Physical Health and Schizophrenia in Clinical Practice Guidelines and Consensus Statements

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Abstract
Research about the epidemiology of physical health problems in schizophrenia, as well as the development of consensus statements and recommendations to deal with it, has increased in recent years. The objective of this study is to identify, review and compare the clinical practice guidelines and consensus statements on physical health problems in people with schizophrenia that have developed over the last five years.

We conducted a computerized search in PubMed of the literature regarding the management of schizophrenia. We identified 8 clinical practice guidelines or expert consensus statements, including recommendations for monitoring the physical health of people with schizophrenia. We extracted descriptive information from each article and established the level of consensus between them regarding the physical health parameters that they recommend monitoring. Most of the studies identified were conducted by multidisciplinary groups from European countries between 2010 and 2012. Their recommendations were agreed upon and evidence based and all of them concurred in that the study population is especially vulnerable to physical illness. Although there was a high degree of agreement on most of the physical health parameters that they recommend monitoring, their degree of agreement regarding regular check-ups, including blood tests and renal, hepatic and thyroid function tests, was low. This lack of agreement may be related to the specificity of their approach. There is a need to include all components of physical health as a key part of the management of schizophrenia, which requires comprehensive guidelines and systematic and evidence-based assessments and interventions, but also changes in care professionals’ attitudes, stigma and the organization of health care services.

Introduction
Schizophrenia is associated with poor levels of physical health, which leads to high rates of physical morbidity and mortality [1]. People with schizophrenia show high levels of physical morbidity, which is estimated to be present in nearly half of this sample population [2]. Even so, some studies have recently found higher rates of physical morbidity in people with schizophrenia. According to Carney et al. [3] 70% of people with schizophrenia have at least one physical health problem, while 33% of them have three or more problems. Compared with the general population, premature death because of physical morbidity is 5 times higher [3] and accounts for more years of life lost than suicides and accidents [4].

Diabetes, hyperlipidemia, obesity, cardiovascular disease, Human Immunodeficiency Virus (HIV) and Hepatitis C Virus (HCV) are common physical health problems in people with schizophrenia. If people with schizophrenia develop cancer, they have a lower chance of survival, and osteoporosis and hyperprolactinemia are other common physical health problems in this sample population [5,6]. Physical health problems in patients with schizophrenia are related to the disease itself, socio-economic factors (including social exclusion), the effects of medication, a poor lifestyle, and lack of continued care. The interaction of all these factors plays a role in the physical health of people with schizophrenia [2,7].

The physical health problems of people with schizophrenia are frequently under-diagnosed and, consequently, under-treated [8]. It has been shown that physical illness may be responsible for 60% of deaths in people with schizophrenia, which may partly be associated with a lack of proper monitoring by the healthcare services [9-14].

Taking into account all of the above, research on the epidemiology of physical health problems in schizophrenia, as well as the development of consensus statements and recommendations to deal with it, has increased in recent years. The objective of this study is to identify, review and compare the consensus statements and recommendations on physical health problems in people with schizophrenia that have developed over the five last years.

Materials and Methods
We conducted a computerized search in PubMed of the literature regarding the management of schizophrenia in November 2011. We used the following terms: schizophrenia and disorders with psychotic features, schizotypal personality disorder, schizophrenia, guidelines, practice guidelines, consensus development conference, consensus and recommendations. The combination of these terms and further parameters that they recommend monitoring, their degree of agreement regarding regular check-ups, including blood tests and renal, hepatic and thyroid function tests, was low. This lack of agreement may be related to the specificity of their approach. There is a need to include all components of physical health as a key part of the management of schizophrenia, which requires comprehensive guidelines and systematic and evidence-based assessments and interventions, but also changes in care professionals’ attitudes, stigma and the organization of health care services.

Table 1: Search strategy for clinical practice guidelines and consensus statements about schizophrenia in PubMed.

<table>
<thead>
<tr>
<th>Terms</th>
<th>Date</th>
<th>Limits</th>
</tr>
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<tbody>
<tr>
<td>Schizophrenia and Disorders with Psychotic Features[MeSH] OR</td>
<td>November 2011</td>
<td>Published in the last 5 years</td>
</tr>
<tr>
<td>“Schizotypal Personality Disorder”[MeSH] OR schizophrenia* AND</td>
<td></td>
<td>Published in English, Spanish, French and German</td>
</tr>
<tr>
<td>guideline[pt] OR practice guideline[pt] OR consensus development</td>
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</table>

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Received April 16, 2012; Accepted May 18, 2012; Published May 22, 2012


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November 2011), which were a total of 153 references. Of those references, we only selected clinical practice guidelines and expert consensus statements including recommendations for monitoring physical health that were published in English, Spanish, French and German. We also reviewed the references contained in the articles identified and conducted manual searches of the gray literature.

