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BRIEF COMMUNICATION

Individual Dietetic Consultations in First Episode Psychosis: A Novel Intervention to Reduce Cardiometabolic Risk

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Abstract Individual dietetic consultations were trialled in a community-based first-episode psychosis program. Participants received eight individualised dietetic consultations, plus weekly shopping tours and cooking groups. The outcome measure was waist circumference (WC). In total, 30 patients commenced the program. An intention-to-treat analysis revealed, a statistically significant reduction in WC (mean = 2.1 ± 5.4 cm, t = 2.1, $df = 29$, $p = 0.04$). Similar results were found for the 14 participants who attended all eight sessions (mean WC reduction = 2.9 ± 4.7 cm, t = 2.3, $df = 13$, $p = 0.04$). Dietetic consultations were feasible and effective in reducing WC, and could enhance programs to reduce cardiometabolic risk in youth with psychosis using lifestyle interventions.

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Introduction

People with psychotic illness experience poorer health outcomes and higher rates of premature mortality (Foley and Morley 2011; Thornicroft 2013). Whilst central obesity, dyslipidaemia and glucose dysregulation occur commonly in the Australian general population, the rates are up to three times higher amongst people experiencing psychotic illness (Morgan et al. 2012). There is clear evidence linking atypical antipsychotic medication use with increased rates of diabetes, metabolic syndrome and cardiovascular disease, the primary causes of premature death in people with serious mental illness (SMI) (Hennekens et al. 2005; De Hert et al. 2008). Young people are

particularly prone to rapid adverse metabolic changes on commencement of atypical antipsychotic medication and are at high risk of developing diabetes and cardiovascular disease (Correll et al. 2009).

Waist circumference (WC) has been identified as the most critical component of metabolic syndrome as per the International Diabetes Federation (IDF) guidelines (http://www.idf.org). In a pooled analysis of over 650,000 an increased WC (males > 94 cm, females > 80 cm) was significantly associated with higher mortality even amongst those with a normal BMI (18.5–24.9 kg/m^2) (Cerhan et al. 2014).

People experiencing psychosis consume more calories and saturated fat, and eat less fruits, vegetables and fibre when compared to the general population (Dipasquale et al. 2012). In addition people with schizophrenia consume diets lower in milk, potatoes and pulses and eat more take-away foods compared to the general population (McCreadie 2003; Gupta and Craig 2009). Combined with lower levels of physical activity (Jerome et al. 2009) this puts patients at higher risk for metabolic syndrome and lifestyle diseases.

Increasing evidence demonstrates the positive effects of dietary and exercise interventions on people with SMI. The effectiveness of lifestyle intervention for weight loss in obese people with SMI has been demonstrated in a large scale, 18-month trial (Daumit et al. 2013). It would clearly be more desirable to prevent such outcomes in young people at the onset of SMI.

A smaller number of studies have assessed the effectiveness of dietary intervention alone, (Evans et al. 2005; Skouroliakou et al. 2009) with a previous 3-month nutrition intervention delivered by a dietician leading to reduced fat mass and WC in people with SMI who are obese (Skouroliakou et al. 2009). However, there is a paucity of data evaluating the effectiveness of dietetic intervention embedded within first-episode psychosis (FEP) treatment programs.

The aim of this observational study was to assess the feasibility and effectiveness of a dietician intervention delivered to young people with FEP. We hypothesised that young people with FEP who attended the eight session dietary program would have improved anthropometric measures at follow-up.

Methods

This pilot study utilized a pre-post design and was conducted within the Bondi EPP, an outpatient community mental health facility. The programme treats young people (aged 15–25 years) who have experienced a FEP and offers comprehensive multidisciplinary care for up to 2 years. This project was approved as a quality improvement project by the South Eastern Sydney Local Health District (SESLHD) on March 12, 2009.

All FEP clients had access to services provided by a part-time dietician between April 2009 and May 2011. The clinical team made referrals to the dietician, prioritizing those at greater metabolic risk. In total 30 participants were referred to the intervention (male n = 17, female n = 13) with a mean age of 20.8 ± 2.6 years and mean time in program at referral of 15 ± 12 months. At baseline 77 % participants were prescribed atypical antipsychotics, 37 % were prescribed mood stabilisers and 17 % were prescribed antidepressants, with 67 % diagnosed with schizophrenia spectrum disorder and 33 % diagnosed with bipolar affective disorder according to DSM-IV-TR.

The intervention involved eight individualised sessions, each lasting between 30 and 60 min, and covered set educational modules, which has now been formalised in the 'Stepping Forward Lifestyle Workbook'. The initial consultation consisted of a full nutrition assessment involving medical history, medication status, biochemical markers, social history, physical activity levels and alcohol intake.

In addition, weekly shopping tours and cooking groups were conducted by the dietician and an occupational therapist. Patients were encouraged to attend these sessions to develop critical food storage, preparation and cooking skills and were also able to utilise the on-site gym and attend a sports group facilitated by caseworkers and exercise physiologists (components of usual care).

