Research Article

Prevalence of High Blood Pressure and its Relationship with Body Weight Factors among Inpatients with Schizophrenia in Taiwan

Yu-Li Lan, PhD¹, Tzy-Ling Chen, PhD²,*

¹Department of Health Administration, Tzu-Chi College of Technology, Hualien, Taiwan
²Graduate Institute of Bio-Industry Management, National Chung Hsing University, Taichung, Taiwan

SUMMARY

Purpose: The objective of this study was to document the prevalence of high blood pressure (BP) and to explore its relationship with weight among inpatients with schizophrenia. Additionally, other possible risk factors impacting BP levels in relation to patients’ demographic characteristics and use of atypical antipsychotic drugs and medications to reduce blood pressure were analyzed.

Methods: Using medical records, demographic data, and results of physical examination, this cross-sectional study investigated the prevalence of hypertension and high BP and its association with body weight among 1,030 inpatients with schizophrenia in a large psychiatric facility in Taiwan.

Results: The prevalence of high BP and hypertension were found to be higher among inpatients with schizophrenia in Taiwan in comparison with those of the general population in line with the latest evidence. Hypertension was significantly associated with body mass index; meanwhile, other risk factors, including age, gender, length of hospital stay, time since initial schizophrenia diagnosis, medications used to reduce blood pressure, and atypical antipsychotics, were identified. However, body mass index was the most effective predictor of blood pressure in the study.

Conclusion: The findings of this research shed light on the importance of developing effective weight and blood pressure monitoring and management programs for inpatients with schizophrenia. There is also a need for clinical nurses to employ multiple behavioral intervention strategies to minimize risks of high BP in patients with schizophrenia. We recommend that clinical nurses carefully monitor and control BP among inpatients with schizophrenia.

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Introduction

Hypertension is a risk factor for many forms of cardiovascular disease (CVD) and other causes of death related to CVD (Goff et al., 2005; C.H. Hennekens, A.R. Hennekens, Hollar, & Casey, 2005). CVD strongly contributes to the excess mortality reported among schizophrenic patients (Bernardo et al., 2009; von Haussolff-Juhlin, Bjarveit, Lindström, & Jones, 2009; Räsänen, Hakko, Viilo, Meyer-Rochow, & Moring, 2003; Sokal, 2004). Hypertension also is a strong independent risk factor for CVD, and it affects approximately 15% of the general population in most developed countries (Hennekens, 1998, 2000), as well as 9–27% of patients with schizophrenia (Dixon, Postrado, Delahanty, Fischer, & Lehman, 1999; Goff et al.; Hennekens et al.). Early care interventions offered to patients with mental disorders by nursing professionals can result in a great improvement in their health and further encourages a healthy lifestyle (Varcarolis, 2009, pp. 2–10).

In Taiwan, the lifetime prevalence rate of schizophrenia is approximately 3 per 1,000 (Tsai & Ku, 2005). Additionally, more than 22% of people with severe mental illness in Taiwan also have metabolic syndrome (Holt, 2006). Despite the fact that increased rates of CVD associated with hypertension and metabolic syndrome are reported among patients with schizophrenia (Saha, Chant, & McGrath, 2007), few studies have specifically examined the prevalence of elevated blood pressure (BP) and its related risk factors among such patients in Taiwan. By definition, the determination of high BP was made when systolic pressure was 130–139 mmHg and/or diastolic pressure was 85–89 mmHg; hypertension was diagnosed when the systolic pressure was greater than 140 mmHg and/or the diastolic pressure was greater than 90 mmHg (Department of Health, Taiwan, 2006).
Patients with schizophrenia tend to be more obese than healthy members of the general population, and this condition is partly exacerbated by marked body weight gain that often accompanies treatment with some atypical antipsychotics (Allison et al., 1999; Bridler & Umbricht, 2003). Although there is evidence that obesity and weight gain resulting from antipsychotic treatment are linked to metabolic syndrome in patients with schizophrenia (von Hausswolf-Juhlin et al., 2009), far less research has attempted to clarify the relationship between obesity or weight gain and high BP, particularly hypertension. Similarly, although the use of antipsychotic agents is common among inpatients with schizophrenia in Taiwan, there has been little research into this area.