A total of 8 clinical practice guidelines or expert consensus statements including recommendations for monitoring physical health were identified. We then extracted the following information from each article: author, date, country, title, main topic, methodology and physical health parameters recommended for monitoring patients with schizophrenia. The degree of agreement on the physical health parameters between the consensus statements and clinical practice guidelines that were identified was rated as follows: 1) high (included in 7 to 8); 2) medium (included in 4 to 6); and 3) low (included in less than 4).

**Results**

Table 2 shows the main characteristics of the 8 articles that were identified. An overall characterization of most of them is given below:

- They were conducted by multidisciplinary groups gathered together to study the management of patients with schizophrenia or the physical health of this sample population
- They were conducted between 2010 and 2011
- They are mainly based in European countries (especially in the United Kingdom or UK)
- Their recommendations are agreed upon and evidence based
- They include physical health recommendations as a whole, as part of the pharmacological management of the disorder or integrated into its general management

The physical parameters that they recommend monitoring in patients with schizophrenia are classified into two main categories [15]: 1) **non-modifiable risk factors** and 2) **modifiable risk factors**. Non-modifiable risk factors are risk factors associated with mortality, for which it is not known how they can be reduced or they simply cannot be reduced. Modifiable risks factors are risk factors associated with mortality, for which there are known ways of reducing them. They are presented in Table 3 according to the level of agreement between clinical practice guidelines and expert consensus statements.

According to the **non-modifiable risk factors**, all of the studies identified concur on the inclusion of a comprehensive personal and family medical history [2,7,16-21]. It should include the personal and family history with regard to cardiovascular problems, comorbid conditions, diabetes, high-risk behaviors for viral illnesses, hypertension, obesity, oncological problems, substance use and smoking. If patients are under treatment with antipsychotics, it is important to take into account the patients’ history of epilepsy, response to previous treatment and side effects experienced, as well as their compliance history and preferences. Bearing in mind that antipsychotics are the commonest cause of hyperprolactinemia in people with severe mental illness [19] a personal or family history of conditions associated with it (i.e. osteoporosis, breast and prostate cancer) should be also monitored. When patients are taking second-generation antipsychotic medication, particular consideration should be given to a family and personal history of diabetes, dyslipidemia, hypertension, obesity and smoking. A family history of cardiovascular disease should be taken into account, since it increases the risk of metabolic side effects.

As for the **modifiable risk factors**, several parameters should be monitored, as shown in Table 3. Further information will now be provided about them, taking into account the following classification: 1) lifestyle, 2) physical examination, 3) blood test, 3) urine/biochemistry test and 4) imaging assessments.

<table>
<thead>
<tr>
<th>Authors</th>
<th>Date</th>
<th>Title</th>
<th>Country</th>
<th>Type of publication</th>
<th>Main topic</th>
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<tr>
<td>Barnett</td>
<td>2007</td>
<td>Minimizing metabolic and cardiovascular risk in schizophrenia: diabetes, obesity and dyslipidemia</td>
<td>United Kingdom</td>
<td>Consensus statement</td>
<td>Second generation antipsychotics and metabolic problems</td>
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<td>British Association of Psychopharmacology</td>
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<td>Evidence-based guidelines for the pharmacological treatment of schizophrenia: recommendations from the British Association of Psychopharmacology</td>
<td>United Kingdom</td>
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<td>Management of antipsychotics</td>
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<td>Chaudhry</td>
<td>2010</td>
<td>Management of physical health in patients with schizophrenia: international insights</td>
<td>France, Spain, Germany, United Kingdom and Italy</td>
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<td>Physical health monitoring</td>
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<td>Heald</td>
<td>2010</td>
<td>Management of physical health in patients with schizophrenia: practical recommendations</td>
<td>Belgium, Spain, United Kingdom, United States</td>
<td>Consensus statement</td>
<td>Physical health monitoring</td>
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<td>NICE</td>
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<td>The NICE guidelines on core interventions on the treatment and management of schizophrenia in adults in primary and secondary care</td>
<td>United Kingdom</td>
<td>Clinical practice guideline based on systematic literature review</td>
<td>Management of schizophrenia</td>
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<td>Working Group of the Clinical Practice Guideline for Schizophrenia and Incipient Psychosis Disorder</td>
<td>2009</td>
<td>Clinical Practice Guidelines for Schizophrenia and Incipient Psychotic Disorder</td>
<td>Spain</td>
<td>Clinical practice guideline based on systematic literature review</td>
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<td>Working Group on the Physical Health of Patients with Schizophrenia</td>
<td>2008</td>
<td>Consensus on physical health of patients with schizophrenia from the Spanish Societies of Psychiatry and Biological Psychiatry</td>
<td>Spain</td>
<td>Consensus statement based on systematic literature review</td>
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</table>

