TECHNICAL COMMENTARY

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Relationships

Introduction

Schizophrenia can have an intrusive effect on personal relationships, social interactions and on libido. For example, people with schizophrenia are reported to have lower rates of marriage compared to the general population[1]. For people with schizophrenia who experience difficulty forming and maintaining relationships, this may be a direct consequence of the disorder and its debilitating symptoms, potentially resulting in low self-image, poor self-care, limited social skills, even sexual disinhibition, or an overly sexual content of hallucinations or delusions which disrupt development of functional relationships[2]. Investigations have suggested that the cognitive deficits experienced by many people with schizophrenia, including impairments in theory of mind, social perception and emotional recognition may pose significant hindrance to the formation of meaningful relationships. Antipsychotic medication has also been shown to impact on sexual function[2].

Method

We have included only systematic reviews (systematic literature search, detailed methodology with inclusion/exclusion criteria) published in full text, in English, from the year 2000 that report results separately for people with schizophrenia, schizoaffective disorder, schizophreniform disorder or first episode schizophrenia. Reviews were identified by searching the databases MEDLINE, EMBASE, CINAHL, Current Contents, PsycINFO and the Cochrane library. Hand searching reference lists of identified reviews was also conducted. When multiple copies of reviews were found, only the most recent version was included. Reviews with pooled data are prioritised for inclusion.

Review reporting assessment was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist that describes a preferred way to present a meta-analysis[3]. Reviews with less than 50% of items have been excluded from the library. The PRISMA flow diagram is a suggested way of providing information about studies included and excluded with reasons for exclusion. Where no flow diagram has been presented by individual reviews, but identified studies have been described in the text, reviews have been checked for this item. Note that early reviews may have been guided by less stringent reporting checklists than the PRISMA, and that some reviews may have been limited by journal guidelines.

Evidence was graded using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) Working Group approach where high quality evidence such as that gained from randomised controlled trials (RCTs) may be downgraded to moderate or low if review and study quality is limited, if there is inconsistency in results, indirect comparisons, imprecise or sparse data and high probability of reporting bias. It may also be downgraded if risks associated with the intervention or other matter under review are high. Conversely, low quality evidence such as that gained from observational studies may be upgraded if effect sizes are large, there is a dose dependent response or if results are reasonably consistent, precise and direct with low associated risks (see end of table for an explanation of these terms)[4]. The resulting table represents an objective summary of the available evidence, although the conclusions are solely the opinion of staff of NeuRA (Neuroscience Research Australia).

Results

We found four systematic reviews that met our inclusion criteria[1, 2, 5, 6].

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- Moderate to high quality evidence finds a medium-sized association between increased psychotic symptom severity and increased levels of loneliness. Moderate to low quality evidence finds reduced social networks in people with first-episode psychosis compared to controls.
- Moderate quality evidence finds the marital status of people with schizophrenia varies considerably in the developing world with marriage rates ranging from 16% to 73%, divorce rates ranging from 6% to 39%, and percentage of single people with schizophrenia ranging from 26% to 65%.
- Moderate to low quality evidence finds sexual dysfunction is common in people with a severe mental disorder such as schizophrenia. Sex education may increase functioning and improve personal relationships, as well as reduce risks including HIV and unplanned pregnancy.

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Cohen A, Patel V, Thara R, Gureje O

Questioning an axiom: better prognosis for schizophrenia in the developing world?

Schizophrenia Bulletin 2008; 34(2): 229-44

View review abstract online

Comparison	**Marital status of people with schizophrenia in low and middle income countries (as defined by the World Bank).**
Summary of evidence	**Moderate quality evidence (large sample, unable to assess consistency or precision, direct) suggests the marital status of people with schizophrenia varies considerably in the developing world with marriage rates ranging from 16% to 73%, divorce rates ranging from 6% to 39%, and the percentage of single people with schizophrenia ranging from 26% to 65%.**

Marital status in low and middle income countries

Data is quoted for percentage of people with a diagnosis of schizophrenia who are currently or have ever been married, separated, divorced, or otherwise.

N = 1,651, 10 observational studies worldwide

Marriage rates are considerably below general population levels for all countries reported.

Saõ Paulo, Brazil: 16.9% married, 65.3% single, 15.4% separated/divorced, 2.4% widowed.

Sichuan, China: 41.7% with a partner, 58.3% have no partner.

Butajira, Ethiopia: 30% married, 52.1% never married, 17.9% separated/divorced/widowed.

Madras Longitudinal study, India: 68.7% ever married and 31.3% never married at 10 year assessment; 73.7% currently married and 26.3% single at 20 years.

Chennai, India: 60.9% ever married, 39.6% ever divorced/separated.

Kamataka, India: around 50% currently married.

Bali, Indonesia: at 5 year assessment, 51% currently married and 49% single; at 11 year assessment 63% ever married.

Ilesa, Nigeria: 16% satisfactorily married, 7.4% married, with problems reported, 16% separated/divorced, 51% never married, 9.6% widowed.

