Psychosis and cardiovascular disease: Is diet the missing link?

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ABSTRACT

Objective: To explore the diets of people living with psychotic disorders, and to compare their dietary composition to the general population.

Method: 184 people with psychotic disorders in Adelaide, South Australia completed a food frequency questionnaire. Physical information and mental health status were collected. Outcome measures included energy and macronutrient intake; fish, sodium, fruit and vegetable intake; micro-nutrient intake; body mass index; waist circumference; and diagnoses of diabetes and hypertension. The RDI of nutrients was derived from Australian Government publications. Comparison dietary data was obtained from surveys carried out by the Australian Bureau of Statistics.

Results: The majority of participants were overweight or obese (78%) and 77.5% met the criteria for at-risk waist circumference; and 58% of participants consumed salt and saturated fat in excess of the RDI. Most did not achieve the RDI for fruits and vegetables (97.8%), fibre (88.6%), fish (61.4%), magnesium (73.4%) or folate (86.4%). Women with psychosis had significantly higher intakes of vitamins and minerals compared to women in the general population. Men and women with psychosis consumed more daily total fat, saturated fat and sodium compared to adults in the Australian population, but lower fibre and vitamin E than their male and female counterparts.

Conclusion: People with psychosis, especially women, report poor dietary choices including increased energy and fat intake, heightening their risk for cardiovascular disease. Women with psychosis report higher intake of vitamins and minerals than women in the general population. Whilst dietary intake contributes to obesity in psychosis, other factors including antipsychotic agents, decreased physical activity and smoking add to the cardiovascular risk.

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1. Introduction

People with psychosis have a shorter life expectancy than the general population (Laurson, 2011), with cardiovascular morbidity contributing significantly to their poor health outcomes. The risk factors for CVD in psychosis not only include the traditional risk factors of smoking, hypertension, obesity, diabetes, decreased physical activity and dyslipidaemia, but also disease-specific and treatment-related factors. Despite increased prevalence of traditional risk factors, people with a psychotic illness are less likely to be adequately screened (Osborn et al., 2007) or treated, with up to 88% of adults with schizophrenia not receiving recommended therapy for their physical conditions (Nasrallah et al., 2006). Many antipsychotic medications are associated with obesity, diabetes and dyslipidaemia (De Hert et al., 2012). However, people

with severe mental illness who are drug naïve still have an elevated relative risk of CVD (Osborn et al., 2007); therefore, other factors must also contribute.

Numerous studies have investigated the association between cardiovascular risk and macro- and micronutrient deficiency or excess. The American Heart Association has published guidelines on diet and lifestyle recommendations to prevent cardiovascular disease (Lichtenstein et al., 2006). A diet high in fibre, fruit and vegetables, and low in saturated fat, trans fat and salt, has been promoted for cardiovascular health. Several small studies have assessed the diet quality in people with psychotic disorders (McCreadie, 2003; Strassnig et al., 2003; Henderson et al., 2006). However, there have been variations in the study design, such as using dietary recall in the past 24 h (Strassnig et al., 2003) or using a four-day dietary record (Henderson et al., 2006). This suggests that the evidence is inconsistent concerning whether people with psychosis have a poor diet, which would then contribute to the elevated risk of cardiovascular disease in psychosis.

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Table 1
Physical health characteristics, diagnoses, medication and BMI.

Variable		N (%) or M (SD)
Diagnosis		
	Schizophrenia	55 (29.9%)
	Schizoaffective disorder	60 (32.6%)
	Bipolar disorder	26 (14.1%)
	Major depressive disorder with psychosis	10 (5.4%)
	Other	33 (17.9%)
Medication		
	Typical antipsychotic	39 (21.2%)
	Atypical antipsychotic	105 (72.3%)
	Clozapine	28 (15.2%)
	Mood stabilizer	63 (34.2%)
	Antidepressant	83 (45.1%)
	Anxiolytic/hypnotics/sedatives	41 (22.3%)
	Anti-hypertensive medication	16 (8.7%)
	Lipid regulation medication	19 (10.3%)
	Anti-hyperglycaemia medication	8 (4.3%)
Polypharmacy		
	Single antipsychotic (typical or atypical or clozapine)	115 (62.5%)
	Two or more antipsychotic type	41 (22.3%)
	Any anti-psychotic + mood stabilizer	56 (30.4%)
	Any anti-psychotic + anti-depressant	68 (37.0%)
	Any anti-psychotic + anxiolytic/hypnotic/sedatives	34 (18.5%)
Body mass index (kg/m2)		
	Underweight (<18.5)	1 (0.5%)
	Normal (18.5–24.9)	37 (20.1%)
	Overweight (25–30)	56 (30.4%)
	Obese (30<)	85 (46.2%)
	Missing	5 (2.7%)
Blood pressure (mm Hg)		
	Systolic ≥ 130 mm HG	73 (39.7%)
	Diastolic ≥ 85 mm HG	93 (50.5%)
Diagnosed with diabetes		45 (24.9%)
Met criteria for metabolic syndrome		106 (53%)
Current smoker		132 (71.7%)
Physical activity level		
	Sedentary	35 (19.1%)
	Low	77 (42.1%)
	Moderate	55 (30.1%)
	High	16 (8.7%)

We undertook a cross-sectional study of a population with psychosis in order to clarify their dietary composition. If poor dietary choices contribute to the increased risk of cardiovascular disease, then dietary interventions should be a clinical priority.

2. Methods

2.1. Study population

This study was a subset of the second Australian national survey of psychosis. Methodological details of this survey are described elsewhere (Morgan et al., 2013). The present study took part in the Northern Adelaide site, one of the eight survey sites. There were 402 subjects at this site who originally took part in the survey, and they were offered participation in an additional study which included assessments of diet and sleep, and an ECG. Contact information was provided by the Consumer Base Information System (CBIS) Mental Health. Participants were contacted by phone and/or letter to reissue the invitation to participate and 210 people responded. A total of 184 participants completed the assessment. Participant loss was due to unwillingness to participate in the study or patients being unreachable. The 184 subjects who agreed to this further study, and completed the assessment, did not differ in age, gender or diagnosis from non-participants.

Ethics approval was obtained from the Queen Elizabeth Hospital Ethics Committee.

2.2. Data collection and dietary assessment

Data were collected in a face to face interview. Each participant completed The Cancer Council Dietary Questionnaire (DQES; Ireland et al., 1994), which reports diet over the last 12 months. A trained researcher assisted with clarification of terms when required. The Cancer Council analyses the nutritional content of the DQES using the Nutrient Table for use in Australia (NUTTAB95) database (Lewis et al., 1995).

The Diagnostic Interview for Psychoses (DIP; Castle et al., 2006) was used to make ICD-10 diagnoses. Methods for collecting anthropometric data including blood pressure, height, weight, waist circumference and plasma collection for glucose and lipid analysis have been described (Galletly et al., 2012). Physical activity was assessed using the International Physical Activity Questionnaire (IPAQ) and included four categories of physical exercise: sedentary, low, moderate and high (Craig et al., 2003). Participants were asked about smoking status, medications they had taken in the last month, and if they had ever been diagnosed with diabetes (or high blood sugar) or hypertension. Metabolic syndrome was defined using the harmonized criteria developed by the International Diabetes Federation Task Force on Epidemiology and Prevention