

The Difference of Medication Adherence in Schizophrenic Patients between Normal Body Mass Index And Overweight

Ritha Mariati Sembiring* Bahagia Loebis Surya Husada
Department of Psychiatry, Faculty of Medicine, University of Sumatera Utara, Indonesia

Abstract

Background: Nonadherence to medication is a recognized problem and may be the most challenging aspect of treatment. The weight gain is an important factor that contributed to discontinuation of treatment

Participants and Methods: A total 88 participants with a DSM-IV diagnosis of schizophrenia who were admitted to psychiatric hospital. This study used cross sectional design. The assessments included an interview to obtain sociodemographic data, Morisky Medication Adherence Scale (MMAS-8) were examined, for difference based on the following body mass index (BMI) categories: normal body mass index (BMI 18,50-24,99) and overweight (BMI ≥ 25).

Results: 88 subjects were divided into two groups, normal BMI group: high adherence (20.5%), medium adherence (63.6%), low adherence (15.9%). Those overweight group: high adherence (6.8%), medium adherence (18.2%), low adherence (75.0%)

Conclusions: This study found that schizophrenic patients with normal body mass index is more adherence than those overweight.

Keywords: Medication Adherence, Body Mass Index, Overweight, Morisky Medication Adherence Scale (MMAS-8)

1. Introduction

Antipsychotic drugs play an important role in the treatment and to control the symptoms of schizophrenia. Effective management of schizophrenia requires a sustained long-term treatment to control symptoms and to prevent relapse. (Higashi, Medic, Littlewood, Diez, Ganstrom, & De Hert, 2013)

Non-adherence to medication is a major barrier to better treatment outcomes for patients with schizophrenia. At least 50% of outpatients with schizophrenia who stop their medication within a year, non-compliance is also a major risk factor for relapse. (Weidden, Mackell, & McDonnel, 2004)

Weight gain associated with long-term treatment with psychotropic drugs may have an increased risk of metabolic disorders and general medical disorders. Among side effects of antipsychotic treatment, weight gain is an important factor that contributes to discontinuation of treatment. (Centorrino, Wurtman, Duca, Fellman, Fogarty, Berry at al. 2006)

Kitabayashi et al. in Japan found from 273 schizophrenic patients, the proportion of obesity is 30.8%, normal weight is 53.1%, and underweight is 16.1%. (Kitabayashi, Narumuto, & Fukui, 2006). Limosine et al. in French found from 5756 individuals with schizophrenia, the prevalence of obesity was 17%. (Limosin, Gasquet, Leguay, Azorin, & Rouillon, 2008) Study in Scotland by McCreadi et al, 86% of patients were overweight or obese. A study of 240 patients with schizophrenia or schizoaffective disorder in North America, by Cohn et al, found that 31% of men and 43% of women are obese. (Newcomer, Fahnstock, & Haupt, 2009)

Research by Weiden found non-adherence with treatment in schizophrenic patients with a normal body mass index was 26%, 39% of patients were overweight, and 47% obesity. (Weiden, Mackell, & McDonnel, 2004) Nirojini et al. in India found treatment medication non adherence 19% due to weight gain. (Nirojini, Bollu, & Nadendla, 2014) Overweight is a condition where a person's weight exceeds the normal weight. (Sanjaja, & Sudikno, 2005)

Schizophrenic patients may have a higher risk of overweight or obesity caused by a collection of clinical factors, physiological, psychosocial, environmental, and possibly additional genetic factors. Negative symptoms of

schizophrenia, such as apathy and social withdrawal, and poverty can be clearly hypothesized to have contributed to a sedentary lifestyle and a poor diet of this population. (Newcomer, Fahnestock, & Haupt, 2009)

There was evidence suggest that treatment with psychotropic medication, especially some antipsychotics, can induce weight gain and adipose tissue. In general, the treatment of some drugs can lower energy expenditure, through sedation or reduction in motor activity, or increasing caloric intake, through increased appetite or decrease satiety, could potentially increase the weight gain. (Newcomer, Fahnestock, & Haupt, 2009)

Many studies about the drug's side effects associated with low levels of treatment adherence and discontinuation of treatment, specifically related to obesity, distress due to weight gain. (Dibonevantura, Gabriel, Dupclay, Gupta, & Kim, 2012)

Many studies found that the atypical antipsychotic causes more weight gain compared with typical antipsychotic drugs. (Ananth, Parameswaran, & Gunatilake, 2004)