Abeokuta, Nigeria: 28.3% married, 27.5% separated/divorced, 39.2% never married, 5% widowed.

Ibadan, Nigeria: 48.5% married or cohabitating, 44.4% single 5.8% divorced/separated/widowed, 1.2% other/not known.

Consistency in results‡	Unable to assess; no measure of consistency is reported.
Precision in results§	Unable to assess; no measure of precision is reported.
Directness of results‖	Direct

Gayer-Anderson C, Morgan C

Social networks, support and early psychosis: a systematic review

Epidemiology and Psychiatric Sciences 2013; 22: 131-146

View review abstract online

Comparison	**Social and support networks of people with first-episode psychosis vs. controls.**
Summary of evidence	**Moderate to low quality evidence (unclear sample size, unable to assess consistency or precision, direct) suggests reduced social networks in people with first-episode psychosis compared to controls.**
Social and support networks	
38 studies examined social and support networks and most reported smaller social networks for patients compared to controls. Several studies reported no differences in the size of family networks.	
Consistency in results	Unable to assess; no measure of consistency is reported.
Precision in results	Unable to assess; no measure of precision is reported.
Directness of results	Direct

Michalska Da Rocha B, Rhodes S, Vasilopoulou E, Hutton P

Loneliness in Psychosis: A Meta-analytical Review

Schizophrenia Bulletin 2018; 44: 114-25

View review abstract online

Comparison	**Association between psychotic symptom severity and loneliness.**
Summary of evidence	**Moderate to high quality evidence (large sample, inconsistent, precise, direct) finds a medium-sized, significant association between increased psychotic symptom severity and increased loneliness.**
Loneliness and psychotic symptoms	
A medium-sized, significant association between increased psychotic symptom severity and increased loneliness; 13 studies, N = 15,647, r = 0.32, 95%CI 0.20 to 0.44, $p < 0.001$, $I^2 = 97.56\%$ There were no moderating effects of loneliness assessment measure or stage of illness.	
Consistency in results	Inconsistent
Precision in results	Precise
Directness of results	Direct

McCann E

Exploring sexual and relationship possibilities for people with psychosis--a review of the literature.

Journal of Psychiatric & Mental Health Nursing 2003; 10(6): 640-9

View review abstract online

Comparison	**Sexual and relationship issues affecting persons with mental illness (predominantly schizophrenia).**
Summary of evidence	**Moderate to low quality evidence (unclear sample size, unable to assess consistency or precision, direct) suggests sexual dysfunction is common in people with severe mental illness such as schizophrenia. Sex education may increase functioning and improve personal relationships, as well as reduce risks such as HIV and unplanned pregnancy.**
HIV/AIDS awareness	

43 studies examined HIV awareness and risky behaviours in people with psychiatric disorders, predominantly schizophrenia. Both an increased prevalence of HIV in serum and increased risk of HIV infection were reported in people in community and outpatient settings. Access to information about HIV/AIDS was found to be limited. Authors suggest psychoeducation programs may target risky behaviour, sexual assertiveness and behavioural self-management.
Sexual problems and needs
One study reported in people with a major mental illness, the rates of sexual dysfunction vary between 18% and 67%. Antipsychotic medication has been associated with significant sexual side effects, for example reduced sexual performance, inability/delay in orgasm and reduced libido. One study found that nursing staff are hesitant to discuss sexual problems, but nurses may in fact be the optimal health care staff for addressing issues including sexual abuse, sexual dysfunctions, sexually transmitted diseases, relationship events and sexual preferences.
Relationship issues
Five studies suggest that sexual preferences may discourage people with a mental illness from having fulfilling relationships, as support from family and carers is often absent for preferences other than heterosexual. One study suggests that people with a mental illness having relationships with each other may be mutually beneficial, resulting in fewer hospitalisations and increased satisfaction with the relationship. Three studies report people with a mental illness perceived a stigmatisation such as negative reactions to their illness, resulting in social isolation and feelings of despair. Two further studies suggest that people with a mental illness have a need to express their feelings and that both family and health care staff can help alleviate this isolation.
Family planning
One study describes family planning in the context of risky behaviour management, and proposed interventions such as education and support, counselling to reduce risk, skills training for contraceptive use, and assertiveness skills.
Policy issues for inpatients

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One study questioned 86 hospital directors about service priorities. 88% of respondents indicated inpatient's sexual health was a concern of the institution, and the majority of hospitals had sexual behaviour policies. However, two further studies indicated that hospital staff discouraged sexual expression and inpatients generally had little opportunity to practice responsible sex.	
Sex education	
Four studies identified key topics in current sex education in mental hospitals including anatomy and physiology; sexual rights in hospital; privacy; relationship stress; staff attitudes; hospital policies; and family planning For people with a mental illness living in the community, one study identified educational issues relating to sexual dysfunction and medication non-compliance, social isolation contributing to relapse, inappropriate sexual behaviour hindering community integration, family planning issues and sexual abuse. They suggested that sexual surrogates may be an effective means of increasing sexual functioning and understanding.	
Consistency in results	Unable to assess; no measure of consistency is reported.
Precision in results	Unable to assess; no measure of precision is reported.
Directness of results	Direct

