Schizophrenia Research 121 (2010) 266–270

Contents lists available at ScienceDirect

Schizophrenia Research

journal homepage: www.elsevier.com/locate/schres

Meta-analysis of rates of drop-out from psychosocial treatment among persons with schizophrenia spectrum disorder

K. Villeneuve [a,*], S. Potvin [b], A. Lesage [b], L. Nicole [c]

[a] Biomedical Sciences, Fernand-Seguin Research Centre, Hôpital Louis-H. Lafontaine, Unit 218, 7401 Hochelaga, Montréal, Québec, Canada H1N 3M5
[b] Fernand-Seguin Research Centre, Hôpital Louis-H. Lafontaine, Unit 218, 7401 Hochelaga, Montréal, Québec, Canada
[c] Psychotic Disorders Program, Hôpital Louis-H. Lafontaine, 7401 Hochelaga, Montréal, Québec, Canada

ARTICLE INFO

Article history:
Received 13 December 2009
Accepted 8 April 2010
Available online 8 May 2010

Keywords:
Schizophrenia
Drop-out
Psychosocial treatment
Compliance

ABSTRACT

Non-compliance with pharmacotherapy among persons suffering from schizophrenia disorders stands at an average rate of 42% and is the subject of numerous studies. However, no studies to date have addressed the specific question of non-compliance with psychosocial treatment. The present study therefore aimed to determine the rate of drop-out from psychosocial treatment and to assess the influence of factors on this rate.

Method: A meta-analysis was conducted based on 74 studies of randomized clinical trials on psychosocial treatment among persons suffering from schizophrenia spectrum disorder.

Results: A drop-out rate of 13% was obtained. Age, gender, duration of illness, duration of treatment, treatment setting and study quality affected drop-out rates.

Conclusion: The 13% rate of drop-out from psychosocial treatment is markedly lower than the drop-out rate from pharmacotherapy studies. This finding supports the feasibility of evidence-based psychosocial treatment – which has, moreover, clearly been shown to be clinically effective – as part of a complete care program for schizophrenia.

1. Introduction

In psychiatry, non-compliance with treatment among persons suffering from severe mental disorders is associated with increased clinical, social and economic costs and is linked to relapse, re-hospitalization and poor outcomes (Centorrino et al., 2001). According to studies on non-compliance among persons suffering from schizophrenia spectrum disorder, the average rate of non-compliance with pharmacotherapy has been shown to be 42% (Cramer and Rosenheck, 1998) and the rate of missed medical appointments has been estimated at 24% (Kreyenbuhl et al., 2009). The literature documents the need for integrated treatment among these persons, that is, a biopsychosocial approach including pharmacotherapy, psychosocial treatment and family-based interventions (Kreyenbuhl et al., 2009; Meyer, 2007). Although psychosocial treatment is as important as pharmacotherapy, the level of patient non-compliance with psychosocial treatment has nevertheless not been examined in the literature.

This meta-analysis was thus the first to examine drop-out rates and associated factors with regard to psychosocial treatment among persons suffering from schizophrenia spectrum disorder. Its goals were as follows: (i) to determine the rate of drop-out from psychosocial treatment among persons suffering from schizophrenia spectrum disorder; and (ii) to examine the influence on this drop-out rate of potential moderator variables such as age, gender, treatment setting, duration of illness, severity of illness, treatment modality, duration of treatment and study quality.

2. Methods

2.1. Literature search

The literature search was performed using computerized literature databases (PubMed, Embase, PsycInfo, Web of

* Corresponding author.
E-mail address: kathe.villeneuve.hlhl@ssss.gouv.qc.ca (K. Villeneuve).

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doi:10.1016/j.schres.2010.04.003

Sciences and Cochrane) with the following keywords: "schizophrenia" and "psychotherapy" or "rehabilitation" or "psychosocial rehabilitation" or "group psychotherapy" or "group therapy" or "therapy." Studies were also identified by cross-referencing studies meeting inclusion criteria.

2.2. Study selection

A detailed reading of pre-selected articles led us to retain for the meta-analysis only those that met our inclusion criteria, namely: randomized studies (quality criterion) on psychosocial treatment among a study population suffering from schizophrenia spectrum disorder, published between 1997 and 2007, presenting data on the number of participants prior to and at the end of treatment, and published in French or English.

