



Original article

A cross-continental analysis of weight gain, psychiatric diagnoses and medication use during inpatient psychiatric treatment. The international study on physical illness in mentally ill



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ABSTRACT

Weight gain among psychiatric inpatients is a widespread phenomenon. This change in body mass index (BMI) can be caused by several factors. Based on recent research, we assume the following factors are related to weight gain during psychiatric inpatient treatment: psychiatric medication, psychiatric diagnosis, sex, age, weight on admission and geographic region of treatment.

876 of originally recruited 2328 patients met the criteria for our analysis. Patients were recruited and examined in mental health care centres in Nigeria (N = 265), Japan (N = 145) and Western-Europe (Denmark, Germany and Switzerland; N = 466).

There was a significant effect of psychiatric medication, psychiatric diagnoses and geographic region, but not age and sex, on BMI changes. Geographic region had a significant effect on BMI change, with Nigerian patients gaining significantly more weight than Japanese and Western European patients.

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Moreover, geographic region influenced the type of psychiatric medication prescribed and the psychiatric diagnoses. The diagnoses and psychiatric medication prescribed had a significant effect on BMI change.

In conclusion, we consider weight gain as a multifactorial phenomenon that is influenced by several factors. One can discuss a number of explanations for our findings, such as different clinical practices in the geographical regions (prescribing or admission strategies and access-to-care aspects), as well as socio-economic and cultural differences.

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1. Introduction

Weight gain and obesity are known risk factors for several diseases, including hypertension, insulin resistance and diabetes mellitus, cardiovascular diseases (CVD), stroke, and some types of cancer [1]. Consequently, weight gain and obesity also affect morbidity and mortality, notably in cardiovascular disease patients [1,2]. There is therefore an urgent need to investigate the risk factors for weight gain and obesity, especially in a clinical context, where weight gain has an impact on patients' medication adherence. Shin and colleagues [2] found that patients gain an average of 2.45 kg during an inpatients psychiatric treatment. To reduce the chances of weight gain during psychiatric hospitalization, we need to determine the factors associated with weight gain that puts patients' health at risk.

At present, there are several known factors that can influence weight or lead to weight gain during inpatient psychiatric treatment. One well-known risk factor is psychopharmacological medication use [3–6]. In their review, Dent and colleagues [3] found that several psychotropic drug types, such as antipsychotics, antidepressants, anxiolytics and mood stabilizers are able to induce weight gain. In several pharmacological trials an association between a lower initial BMI and an increased weight gain during inpatient psychiatric treatment compared to initially obese or overweight patients could be found [2,4,5,6].

In addition, Shin and colleagues [2] found that, in their American multi-racial sample, ethnicity had a significant influence on weight gain. Asian patients showed the smallest weight gain and BMI increase. In contrast, Afro-American patients showed the greatest weight gain and BMI increase. In line with these findings, Truong and Sturm [7] found that in the U.S., non-Hispanic Afro-Americans gained weight faster than non-Hispanic whites. The investigated sample included different ethnic groups, but it remains unclear whether this effect is rooted in biological (e.g., genetic) factors.

However, differences in weight gain also have a cultural explanation: in many modern and industrial cultures, such as in the U.S., obesity has a negative connotation, and thus, the pursuit of weight loss has produced a major industry [8,9]. In contrast, obesity is seen as a sign of health and prosperity in many other cultures [8,9]. In traditional Nigeria, for example, high weight is considered as an indication of femininity, beauty and nobility [9]. Generally, it would seem that Africans see weight as evidence of good living. Also nutritional habits, availability of aliments, and financial opportunities may be factors which are associated with regional differences in weight gain.

Moreover, this difference in BMI change may be due to different clinical practices related to prescribing psychiatric medicines and the diagnostic process in these geographical regions because of different levels of development (for example unaffordable drug prices [10]) and cultural attitudes towards health [11] or food [12]. Additionally, Zito and colleagues [13] found differences in the prescription of psychotropic medication for children and adolescents even between the Netherlands, Germany, and the US, which are defined as

developed countries. As reasons for these differences, the authors cite regulatory restrictions (such as government drug regulation and the availability and financing of services) and cultural beliefs [13,14].

In their systematic review Haroz and colleagues [15] compared the DSM-5 diagnostic criteria for Major Depression with the most frequent features of 170 study populations of 77 different nationalities. They found that the DSM model does not adequately reflect the construct of depression at worldwide levels, because the DSM model is based on research on Western populations. This may derive from different cultural perspectives on or different clinical manifestations of the psychiatric disorders [16].

Based on these findings, we hypothesized that the geographic region of treatment would have an impact on BMI changes during inpatient psychiatric treatment.

In addition to that, we propose that the distribution of psychiatric medication and diagnoses differs among the various studied regions. In this context, we assumed that BMI changes during inpatient psychiatric treatment are influenced by the psychiatric medication and diagnoses that patients obtain [3,4,17].

Moreover, we assume that the BMI of psychiatric inpatients on discharge is higher than their BMI on admission, which in turn influences the BMI change, as reported in the study by Shin and colleagues [2]. Thus, we expect patients who have a normal weight on admission to gain significantly more weight than patients who are overweight or obese on admission.

2. Materials and methods

2.1. Experimental

The study was conducted in mental health care centres in Nigeria (Nnewi), Japan (Hamamatsu), Denmark (6 centers: Aalborg, Augustenborg, Odense, Skanderborg, Slagelse, Tønder), Germany (Düsseldorf) and Switzerland (Marsens). Patients were recruited from May 2003 to February 2006. All patients admitted to a treatment centre at the time of the study were invited to participate. If patients were admitted more than once, only their first admission was included in the study. A detailed assessment of the patients' physical and mental health status was performed on admission and discharge and after three months or on discharge day, whichever came first. Diagnoses and their codes were based on the current ICD-10 criteria of the WHO (2003). Patients were given one of the following diagnoses: F1 (F10-19: Mental and behavioural disorders due to psychoactive substance use), F2 (F20-29: Schizophrenia, schizotypal and delusional disorders), F3 (F30-39: Mood [affective] disorders), F4 (F40-49: Neurotic, stress-related and somatoform disorders), F6 (F60-69: Disorders of adult personality and behaviour). The assessments were made according to routine clinical practice. Additional information regarding geographic origin and socio-demographic data was recorded. For a more detailed description of the methods used in the study see publications by Frasch and colleagues [18], Larsen and colleagues [19] and Toftegaard and colleagues [11].

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