Explanation of acronyms

AIDS = Acquired immune deficiency syndrome, HIV = Human immunodeficiency virus, N = number of participants, *p* = statistical probability of obtaining that result ($p < 0.05$ generally regarded as significant)

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Explanation of technical terms

* Bias has the potential to affect reviews of both RCT and observational studies. Forms of bias include; reporting bias – selective reporting of results; publication bias - trials that are not formally published tend to show less effect than published trials, further if there are statistically significant differences between groups in a trial, these trial results tend to get published before those of trials without significant differences; language bias – only including English language reports; funding bias - source of funding for the primary research with selective reporting of results within primary studies; outcome variable selection bias; database bias - including reports from some databases and not others; citation bias - preferential citation of authors. Trials can also be subject to bias when evaluators are not blind to treatment condition and selection bias of participants if trial samples are small[7].

† Different effect measures are reported by different reviews.

Prevalence refers to how many existing cases there are at a particular point in time. Incidence refers to how many new cases there are per population in a specified time period. Incidence is usually reported as the number of new cases per 100,000 people per year. Alternatively some studies present the number of new cases that have accumulated over several years against a person-years denominator. This denominator is the sum of individual units of time that the persons in the population are at risk of becoming a case. It takes into account the size of the underlying population sample and its age structure over the duration of observation.

Reliability and validity refers to how accurate the instrument is. Sensitivity is the proportion of actual positives that are correctly identified (100% sensitivity = correct identification of all actual positives) and specificity is the proportion of negatives that are correctly identified (100% specificity = not identifying anyone as positive if they are truly not).

Weighted mean difference scores refer to mean differences between treatment and comparison groups after treatment (or occasionally pre to post treatment) and in a randomised trial there is an assumption that both groups are comparable on this measure prior to treatment. Standardised mean differences are divided by the pooled standard deviation (or the standard deviation of one group when groups are homogenous) which allows results from different scales to be combined and compared. Each study's mean difference is then given a weighting depending on the size of the sample and the variability in the data. 0.2 represents a small effect, 0.5 a medium effect, and 0.8 and over represents a large effect[7].

Odds ratio (OR) or relative risk (RR) refers to the probability of a reduction (< 1) or an increase (> 1) in a particular outcome in a treatment group, or a group exposed to a risk factor, relative to the comparison group. For example, a RR of 0.75 translates to a reduction in risk of an outcome of 25% relative to those not receiving the treatment or not exposed to the risk factor. Conversely, a RR of 1.25 translates to an increased risk of 25% relative to those not receiving treatment or not having been exposed to a risk factor. A RR or OR of 1.00 means there is no difference between groups. A medium effect is considered if RR > 2 or < 0.5 and a large effect if RR > 5 or < 0.2[8]. lnOR stands for logarithmic OR where a lnOR of 0 shows no difference between groups. Hazard ratios

measure the effect of an explanatory variable on the hazard or risk of an event.

Correlation coefficients (eg, r) indicate the strength of association or relationship between variables. They are an indirect indication of prediction, but do not confirm causality due to possible and often unforseen confounding variables. An r of 0.10 represents a weak association, 0.25 a medium association and 0.40 and over represents a strong association. Unstandardised (*b*) regression coefficients indicate the average change in the dependent variable associated with a 1 unit change in the independent variable, statistically controlling for the other independent variables. Standardised regression coefficients represent the change being in units of standard deviations to allow comparison across different scales.

‡ Inconsistency refers to differing estimates of effect across studies (i.e. heterogeneity or variability in results) that is not explained by subgroup analyses and therefore reduces confidence in the effect estimate. I^2 is the percentage of the variability in effect estimates that is due to heterogeneity rather than sampling error (chance) - 0% to 40%: heterogeneity might not be important, 30% to 60%: may represent moderate heterogeneity, 50% to 90%: may represent considerable heterogeneity and over this is considerable heterogeneity. I^2 can be calculated from Q (chi-square) for the test of heterogeneity with the following formula[7];

$$I^2 = \left(\frac{Q - df}{Q}\right) \times 100\%$$

§ Imprecision refers to wide confidence intervals indicating a lack of confidence in the effect estimate. Based on GRADE recommendations, a result for continuous data (standardised mean differences, not weighted mean differences) is considered imprecise if the upper or lower confidence limit crosses an effect size of 0.5 in either direction, and for binary and correlation data, an effect size of 0.25. GRADE also recommends downgrading the evidence when sample size is smaller than 300 (for binary data) and 400 (for continuous data), although for some topics, these criteria should be relaxed[9].

‖ Indirectness of comparison occurs when a comparison of intervention A versus B is not available but A was compared with C and B was compared with C that allows indirect comparisons of the magnitude of effect of A versus B. Indirectness of population, comparator and/or outcome can also occur when the available evidence regarding a particular population, intervention, comparator, or outcome is not available and is therefore inferred from available evidence. These inferred treatment effect sizes are of lower quality than those gained from head-to-head comparisons of A and B.

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