personal hygiene. In the hospital, each nurse cared for 6–8 patients for a period of at least one year. In the pilot study, the questionnaire was modified to improve the clarity, validity, and reliability of the responses. Demographic data, including gender, age, the length of the hospitalization,

education, and disease onset, among other factors, was obtained from the patients' medical histories. The patients were asked 10 questions regarding their hair, finger- and toenails, oral hygiene, body extremities, clothing, and facial hair. If the patients answered correctly, they were given 2 points. If the patients did not know the answer, they were given one point. If the patients answered incorrectly, they were given 0 points. A total score was 20 points. Frequency of personal hygiene behaviours with thirteen items were assessed by the nurses who cared for these patients, including oily hair, nail smells, dirty face, beard longer than >1cm, bad breath, food in the mouth, a dirty body, body odour, dirty fingernails, long finger nails, dirty clothing, damp clothes, and clothes smell. In each item for the frequency of personal hygiene behaviours was scored by 0 point for "never" with, 1 point for "seldom", 2 points for "occasionally" and 3 points for "usually". Total 36 points were assessed by nurses for schizophrenic patients' hygiene behaviours.

### Reliability and validity test

Content validity was performed by seven experts, including five psychiatrists, one social worker, and one and psychologist; the content validity index was 0.95. Reliability was obtained from two groups. The coefficient of correlation ( $r$ ) was 0.70 -0.98 for the patients in internal unit; however, it was only 0.23 - 0.31 for the schizophrenic patients.

### Statistical analysis

After the data was collected, it was analyzed using SPSS 18.0 statistical software [10]. Univariate analysis (one way ANOVA) was used to test the scores of the schizophrenic patients' self-assessed hygiene and their actual hygiene based on the nurses' assessments. Applying multiple linear regression, we found several factors affected the schizophrenic patients' self-assessed hygiene versus their actual hygiene. Pearson's correlation demonstrated the relationship between the schizophrenic patients' self-assessed hygiene and their actual hygiene based on demographic information.

### Results

Table 1 shows the demographic information of the subjects of the study. Of the subjects, 60% were men. 53% of them were 31-45 years old. Approximately 70% of the patients were high school graduates. In addition, 40% of the subjects were 21-30 years old at the age of onset. 76% of the patients suffered from chronic schizophrenia. 64% of the subjects had religion. Lastly, 45% of the subjects had been hospitalized between 101 and 500 days.

Table 2 shows acute and chronic schizophrenic patients' self-assessment of their hygiene and nurses' assessment of schizophrenic patients' hygiene. Both acute and chronic schizophrenic patients believe they have good personal hygiene. However, nurses' assessment of acute schizophrenic patients showed their hygiene was worse than chronic schizophrenic patients' hygiene because acute schizophrenic patients had a dirty face, long beard, and food in the mouth ( $p < 0.05$ ). Both acute and chronic schizophrenic patients frequently have a long beard.

Univariate analysis illustrates the personal hygiene perceptions and nurses' assessments correlated with demographic information

**Table 1:** Demographic information of schizophrenic patients (N = 122).

	n	%
Gender		
Male	74	60.2
Female	48	39.8
Age (year)		
20-30	25	20.5
31-45	65	53.3
>46	32	26.2
Educational level		
<6	25	20.5
07-Sep	83	68
>10	14	11.5
Age of onset (years)		
<20	28	22.8
21-30	49	39.8
>31	45	36.6
Religion		
No	41	34.1
Yes	79	65.9
Diagnosis of schizophrenia		
Acute	29	22.5
Chronic	93	77.5
Length of stay (days)		
<100	29	23.8
101-500	55	45.1
>500	38	31.1

**Table 2:** Comparison of acute and chronic schizophrenic patients' self-assessment of their hygiene and nurses' assessment of schizophrenic patients' hygiene.