To improve the chances of preventing CVD among patients with schizophrenia, it is first necessary to understand patterns of BP levels and associated risk factors in this patient group. Even though hypertension and obesity in schizophrenia are considered largely treatable and manageable, they have not attracted the attention they deserve. Ironically, the cost of hypertension-related treatment is among the highest on the list of national health insurance costs in Taiwan (Li, Yeh, & Huang, 2006). If earlier attention were paid to these problems, patients’ well-being and quality of life would be greatly improved (McDevitt, 2004) and national healthcare costs would be reduced as well (Lissovoy, Pan, Siak, Hutchins, & Luce, 2009).

Despite an increasing trend to treat schizophrenic patients on an outpatient basis, a safe and structured environment must be provided for people who may place themselves or others at risk due to their mental disorders (Varcarolis, 2009). Frauenfelder, Müller-Staub, Needham, and Achterberg (2011) also pointed out the substantial need to address nursing and self-care problems faced by adult psychiatric inpatients, to develop and improve practical guidelines for effective nursing treatment. This need is particularly acute in Taiwan, where many family caregivers need to be educated on and to learn the skills for taking care of patients with mental illness (Wei, Cooke, Moyle, & Creedy, 2010). Therefore, patients with schizophrenia in Taiwan are comparatively in better care when institutionalized for the present. To the best of our team’s knowledge, there is no well-established community-based care system yet available for patients diagnosed with schizophrenia throughout Taiwan, and most are institutionalized in psychiatric facilities. This highlights the importance of caregiving or intervention services provided to schizophrenic inpatients by clinical nurses in Taiwan.

This study was designed to document the prevalence of high BP and hypertension among inpatients with schizophrenia in one of the largest psychiatric hospitals in Taiwan. Furthermore, we investigated the relationship between patients’ BP levels and body weight, as identified by prior relevant research based on body mass index (BMI) by Coodin (2001), Meyer (2002), and Vieweg et al. (2004). In addition, several possible risk factors concerning use of atypical antipsychotics (Katzung & Trevor, 2002; Meyer & Quenzer, 2005) and antihypertensive medications were also examined. Although patients’ demographic characteristics, such as age, gender, education level, time since initial schizophrenia diagnosis, and length of hospital stay and so forth have yet to be confirmed with regard to their consistent effects on BP levels among inpatients with schizophrenia, they were included for analysis in the present study as an exploratory research attempt.

To explore the hypothesis that schizophrenic patients are inclined to develop hypertension, the study first attempted to investigate the phenomenon of high BP among inpatients with schizophrenia in Taiwan. Furthermore, implications for nursing care tailor-made for these inpatients were discussed. The results could also have important implications for improved mental health care.

### Methods

#### Participants

Participants in this study included 1,030 inpatients with schizophrenia in a psychiatric hospital with one of the largest populations of schizophrenic patients in Taiwan. For inclusion in the study, patients met the following criteria: (a) having a diagnosis of schizophrenia according to Diagnostic and Statistical Manual of Mental Disorders IV (DSM-IV) criteria, and (b) being hospitalized longer than 6 months. Patients diagnosed with dementia, or those who were seriously ill, or who were unable to communicate were excluded from the study.

The number of patients who met the study criteria was 1,061 (638 males and 423 females); data were collected from 1,030 patients (614 males and 416 females) who agreed to participate in this study. The research ethics committee of this psychiatric facility approved the study protocols; permission from the ward managers was sought prior to interviewing any nurses and inpatients. After analyzing medical records, and measuring height, weight, and BP, the valid sample consisted of 1,030 schizophrenia inpatients. In addition, there were no statistically significant differences between the participants and the nonparticipants in terms of the information gathered for this investigation based on analyses of chi-square and coefficient of variation ($p > .05$).

#### Measurements and study variables

Data were collected over a 5-month period. In this cross-sectional study, we recorded and analyzed the participants’ medical records, BP levels, height, and weight. Demographic characteristics included age, gender, education level, length of hospital stay, and time since the initial schizophrenia diagnosis. Medication protocols were also studied, including use of atypical antipsychotic agents and antihypertensive medications. Overweight was defined as a body mass index (BMI, kg/m²) between 24 kg/m² and 27 kg/m² for both males and females. Obesity was defined as a BMI ≥ 27 kg/m² (Department of Health, Taiwan, 2006). A diagnosis of high BP was made when systolic pressure was 130–139 mmHg and/or diastolic pressure was 85–89 mmHg, and hypertension was diagnosed when the systolic pressure ≥ 140 mmHg and/or the diastolic pressure was ≥ 90 mmHg (Department of Health, Taiwan).