Table 2: Comparison of guidelines and consensus statements on physical health and schizophrenia.
Lifestyle

Lifestyle considerations should be taken into account when caring for patients with schizophrenia. Clinicians should enquire about lifestyle issues, including:

- **Diet**: habits, dietary needs and calorie intake
- **Exercise history**: sedentary habits and physical activity
- **Alcohol use**: intake, signs and symptoms of alcohol dependency/abuse
- **Drug use**: intake, signs and symptoms of drug dependency/abuse
- **Sexual risk behavior**: promiscuous sexual behavior, use of condoms

### Physical examination

It is also necessary to conduct thorough physical examinations that include monitoring the following aspects:

- **Vital signs**: blood pressure/pulse (systolic and diastolic)
- **Body measurements**: height, weight and waist circumference. These measurements will help clinicians to calculate the patient’s Body Mass Index (BMI). Specifically trained staff are required to measure waist circumference
- **Neurological symptoms and medication side effects**: motor disorders and medication side effects (i.e. extrapyramidal symptoms, sedation, menstrual disorders, etc.)
- **Gynecological/urology check-ups**: Routine screening for cervical and breast cancer and Human Papillomavirus (HPV) are recommended for women. This measure is especially recommended when there are sexual risk behaviors. For men, regular check-ups for prostate specific antigen are recommended, as well as routine screening of HPV.
- **Other measures**: dental health (i.e. dental hygiene, dental hygiene habits and dental health check-ups) and ocular health (i.e. eye problems and ophthalmology check-ups)

### Blood test

It is also recommended that patients with schizophrenia undergo regular blood tests, which may include:

- **Blood count**: white blood cells (or leukocytes), red blood cells (or erythrocytes) and platelets (or thrombocytes).
- **Drug use**: alcohol use, signs and symptoms of drug dependency/abuse
- **General blood test**: fasting plasma glucose levels. Random plasma lipid levels
- **Neurological symptoms and medication side effects**: extrapyramidal symptoms, dyskinesia or other side effects
- **Menstruation**: menstrual disorders and medication side effects (i.e. extrapyramidal symptoms, sedation, menstrual disorders, etc.)
- **Pregnancy test**: pregnancy test
- **Sexual dysfunction**: sexual dysfunction
- **Sexual risk behavior**: sexual risk behavior
- **Serology**: hepatitis B virus or HBV and HCV, HIV, syphilis (i.e. venereal disease research laboratory test) and HPV. These measures are recommended especially when there are sexual risk behaviors
- **Thyroid function**: Thyroid Stimulating Hormone (TSH) and Thyroxine (T4)
- **Drug levels**: levels of medications and other drugs in the blood
- **Serology**: presence and level of antibodies to viral hepatitis (i.e. hepatitis B virus or HBV and HCV), HIV, syphilis (i.e. venereal disease research laboratory test) and HPV. These measures are recommended especially when there are sexual risk behaviors
- **Pregnancy test**: pregnancy test

### Table 3

<table>
<thead>
<tr>
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1 = Barnett; 2 = British Association of Psychopharmacology; 3 = British Association of Psychopharmacology; 4 = Heald; 5 = Ministry of Health Clinical Practice Guidelines Workgroup on Schizophrenia; 6 = NICE; 7 = Working Group of the Clinical Practice Guideline for Schizophrenia and Incipient Psychosis Disorder; 8 = Working Group on the Physical Health of Patients with Schizophrenia

Table 3: Physical health parameters in consensus statements and clinical practice guidelines for patients with schizophrenia.
smoking and sedentary habits, which are common in people with schizophrenia