	Acute patients (N=29)	Chronic patients (N=93)	P
Schizophrenic patients' self-assessment of their hygiene (total score=20)	17.0 ± 4.2	17.6 ± 3.2	0.438
Nurses' assessment of schizophrenic patients' hygiene (total score=36)	16.0 ± 6.9	13.9 ± 7.6	0.186
Oily hair	1.3 ± 0.8	1.0 ± 0.8	0.078
Hair smells	1.1 ± 0.8	1.0 ± 0.8	0.421
Dirty face	1.2 ± 0.7	0.9 ± 0.8	0.035
Beard longer than >1cm	2.6 ± 0.7	2.2 ± 0.9	0.03
Bad breath	1.1 ± 0.8	1.1 ± 0.8	0.931
Food in the mouth	1.4 ± 0.8	1.1 ± 0.8	0.042
A dirty body	1.0 ± 0.8	0.9 ± 0.8	0.328
Body odor	0.9 ± 0.8	1.0 ± 0.8	0.834
Dirty fingernails	1.1 ± 0.8	0.9 ± 0.8	0.359
Long fingernails	1.3 ± 0.9	1.0 ± 0.8	0.145
Dirty clothes	1.0 ± 0.9	0.9 ± 0.8	0.607
Damp clothes	0.9 ± 0.8	0.9 ± 0.8	0.868
Clothes smell	1.0 ± 0.8	1.0 ± 0.8	0.81

among the schizophrenic patients (Table 3). The perception of having good personal hygiene in schizophrenic men was significantly higher than in schizophrenic women. Other variables, such as education level, the length of staying, and age of the onset, did not affect schizophrenic patients' perceptions of their personal

hygiene. Patients who were high school graduates had the worst actual personal hygiene. Based on the nurses' assessments, none of the variables affected the patients' actual hygiene.

Table 4 shows factors that influenced the personal hygiene

**Table 3:** Univariate analysis regarding the personal hygiene perceptions in schizophrenic patients and their actual hygiene based on nurses' assessments.

	n	personal hygiene perceptions	p	Actual hygiene	p
<b>Gender</b>					
Male	74	19.6 ± 1.8	0.043	13.1 ± 7.7	0.104
Female	48	18.2 ± 3.3		10.8 ± 7.4	
<b>Age (year)</b>					
20-30	25	18.1 ± 2.8	0.286	10.4 ± 7.7	0.45
31-45	65	17.6 ± 3.6		12.6 ± 7.6	
> 46	32	16.7 ± 3.7		12.2 ± 7.6	
<b>Educational level</b>					
< 6	25	16.7 ± 3.9	0.346	13.5 ± 7.3	0.106
07-Sep	81	17.7 ± 3.1		12.3 ± 7.6	
> 10	14	18.2 ± 2.7		8.2 ± 7.9	
<b>Age of onset (years)</b>					
< 20	28	16.9 ± 4.1	0.567	13.1 ± 7.9	0.302
21-30	49	17.8 ± 3.0		10.9 ± 7.4	
> 31	45	17.3 ± 3.5		13.0 ± 7.7	
<b>Religion</b>					
No	41	17.2 ± 3.9	0.653	13.6 ± 8.0	0.118
Yes	79	17.5 ± 3.3		11.3 ± 7.4	
<b>Type of schizophrenia</b>					
Acute	29	17.0 ± 4.2	0.438	13.5 ± 7.2	0.288
Chronic	93	17.6 ± 3.2		11.8 ± 7.7	
<b>Length of stay (days)</b>					
< 100	29	17.8 ± 3.0	0.074	13.7 ± 7.1	0.117
101-500	55	18.0 ± 3.0		10.6 ± 7.4	
> 500	38	16.4 ± 4.1		12.2 ± 7.6	

**Table 4:** Factors affecting personal hygiene perceptions in schizophrenic patients and their actual hygiene based on nurses' assessments using multiple regression.

	Personal hygiene perceptions			Actual hygiene		
	B	(SE)	P	B	(SE)	P
<b>Age (year)</b>						
20-30	reference	(2.09)	0.754	reference		
31-45	-0.06	(1.75)	0.219	1.88	(2.19)	0.92
>46	2.16			1.62	(1.86)	0.386
<b>Educational level</b>						
<6	reference			reference		
7-9	5.98	(2.57)	0.022	4.26	(2.17)	0.05
>10	4.86	(2.15)	0.026	-6.47	(2.63)	0.015
<b>Gender</b>						
Male	reference			reference		
Female	1.005	(1.39)	0.470	-2.31	(1.44)	0.11
<b>Religion</b>						
No	reference			reference		
Yes	1.177	(1.53)	0.442	2.11	(1.59)	0.187
<b>Length of staying (days)</b>						
<100	reference			reference		
101-500	2.90	(1.88)	0.127	-2.68	(1.74)	0.127
>500	-1.57	(1.65)	0.345	-1.93	(2.01)	0.341

**Table 5:** Correlation between personal hygiene perceptions in schizophrenia patients and their actual hygiene using nurses' assessments based on gender, education levels, length of hospitalization and type of schizophrenia.