#### Procedures

The study was approved by the research ethics committee of the hospital, and a total of 1,030 participants gave written informed consent to join in the study after being briefed on the research purpose and procedure. The data for this study were collected under the supervision of the designated physician and executive managers of the hospital by reviewing medical records in both digital and hard copy form. Registered nurses measured the patients’ BP, height and weight. BP was measured with a mercury sphygmomanometer after the patient had rested for at least 5 minutes. BP was remeasured with the patient seated, with the sphygmomanometer and the arm at the same height as the heart. The average value was calculated from two contiguous measurements. In addition, BP was measured on the 5th and 20th days of each month; thus, eight BP measurements for each patient were collected during the study period. For systolic BP (SBP) and diastolic BP (DBP), the mean of each patient’s eight BP measurements was calculated accordingly for analysis. Height and weight were measured with calibrated and qualified scales. BMI, calculated from the measured height and weight, was used as the criterion for obesity.
Statistical analysis

The data were analyzed with SPSS version 15 (SPSS Inc., Chicago, IL, USA). A descriptive analysis was done first to understand the distribution of all the patients’ data, such as demographic variables, disease history, and medication history. The prevalence of high BP, hypertension, overweight, and obesity was analyzed and stratified by age and gender. Multiple regressions were used to determine whether or not the demographic characteristics, use of atypical antipsychotics, and antihypertensive medication, and BMI could be used to predict BP and to establish the predictive power of BMI for BP.

Results

The average age of participants was 48 years. In the study sample, 59.6% were males and 40.4% were females; 29.8% had completed junior high school and 28.3% had completed senior high school. The average length of hospital stay was 9 years, and the average period of time since initial schizophrenia diagnosis was 20 years. Of the total number of participants, only 10.1% (n = 104) used medicine to reduce BP, and 41.6% (n = 428) used medicine of atypical antipsychotics. Descriptive data concerning participants’ baseline characteristics can be found in Table 1.

Prevalence of high BP among inpatients with schizophrenia

A total of 192 subjects had high BP. The mean prevalence rate of high BP was 16% (males, 21.4%; females, 10.6%). The prevalence rate of high BP was 16% (males, 21.4%; females, 10.6%). The prevalence rate of hypertension was 15.9% (males, 18.1% and females, 13.7%). Before the age of 50, the prevalence rate of hypertension for men was higher than for women. The prevalence rate of hypertension for both males and females increased gradually along with an increase of age before 50 years old. Information about elevated BP by age and gender is detailed in Table 2.

Prevalence of overweight and obesity among inpatients with schizophrenia

In the current study, 270 patients were found to be overweight, which contributed to the finding that 26.1% of the subjects were overweight (males, 27.6%; females, 24.6%). Also, 372 patients were found to be obese; the mean prevalence rate of obesity was 36.3% (males, 36.5%; females, 36.1%). Between the ages of 30 and 49 years, and over 70 years, the prevalence rate of being overweight and obesity among males was higher than that of females at each age interval. The average BMI in this study sample was 25.2 kg/m² (25.0 in males and 25.3 in females). As a result, normal healthy weight was uncommon among our study population. More than 50% of the males and females in all age groups had a BMI > 24.0 kg/m². The BMI, overweight, and obesity information of these subjects by age and gender are presented in Table 3.

Effects of body weight as a predictive risk factor

The predictive power for BP based on BMI, demographic characteristics, and use of atypical antipsychotics and antihypertensive medications were analyzed using multiple linear regressions. The following independent variables, gender and medication protocols, were transformed into dummy variables for multiple linear regressions.

Model 1 (Table 4) used a full attributes set to predict both systolic and diastolic blood pressure. The result showed that age, gender, length of hospital stay, period of time since initial schizophrenia diagnosis, use of medication to reduce BP, and BMI had significant predictive power for systolic blood pressure (F = 27.28, p < .001, R² = .19), explaining 19% of variance in predicting systolic pressure. As for diastolic pressure, age, gender, BMI, length of hospital stay, time since initial schizophrenia diagnosis, and use of atypical antipsychotics and medications to reduce BP had significant predictive power (F = 18.27, p < .001, R² = .13); explaining 13% of variance in predicting DBP.