The primary outcome, WC (cm), was measured by the dietician at the beginning of each individual consultation and recorded in the standard New South Wales (NSW) Metabolic Monitoring Chart for Mental Health Services (http://www0.health.nsw.gov.au/policies/ib/2012/IB2012_024.html). Waist measures were taken at the halfway point between the patients' lowest rib and top of the iliac crest.

Mean change in WC was determined by conducting a paired *T* test (SPSS v22) on baseline WC compared to the WC at the final session for all individuals who completed the intervention. Analyses were performed first as intention-to-treat, using the last measure carried forward for drop-outs. A second analysis was performed restricted to the WC outcomes in the subgroup that attended all eight sessions (47 %).

The criterion for statistical significance was $p < 0.05$. The summary data are presented as means and standard deviation (SD).

Results

At baseline, WC in males was 101.3 ± 11.4 and 87.7 ± 17.7 cm in females. Fourteen males (85 %) and six females (46 %) were overweight or obese by BMI

($\geq$25 kg/m^2). None were underweight (<18.5 kg/m^2). At baseline, 82 % of males and 69 % of females had abdominal obesity as defined by IDF criteria. There were 14 participants that completed all eight sessions. Completers were more likely to have a higher WC at baseline compared to non-completers (98.9 ± 16.8 vs. 92.4 ± 14.6 cm), however this was not statistically significant (t = −1.13, $df = 28$, $p = 0.27$). There was no difference in the proportion of patients prescribed antipsychotics between completers and non-completers. In total 93 % of completers were receiving at least one antipsychotic compared to 63 % of non-completers, ($\chi^2 = 0.05$, $df = 1$, $p = 0.06$). Rates of polypharmacy did not differ between completers (14 %) and non-completers (13 %), ($\chi^2 = 0.89$, $df = 1$, $p = 0.65$). In addition there was no difference in the prescription of mood stabilisers with 47 % of completers compared to 53 % of non-completers prescribed mood stabilisers, ($\chi^2 = 0.39$, $df = 1$, $p = 0.32$), or antidepressants with 14 % of completers and 19 % of non-completers prescribed antidepressants, ($\chi^2 = 0.74$, $df = 1$, $p = 0.57$).

Data were analysed using intention-to-treat and completers analyses. Analysed as intention-to-treat, a significant reduction in WC was found (baseline 95.4 ± 2.9 cm and final measure 93.3 ± 2.9 cm, t = 2.1, $df = 29$, $p = 0.04$). A completers analysis for the 14 subjects who attended all eight sessions also found a significant reduction in WC over the intervention period (baseline 98.9 ± 4.5 cm and after eight sessions 96.0 ± 4.7 cm, t = 2.3, $df = 13$, $p = 0.04$). A non-completers analysis using LOCF for the 16 subjects who did not attend all eight sessions revealed a decrease in waist circumference, however this did not reach statistical significance (baseline 92.4 ± 14.6 cm and LOCF 91.0 ± 14.8 cm, t = −0.92, $df = 15$, $p = 0.37$.

Discussion

This study provides preliminary evidence that a dietetic intervention that provides not only nutritional education, but individualized counselling and food skills acquisition improves central obesity in youth with FEP. The study highlights the importance of a multi-disciplinary approach to physical health care in this vulnerable group.

Of the 30 patients that commenced the nutrition program, 47 % successfully completed all eight sessions. Reasons for non-attendance were not determined in all cases, however rates of attendance were not dissimilar from those encountered in other elements of FEP treatment (Doyle et al. 2014). Reduced engagement driven by the many extra challenges in this vulnerable group is a common theme. A means of retaining attendance needs to be found to ensure greater adherence to the program.

This pragmatic evaluation of a novel intervention has several limitations, including the lack of a control group and relatively small sample size. It is also possible that the mean decrease in WC found in this study may have been influenced by other factors, such as increased clinical contact i.e. a possible Hawthorne effect, or changes in psychotropic medication prescription and/or dosage or concomitant changes in physical activity, though this is less likely, since the majority of the evidence indicates a continuing increase in weight with on-going antipsychotic prescription (Alvarez-Jiménez et al. 2008).

Despite these limitations it is possible that participants obtained numerous other benefits, including improved engagement in other elements of the treatment program, enhanced social contacts with peers, increased nutrition knowledge and improved food safety, shopping, cooking, and budgeting skills. These were not formally measured in this study. Based on the promising WC results obtained in this pilot study, formal evaluation of a multi-component lifestyle intervention program, including a more comprehensive dietetic assessment, is currently being undertaken (Curtis et al. 2014).

Conclusion

The potential for dietetic interventions to reduce cardiometabolic risk and improve physical health outcomes is considerable, and underpins the goal of improving life expectancy in young people with FEP (http://www.iphys.org.au).

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Conflict of interest All authors certify responsibility for the manuscript and declare that there are no conflicts of interest.

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