	<b>r</b>	<b>p</b>
Gender		
Male	-0.31	<0.001
Female	-0.53	<0.008
Education level (years)		
<6	-0.13	0.698
7-9	-0.42	<0.001
>10	-0.54	0.006
Length of staying (days)		
<100	-0.28	0.147
101-500	-0.27	0.053
>500	-0.57	<0.001
Type of schizophrenia		
Acute	-0.2	0.328
Chronic	-0.48	<0.001

perceptions of the schizophrenic patients and their actual hygiene, based on the nursing' evaluations, using multiple regression. Except for the level of education, no other variable affected the personal hygiene perceptions of the schizophrenic patients. High school graduates had the highest personal hygiene perceptions; however, they had the worst actual hygiene based on nurses' assessments. Those schizophrenic patients who had been hospitalized less than 100 days had the best actual hygiene.

Table 5 illustrates the correlation between personal hygiene perceptions in the schizophrenic patients and their actual hygiene using the nurses' assessments, based on gender, the level of education, the length of hospitalization, and the type of schizophrenia. There was a negative correlation in both men and women between their personal hygiene perceptions and their actual hygiene, but women had a higher negative correlation. In addition, high school graduates had the highest negative correlation between their personal hygiene perceptions and their actual hygiene. Furthermore, those patients who had been hospitalized more than 500 days had the highest negative correlation between their personal hygiene perceptions and their actual hygiene. Finally, patients who suffered from chronic schizophrenia had a higher negative correlation between their personal hygiene perceptions and their actual hygiene.

## Discussion

Schizophrenia is a lifelong illness. Usually, the earlier the age of onset of schizophrenia, the longer one will be hospitalized. Our findings showed that schizophrenic patients typically have poor grooming and self-care skills. These poor skills can hinder their social relationships. They also increase the risk of contracting diseases and infections in the community. Patients with schizophrenia frequently have adverse effects on many aspects of a person's functioning and poor mental health [11]. Clinical intervention methods were used to improve the abilities of emotion perception and function in schizophrenic patients [12,13]; however, this is a difficult task to do in a short period of time.

Although the schizophrenic patients in our study believed that their personal hygiene was good, according to the nursing evaluations, it was actually quite poor. If schizophrenic patients can improve their personal hygiene by imitating other patients who have good hygiene, this will likely improve their interpersonal relationships and help them function better within their communities. Schizophrenic patients frequently suffer from functional impairment, and most of the patients have been unable to achieve full recovery [14]. Therefore, as discussed above, there is a difference in the personal hygiene perceptions in schizophrenic patients and the nurses' assessments of the hygiene of schizophrenic patients. Our study showed that there was a negative correlation between the self-assessed hygiene in the schizophrenic patients and the nurses' assessments of their actual hygiene. In the schizophrenic women, the coefficient of correlation was -0.53, and in the schizophrenic men, the coefficient of correlation was -0.31. Previous studies [15,16] have shown that men and women with schizophrenia express their emotions differently. Generally speaking, the men had poor recognition in their self-assessments than the women. However, schizophrenic women often want to look good and to believe they have good hygiene, on contrast they did not. Possibly reasons were explained by indicating schizophrenic women have fewer negative symptoms, respond better to neuroleptics, have better social skills and global functioning, and spend less time in the hospital than schizophrenic men [17-19].