Model 2 (Table 5) analyzed whether BMI predicted for BP levels after controlling for the patients’ use of medications. For both SBP and DBP, patients’ medication protocols and BMI had significant predictive power (F = 25.59, p < .001, R² = .09, and F = 21.38, p < .001, R² = .07, respectively), accounting for 9% and 7% of the total variance in SBP and DBP respectively. Among these contributing factors based on regression model 1 and 2, BMI was evidenced as a more effective predictor of BP in the study (Model 1: β = .23 for SBP, and β = .24 for DBP; Model 2: β = .21 for SBP, and β = .23 for DBP).

Discussion

The mean prevalence rate of hypertension and high BP for study participants was 15.9% (18.1% in males and 13.7% in females) and...
Notes. SBP = systolic blood pressure; DBP = diastolic blood pressure.

* HBP refers to BP at 130–139 mmHg/85–89 mmHg, and hypertension refers to blood pressure higher than 140 mmHg/90 mmHg.

Table 2 Prevalence of High Blood Pressure (HBP) and Hypertension Stratified by Age and Gender

<table>
<thead>
<tr>
<th>Age (yr)</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SBP (M ± SD)</td>
<td>DBP (M ± SD)</td>
</tr>
<tr>
<td>&lt;30</td>
<td>121.2 ± 13.2</td>
<td>74.1 ± 7.5</td>
</tr>
<tr>
<td>30–39</td>
<td>122.5 ± 10.5</td>
<td>76.9 ± 7.4</td>
</tr>
<tr>
<td>40–49</td>
<td>122.6 ± 11.9</td>
<td>77.5 ± 7.9</td>
</tr>
<tr>
<td>50–59</td>
<td>122.3 ± 13.3</td>
<td>77.6 ± 8.5</td>
</tr>
<tr>
<td>60–69</td>
<td>120.4 ± 14.1</td>
<td>72.6 ± 10.7</td>
</tr>
<tr>
<td>≥70</td>
<td>132.0 ± 11.2</td>
<td>80.6 ± 8.6</td>
</tr>
<tr>
<td>Total</td>
<td>123.3 ± 12.3</td>
<td>77.3 ± 8.2</td>
</tr>
</tbody>
</table>

16% (21.4% in males and 10.6% in females), respectively. The prevalence of hypertension and high BP was higher in our participants than in the general population in Taiwan (hypertension: 11.3% in males and 11.2% in females; Department of Health, Taiwan, 2002; Pan, 1991). As a result, the prevalence of hypertension was more common among inpatients with schizophrenia compared with the general population, echoing the results in the literature. This finding also corroborates research results of Bernard et al. (2009), Bresee, Majumdar, Patten, and Johnson (2010), and Liao et al. (2011) that patients with schizophrenia are more likely to develop hypertensive disorders than are members of the general population.

Results from this study further indicated a significant difference in the overall prevalence of obesity and overweight in inpatients with schizophrenia compared to the general population. The overall prevalence of obesity in this study was 36.3% (36.5% in males and 36.1% in females); the prevalence of overweight was 26.1% (27.6% in males and 24.6% in females). This is higher than the overall prevalence of obesity (14.6% in males and 15.8% in females) and being overweight (17.5% in males and 15.9% in females) in the general Taiwanese population reported in the most recent National Nutrition Survey (Department of Health, Taiwan, 2006). The study data indicated that inpatients with schizophrenia are actually heavier than the general public.

According to Allison et al. (1999), Bridler and Umbricht (2003), and Wetterling (2001), the use of atypical antipsychotics particularly leads to substantial weight gain. The antagonism of central 5-HT2 receptors seems to play an important role. It is believed that this blockade results in increased appetite and excessive food intake. Weight gain occurs over the whole dosage range, consistent with the observation that even small doses of these medications result in an almost total blockade of serotonergic receptors (Gefvert et al., 1998; Kapur, 1998; Kapur et al., 1998). So, results of the present study showed that patients taking atypical antipsychotics may be at risk for obesity and elevated BP. This finding is consistent with the research of Henderson et al. (2004). Obesity is a serious medical condition and has serious psychosocial consequences.

Being overweight or obese is a threat to one's health and longevity and is associated with an increased risk of several medical conditions, all of which may significantly affect a psychotic patient's sense of well-being and self-esteem.