2. Methods

2.1. Participants

The inclusions criteria were (a) aged 20-50 years, (b) DSM-IV criteria for schizophrenia, (American Psychiatric Association, 1994) (c) requiring atypical antipsychotic, (d) stabilization phase, (e) insight 3 or higher, (f) ability to read and write in Indonesian, cooperative and willingness to give informed consent. Exclusions criteria were (a) current pregnancy or lactating, (b) having cronic medical illness, (c) substance use (except caffeine and nicotine)

2.2. Procedure

Participants were out-patients, recruited from Sumatera Utara Mental Hospital in Medan, Indonesia from August to September 2015. Every eligible patient were given an explanation about the study, and provided written informed consent, they asked to give demographic data, measured body mass index. Each patient with a normal BMI (44 patients) and overweight (44 patients) were asked to fill out a questionnaire Morisky Medication adherence Scale (MMAS-8) to measure treatment adherence.

2.3. Instrument

Morisky Medication Adherence Scale (MMAS-8) developed from the original four item Morisky scale was published. The first seven items are dichotomous response categories with yes or no and the last item was a five point Likert response. Compared to original Morisky scale, it has the following features: 1) The adding four items are trying to identify and address the circumstances or situations related to adherence behavior; 2) Importantly, it has much better psychometric properties: sensitivity and specificity are 93% and 53%, respectively and Cronbach's alpha value is 0.83 that is above the acceptance threshold. Afterwards, MMAS-8 has become popular and commonly used in various clinical settings and different populations, as well as been translated and validated in foreign countries. (Tan, Patel, & Chang, 2014)

2.4. Data analysis

All the statistical analyses were performing using SPSS version. 17.0. Demographic data were analysed using chi-squared or t-test as appropriate. (Dahlan, 2009)

2.5. Ethical clearence and permission

The Research Ethics Committee of University of Sumatera Utara, Indonesia, reviewed and provided ethical approval for the study.

3. Results

Clinical and demographic characteristics are displayed in table 1.

The difference of medication adherence in schizophrenic patients between with normal body mass index and overweight are displayed in table 2. We found that there is a significant difference between the level of

medication adherence in schizophrenic patients with normal body mass index and overweight with $p = 0.001$.

4. Discussion

Consistent with our hypotheses, among schizophrenic patients with normal body mass index and overweight, we found the level of treatment adherence of schizophrenic patients with a normal body mass index most likely to report higher adherence by 28 people (63.6%). Those in the overweight had low level of adherence by 33 people (75.5%). It is consistent with study by Nirojini et al. in India (2013), Weiden et al. (2004)

Dissatisfaction with weight loss have been associated with low medication adherence. (Wong, 2010) Patients who are obese are 2.5 times more likely to stop taking the drug compared with those not obese. (Weiden, Mackell, & McDonnel, 2004)

5. Limitation

Limitations of this study are not assess other factors that affect medication adherence.

6. Conclusion

The level of medication adherence in the group with normal body mass index had higher medication adherence than those with overweight. There is a significant difference level of medication adherence in schizophrenic patients between normal body mass index and overweight .

References

- American Psychiatric Association. (1994). Diagnostic and Statistical Manual of Mental Disorders (4th edn) (*DSM-IV*). APA
- Ananth, J., Parameswaran, S., Gunatilake, S. (2004). Side effects of atypical antipsychotic drugs. *Current pharmaceutical design*. 10;2219-2229
- Centorrino, F., Wurtman, J. J., Duca, K. A., Fellman, V. H., Fogarty, K. V., Berry, J. M., et al. (2006). Weight loss in overweight patients maintained on atypical antipsychotic agents. *Int J of Obesity*, 30,1011-1016
- Dahlan, M., S. (2009). Statistik untuk Kedokteran dan Kesehatan. Jakarta: Salemba Medika
- Dibonaventura, M., Gabriel, S., Dupclay, L., Gupta, S., Kim, E. (2012). A patient perspective of the impact of medication side effects on adherence: results of a cross-sectional nation wide survey of patients with schizophrenia. *BMC Psychiatry*. 12;20
- Higashi, K., Medic, G., Littlewood, K., J., Diez, T., Granstrom, O., De Hert, M. (2013). Medication adherence in schizophrenia: factors influencing adherence and consequences of nonadherence, a systemic literature review. *Ther Adv Psychopharmacol*, 3(4), 200-218
- Kitabayashi, Y., Narumoto, J., Kitabayashi, M., Fukui, K. (2006). Body mass index among Japanese inpatients with schizophrenia. *Int'L J Psychiatry Medicine*. 36(1) : 93-102
- Limosin, F., Gasquet, I., Leguay, D., Azorin, J.-M., Rouillon, F. (2008). Body mass index and prevalence of obesity in a French cohort of patients with schizophrenia. *Acta Psychiatrica Scandinavica*. 118: 19-25.
- Newcomer, J. W., Fahnstock, P. A., Haupt, D. W. (2009). Medical health in schizophrenia. In. Kaplan & Sadock's Comprehensive Textbook of Psychiatry. Vol. I. 9th ed. Philadelphia : Lippincot Williams & Wilkins, p. 1576-1577
- Nirojini, P. S., Bollu, M., Nadendla, R. R. (2014). Prevalence of medication non-adherence among the psychiatric patients results from a survey conducted in a tertiary care hospital. *Int J Pharm Pharm Sci*. 4,461-463
- Sandjaja, Sudikno. (2005) Prevalensi gizi lebih dan obesitas penduduk dewasa di Indonesia. *Gizi Indon*, 31
- Tan, X., Patel, I., Chang, J. (2014). Review of the four item Morisky medication adherence scale (MMAS-4) and eight item morisky medication adherence scale (MMAS-8). Vol 5. p. 1-8
- Weiden, P. J., Mackell, J. A., McDonnel, D. D. (2004). Obesity as a risk factor for antipsychotic. *Scizoph research*. ; 51-57
- Wong, M. M. C., (2010) Body weight perception and methods of weight reduction used by patients with first