**Urine/biochemistry test**
- Drug use: levels of medications and other drugs in urine
- Pregnancy test
- Renal function

**Imaging assessments**
- Electrocardiogram or ECG: ECGs are especially recommended in the following situations: 1) a family history of long QT syndrome; 2) a history of cardiovascular disease or arrhythmias; 3) a physical examination has identified a specific cardiovascular risk; 4) the patient is taking a cardiotoxic drug or high doses of psychotropic drugs or acute parenteral antipsychotic drugs or antipsychotic drugs together with another drug which may extend the QT interval or predispose the patient to arrhythmias; 5) baseline ECG abnormalities; 6) new symptoms indicative of arrhythmia or cardiovascular problems; 7) in a trial of high doses of antipsychotic medication or a combination of medications; and 8) if there are electrolyte abnormalities
- Magnetic resonance imaging or MRI: MRIs should be one of the components of an optimum initial assessment for the prescription of antipsychotic drugs
- Mammography: mammograms may be used to complement gynecological check-ups

**Discussion**

The objective of this study was to identify, review and compare the consensus statements and recommendations on physical health problems in people with schizophrenia that have developed over the last five years.

The clinical practice guidelines and consensus statements identified show that the importance of developing strategies to deal with physical illness in the comprehensive care of patients with schizophrenia and severe mental illness has increased. All the consensus statements and clinical practice guidelines reviewed show that this population is especially vulnerable to physical illnesses and that the following factors play a role: 1) genetics; 2) predisposition to illness; 3) lifestyle; and 4) antipsychotic drugs. It is worth stressing that some authors have also highlighted other factors such as the unsatisfactory organization of health care services, professionals’ attitudes and the stigma associated with the illness [22]. There is a low degree of agreement in the clinical practice guidelines and consensus statements identified on issues such as regular check-ups regarding blood test, renal, hepatic and thyroid function. Moreover, there is also a low degree of agreement on clinical data that can be recorded by means of clinical records such as physical examinations, neurological examinations, changes in menstruation, sedation, sexual risk behavior and risk of pregnancy. This lack of agreement may be related to the specificity of their approach. Some of them deal with physical illness through the management of antipsychotics [16,17], while some of them do so through the general management of patients with schizophrenia [2,7,21] or physical illness itself [18-20].

All of the above highlight a need to integrate physical health into the general care of people with schizophrenia. To do so, there is a need for primary care services, mental health services and other specialties to work in cooperation and share responsibility for the patient. Professionals should increase their awareness of the problems of physical illness in schizophrenia and the need for ongoing training [20]. They will then be ready to provide interventions for the prevention, diagnosis, management and follow-up of their patients’ physical health problems, as well as the risk factors and concomitant factors that play a role in them. When dealing with the physical health problems of these patients, the authors of this paper recommend:

- Recording the patient’s personal and family medical history as thoroughly as possible, including history of physical and mental disorders, but also treatment-related factors such as response, side effects experienced, compliance and preferences.
- Systematic monitoring, including drugs side effects and physical comorbidities. This should help to discriminate between modifiable and non-modifiable factors and, consequently, improve patients’ quality of life.
- Interventions developed in phases, with clear and plausible objectives, keeping in mind what is important and a priority at each moment. For instance, young people who present a first episode schizophrenia frequently show poor adherence to treatment in general terms and, more specifically, to drug treatment because of side effects (i.e. weight gain, sexual problems, etc.). Therefore, in these patients the intervention might be aimed at improving treatment adherence, which might already be high in long-term patients, and there might be other treatment needs. The interventions provided may be psycho-education, physical activity, reduction of calorie intake, etc. and should involve creative approaches to develop educational material and group work.

Further work on the physical illness of patients with schizophrenia may include the development of specific tools, such as shared computer networks, intervention algorithms and record cards. Other tools may help to identify risk areas for variables such as weight and BMI, as well as analyzing the risk-benefit of drug treatment. Specific material for patients in terms of diet, physical activity and drug precautions should be also developed. All these tools and materials could be specific components of the cooperative and coordinated work between primary care and specialized care professionals. Professionals should receive specific training on physical health problems early during their residency in order to detect these problems and treat them as soon as possible, especially when access to specialized services might be delayed.

One of the limitations of our study is the fact that the systematic literature review that we conducted was restricted to clinical practice guidelines and consensus statements published during the last 5 years. This may explain in part why most of the identified clinical practice guidelines and consensus statements were from European countries. Even so, it is worth highlighting that we conducted a systematic literature review in PubMed so we did not exclude any country, and that clinical practice guidelines and consensus statement published more than five years ago are considered to be out of date [23].

In summary, the physical health of patients with schizophrenia is an important issue, as evidenced in all the consensus statements and clinical practice guidelines that we have identified. There is a need to include it as a key part of the management of this disorder, which requires comprehensive guidelines and systematic and evidence-based
assessments and interventions, but also changes in care professionals’ attitudes, stigma and the organization of health care services.

References