Additionally, the research findings on BMI appear to be consistent with research results in other countries, such as in Canada (Coodin, 2001) and in the United States (Meyer, 2002; Vieweg et al., 2004). There are many health risks associated with obesity, such as hypertension, coronary artery disease, CVD, and type 2 diabetes mellitus (National Heart, Lung, and Blood Institute, 2001). In the current study, BMI was independently associated with the risk of hypertension. After controlling for patients' medication protocols, the analysis showed a 0.21 mmHg increase in SBP and a 0.23 mmHg increase in diastolic pressure for every 1 kg/m² increase in BMI. Our result is similar to research findings of Meyer and Quenzer (2005) and Katzung and Trevor (2002) which showed that BMI has critical effects on high BP. Thus, controlling body weight is an important way to help prevent hypertension or high BP. To be effective, a coordinated approach is needed. Inpatients should be encouraged to get involved and to collaborate with nurses to develop and implement their own care plan, including both weight management and BP surveillance.

The results of this study confirmed independent positive relations between the BMI and BP levels among inpatients with schizophrenia. BP levels and the incidence of hypertension were higher among the patients with schizophrenia than among the general population in Taiwan. Patients with schizophrenia have an increased risk of dying from CVD, and some researchers have reported that the risk of death from this cause was nearly twice that of other patient populations (Bernardo et al., 2009; Kurkendall, Mo, Glasser, Rose, & Jones, 2004; Ösby, Correia, Brandt, Ekholm, & Sparén, 2000). Since high BP is an important indicator of CVD, it should be identified and prevented as early as possible in patients with schizophrenia. It also reflects both the quality of psychiatric and medical care and the effectiveness of preventive programs. We recommend that clinical nurses carefully monitor and control BP among inpatients with schizophrenia. Consequently, continual

Table 3 Prevalence of Obesity and Overweight Stratified by Age and Gender

<table>
<thead>
<tr>
<th>Age (yr)</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BMI (M ± SD)</td>
<td>Overweight n (%)</td>
</tr>
<tr>
<td>&lt;30</td>
<td>25.0 ± 5.2</td>
<td>5 (16.1)</td>
</tr>
<tr>
<td>30–39</td>
<td>25.9 ± 4.8</td>
<td>44 (29.1)</td>
</tr>
<tr>
<td>40–49</td>
<td>25.6 ± 4.5</td>
<td>58 (27.4)</td>
</tr>
<tr>
<td>50–59</td>
<td>25.2 ± 4.2</td>
<td>36 (27.3)</td>
</tr>
<tr>
<td>60–69</td>
<td>25.3 ± 4.2</td>
<td>9 (42.9)</td>
</tr>
<tr>
<td>≥70</td>
<td>23.9 ± 3.9</td>
<td>16 (25.8)</td>
</tr>
<tr>
<td>Total</td>
<td>25.0 ± 4.5</td>
<td>168 (27.6)</td>
</tr>
</tbody>
</table>

Note. BMI = body mass index; R Ov/ob = ratio of overweight/obesity.

* Obesity refers to BMI ≥ 27 kg/m² and overweight refers to BMI of 24–26.9 kg/m².
monitoring of BP should be part of standard treatment for inpatients with schizophrenia.

**Limitations**

The study findings provide evidence on prevalence of high BP and point to its association with bodyweight factors among inpatients with schizophrenia. It is apparent that a range of risk factors for higher BP, including age, gender, length of hospital stay, period of time since initial schizophrenia diagnosis and medicine to reduce BP is also present in this patient population. Nevertheless, a limitation of the present research is the lack of information related to assessment of their lifestyle, such as diet, smoking, and exercise behaviors which may also affect the high blood pressure of patients with schizophrenia (von Haussoff-Juhlin et al., 2009; Kurzhaler & Fleischhacker, 2001; Ogawa, Miyamoto, & Kawakami, 2011; Robin, 2003). As such, we are unable to correlate their lifestyle variables to different levels of high blood pressure. This also points out what we can continue to explore in future research.

Moreover, the recruitment of participants in this study solely from one psychiatric facility may have biased the results such that it may not be representative of the general population of patients with schizophrenia. Finally, the data were collected by measuring BP eight times and corrected to make comparisons with those of the general population in Taiwan, as revealed in the prior studies. Thus, there is the possibility of a comparison error. Despite the strong relationships between BMI and high BP found in inpatients with schizophrenia, the current cross-sectional design restricts conclusions regarding the causality of these associations. Prospective longitudinal studies on both inpatients and outpatients with schizophrenia are required to evaluate how BMI and BP change over time or if their interactions strengthen.