Marital status, n (%)			
- Married	6 (13.6)	7 (15.9)	0.09
- Single	38 (86.4)	37 (84.1)	
Employment, n (%)			
- Employed	16 (36.4)	19 (43.2)	0.51
- Not employed	28 (63.6)	25 (56.8)	
Level of education, n (%)			
- Less than senior high school	13 (29.5)	11 (25.0)	0.63
- Senior high school or higher	31 (70.5)	33 (75.0)	
Address			
- Medan	18 (40.9)	20 (45.5)	0.66
- Out of Medan	26 (59.1)	24 (54.5)	
Antipsychotic, n (%)			
- Risperidone 4mg	8 (18.2)	10 (22.7)	0.59
- Risperidone 4mg+ Clozapine 25mg	36 (81.8)	34 (77.3)	
Insight			
- III	34 (77.3)	38 (86.4)	0.26
- IV	10 (22.7)	6 (13.6)	
Duration of disease			
-Mean ± SD	6.05 ± 3.67	8.80 ± 4.68	0.06
Number of relapse			
-Mean ± SD	2.55 ± 0.66	2.73 ± 0.78	0.15

Tabel. 4.2. Difference of Medication adherence between Schizophrenic patients with normal body mass index and overweight

Table 1. Samples demographics (N = 88)

	Normal Body Mass Index (n=44)	Overweight (n=44)	<i>p</i>
Age (Year)			
mean ± SD	31.93 ± 6.14	34.30 ± 7.17	0.17
Gender, n (%)			
Male	32 (72.7)	26 (59.1)	0.18
Female	12 (27.3)	18 (40.9)	
Marital status, n (%)			
Married	6 (13.6)	7 (15.9)	0.09
Single	38 (86.4)	37 (84.1)	
Employment, n (%)			
Employed	16 (36.4)	19 (43.2)	0.51
Not employed	28 (63.6)	25 (56.8)	
Level of education, n (%)			
Less than senior high school	13 (29.5)	11 (25.0)	0.63
Senior high school or higher	31 (70.5)	33 (75.0)	
Address			
In Medan	18 (40.9)	20 (45.5)	0.66
Out of Medan	26 (59.1)	24 (54.5)	

Antipsychotic , n (%)			
Risperidone 4mg	8 (18.2)	10 (22.7)	0.59
Risperidone 4mg+ Clozapine 25mg	36 (81.8)	34 (77.3)	
<i>Insight</i>			
III	34 (77.3)	38 (86.4)	0.26
IV	10 (22.7)	6 (13.6)	
Duration of disease			
-Mean ± SD	6.05 ± 3,67	8.80 ± 4.68	0.06
Number of relapse			
-Mean ± SD	2.55 ± 0.66	2.73 ± 0.78	0.15

Table. 2. The Difference of Medication Adherence in Schizophrenic patients between normal body mass index and overweight

Level of medication adherence	Normal BMI n(%)	Overweight n (%)	<i>p</i>
High	9 (20.5)	3 (6.8)	
Medium	28 (63.6)	8 (18.2)	0.001
Low	7 (15.9)	33 (75.0)	