The strong relationship between the negative and depressive symptoms found only in females with schizophrenia might be due to gender differences in functional and structural brain abnormalities, e.g., in the morphology and connectivity of the orbitofrontal cortex, which seem to be related to the negative symptoms of schizophrenia [20]. However, 56% of men and 33% of women ( $p < 0.001$ ) with schizophrenia did not have independent skills in at least one personal or domestic activity (i.e., personal hygiene, homemaking, management of financial affairs, shopping, decision-making, or local travel). The authors of that study showed that the Global Assessment of Functioning (GAF) scale might be biased toward poor functioning in women [21].

Taiwan's National Health Insurance (NHI) program has a unique combination of characteristics, including universal coverage, a single-payer payment system with the government as the sole insurer, comprehensive benefits, and the ease of access to any medical institution based on the patient's choice. In Chinese culture, most families with schizophrenic patients did not dislike staying their home and deliver them accessible to medical resources, and avoid the risky motion and infamous credit in the community: in consequence, the most of patients were taken to the hospital. Using numbers from Taiwan's NHI database, 42.5% out of 29,336 schizophrenia patients were readmitted to their assigned psychotic hospital within 30 days [22]. In our study, the schizophrenic patients with longer lengths of stay, exceeding 500 days in the hospital, have a negative correlation between their personal hygiene perceptions and their actual hygiene, as ascertained using nursing assessments. There was a significant decline in the ability for self-care and the limitation of social function in the community [23]. Observations of poor personal hygiene were significantly associated with the negative symptoms in patients with schizophrenia. The previous study [4]

postulated possible mechanisms involving the prefrontal, rather than medial temporal lobe (MTL) function in schizophrenia.

There were several limitations of this study that should be emphasized. All participants were inpatients and under psychiatric treatment. Although one's personal hygiene is a subjective impression based on self-perception, we were unaware of the past history of cleanliness of the schizophrenic patients we surveyed. Accurate measurement is needed whether their personal cleanliness changed while hospitalized. Additionally, the selection bias could be observed, as well-treated patients were not included. Further, some schizophrenic patients with well-treated conditions or at the early onset of the disease were permitted to return to their homes and were provided hygiene care through their family members. Therefore, schizophrenic patients in the hospital were the considerably long length of stay due to poor health status or fully coverage by the Taiwan's insurance system. Moreover, although the personal perceptions of hygiene were self-reported by the schizophrenic patients, it could lack accuracy or consistency in the self-assessment of personal hygiene. Additionally, in this study, the cleanliness of schizophrenic patients was assessed by nurses based on their own subjective assessments. Except for ascertaining the contraction of diseases and infections due to poor personal hygiene, no objective tool was used to measure the true hygiene of the schizophrenic patients. In this study, each patient's nurse objectively assessed the patients' hygiene using field observations. A reproducibility assessment of the nurses was assessed ( $r=0.90$ ), however, the cleanliness of one's body does not absolutely correspond to the well-being or social function of patients with schizophrenia. The schizophrenic patients in the psychiatric ward remained steady to stay for long length period, whereas nurses easily recognized their health status and personal hygiene behaviours. Consequence, our data are used to indicate a clear need for the continuous development of personal hygiene surveillance to minimize the risk of communicable diseases for schizophrenic patients.

Most patients with schizophrenia have a reduced ability for self-care and functioning, and this can lead to the mental illness becoming chronic and disabling. Although there is no strong evidence to suggest that life-skills programs are effective for schizophrenic patients, it is needed to provide learning activities utilizing behavioural techniques that enable patients with schizophrenia to acquire disease management and independent living skills for improved functioning in their communities [3]. The cognitive behavioural, social skills training for practicing personal grooming skills showed that nursing staff could effectively apply the procedures in a large psychiatric unit with minimal staffing and resources [24,25].

In conclusion, we found a negative relationship between the patients' personal perceptions of their hygiene and the nurses' assessments of those same patients. The schizophrenic patients who were well-educated believed that their personal hygiene was very good, even though the nurses evaluated their hygiene as poor. Since, generally speaking, the personal hygiene of people with schizophrenia is poor, the results of studies in this area suggest that nurses in psychiatric wards should encourage patients to practice life-skills regularly to help them meet basic hygiene needs. Additionally, during hospitalization,

schizophrenic patients should be trained using life-skill training programs to maintain good personal hygiene in order to decrease their risk of contracting diseases and infections.

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