**References**


Department of Health, Taiwan. (2002). A 2002 investigation on the prevalence rate of hypertension, hyperglycemia and hyperlipidemia in Taiwan. Taipei: Bureau of Health Promotion, Department of Health, R.O.C.


### Table 4 Prediction for Medication Protocols and BMI in Multiple Regression

<table>
<thead>
<tr>
<th>Variables (model 1)</th>
<th>Systolic blood pressure&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Diastolic blood pressure&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>β</td>
<td>t</td>
</tr>
<tr>
<td>Age</td>
<td>.176</td>
<td>5.13***</td>
</tr>
<tr>
<td>Gender</td>
<td>.267</td>
<td>9.01***</td>
</tr>
<tr>
<td>Education level</td>
<td>.004</td>
<td>0.13</td>
</tr>
<tr>
<td>LOHS</td>
<td>.114</td>
<td>3.55***</td>
</tr>
<tr>
<td>POTSISD</td>
<td>.075</td>
<td>2.29*</td>
</tr>
<tr>
<td>MTRBP</td>
<td>.015</td>
<td>4.90***</td>
</tr>
<tr>
<td>MOAA</td>
<td>.042</td>
<td>1.423</td>
</tr>
<tr>
<td>BMI</td>
<td>.230</td>
<td>7.95***</td>
</tr>
</tbody>
</table>

**Notes.** LOHS = length of hospital stay; POTSISD = period of time since initial schizophrenia diagnosis; MTRBP = medicine to reduce blood pressure; MOAA = medicine of atypical antipsychotics; BMI = body mass index.

<sup>a</sup> F = 27.28; df = 1,016; p < .001; adjusted R² = .19; F = 18.27; df = 1,016; p < .001; adjusted R² = .13; p obtained by correlation between blood pressure and age, gender, education level, LOHS, POTSISD, MTRBP, MOAA, and BMI.

<sup>b</sup> p < .001; ***p < .1; **p < .01; *p < .05.

### Table 5 Prediction for Medication Protocols and BMI in Multiple Regression

<table>
<thead>
<tr>
<th>Variables (model 2)</th>
<th>Systolic blood pressure&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Diastolic blood pressure&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>β</td>
<td>t</td>
</tr>
<tr>
<td>MTRBP</td>
<td>.188</td>
<td>6.18***</td>
</tr>
<tr>
<td>MOAA</td>
<td>.082</td>
<td>2.66***</td>
</tr>
<tr>
<td>BMI</td>
<td>.207</td>
<td>6.869***</td>
</tr>
</tbody>
</table>

**Note.** MTRBP = medicine to reduce blood pressure; MOAA = medicine of atypical antipsychotics; BMI = body mass index.

<sup>a</sup> F = 25.59; df = 1,025; p = .000; adjusted R² = .09; F = 21.38; df = 1,025; p = .000; adjusted R² = .07.

<sup>b</sup> p < .05; **p < .01; ***p < .001.

**Conclusion**

The current study promotes better understanding of the prevalence of high BP by exploring its possible risk factors concerning patients’ demographic characteristics and medication protocols, in addition to clarifying its relationship to weight gain among inpatients with schizophrenia. High BP problems are more common among inpatients with schizophrenia, mainly due to weight gain or obesity. Such problems warrant more attention because of their direct impact on mortality rates from CVD and possibly indirect effects on quality of life as well as healthcare costs.

Equipping nurses with sufficient knowledge of these risk factors related to body weight is vital, for they may be able to “spot” potential high BP or hypertension in advance by adequate screening practices, and thus be able to alert the wider multidisciplinary team. Clinical nurses also play a key coordinating role in this regard; their input may help this inpatient group minimize risks of hypertension and subsequent CVD. Consequently, our findings illuminate the importance of developing effective weight and BP monitoring and management programs specifically taking into consideration of patients’ age, gender, and length of initial schizophrenia diagnosis and hospital stay, which are also found to be related to high BP in inpatient schizophrenia.

Given the high prevalence of obesity and its significant impacts on high BP, further research is particularly necessary to examine weight gain mechanisms and psychosocial mediators that facilitate adjustment of obesity in schizophrenia.


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