2.3. Data extraction and quantitative data synthesis

For drop-out rates, the number of participants suffering from a schizophrenia spectrum disorder prior to treatment and at the end of treatment, respectively, was extracted from each study. Data on age (average age in terms of years), gender (number of men and women), duration of treatment (number of weeks), treatment modality (individual, group, work-related, multimodal), treatment setting (inpatient, outpatient, or mixed), duration of illness (average number of years), severity of illness (PANSS and BPRS scores), and study quality (impact factor) were also gathered. For severity of illness, BPRS scores were converted to PANSS scores based on a mean score determined in a published systematic review ($N=12649$) (Geddes et al., 2000). Data extraction was verified by two authors of this article. The Comprehensive Meta-Analysis 2 software (Borenstein and Rothstein, 1999) was used to conduct meta-regression analyses as well as analyses of effect size, between-study heterogeneity (Cochran's Q) and publication bias (assessed using Egger's test). Effect size represents the drop-out rate and is calculated by combining event rates based on a random effect model, which allows population-level inferences (DerSimonian and Laird, 1988). Sub-analyses were conducted for the following variables: treatment setting (inpatient, outpatient, or mixed) and treatment modality (individual, group, work-related, multimodal). Meta-regression analyses were used to examine the effects of the other continuous variables (age, duration of illness, severity of illness, duration of treatment, gender and study quality). Publication bias was evaluated using a funnel plot and Egger's test, which are graphical and statistical procedures for estimating whether authors avoided reporting studies involving small sample sizes with negative or unfavourable results (Leandro, 2005). It is presumed that a publication bias is present when studies involving small samples of patients can be shown to be linked to a more favourable outcome (in this case, a lower drop-out rate), and vice versa.

3. Results

3.1. Study characteristics

The literature search initially resulted in 673 articles: 146 were consulted and 74 were included in the meta-analysis, representing 4374 patients. Most of the studies that were excluded dealt with family-based interventions, did not provide information on drop-out during treatment or involved persons suffering from other psychiatric disorders (psychotic depression and bipolar disorder). Between-study heterogeneity was assessed, and the results showed the presence of heterogeneity ($Q=337.100$; $p(Q)=0.0001$) and justified the use of the random effect model in the event rate analyses.

3.2. Drop-out rates

The drop-out rate represents the loss of participants, either prior to treatment (never showed up) or during treatment (stopped treatment before it was completed), among persons who had agreed to undergo psychosocial treatment. A drop-out rate differs from a compliance rate, as the former refers to complete withdrawal from treatment rather than being based on a percentage of treatment visits. Also, the drop-out rate corresponds to withdrawal from treatment rather than refusal to participate in a study, since the refusal rate was not available for all of the articles consulted or because the information available was not specific enough to allow for a distinction to be made between refusal to participate in the research project and refusal of the treatment itself. For all studies combined, a composite drop-out rate of 13% was obtained [event rate = 0.129, 95% CI (0.106–0.156) p-value = 0.0001] (Fig. 1). However, this may be an underestimation of the actual rate, given the presence of a publication bias ($\beta=-2.544$; $t(\beta)=6.999$; $p(\beta)=0.00001$) which showed a lack of published studies presenting higher drop-out rates.

3.3. Moderators of treatment drop-out

The moderator variables potentially affecting the drop-out rate (age, gender, treatment setting, duration of illness, severity of illness, treatment modality, duration of treatment and study quality) were analyzed. Significant positive results were obtained indicating that higher drop-out rates were associated with higher age ($N=64$; $\beta=0.019$; 95% CI = (0.001–0.036) p-value = 0.032 $Q=4.609$), longer illness duration ($N=47$; $\beta=0.039$; 95% CI = (0.020–0.057) p-value = 0.00004, $Q=16.707$), and longer treatment duration ($N=73$; $\beta=0.003$; 95% CI = (0.0001–0.004) p-value = 0.035, $Q=4.428$). Men were more likely to drop-out of treatment ($N=58$; $\beta=0.677$; 95% CI = (−0.002–1.357) p-value = 0.051, $Q=3.808$). Study quality affected the drop-out rate, which was lower in journals with a higher impact factor ($N=70$; $\beta=-0.033$; 95% CI = (−0.060–0.004) p-value = 0.024, $Q=5.115$). Studies involving hospitalized subjects reported slightly better compliance with treatment (outpatient: $N=45$; event rate = 0.134, 95% CI = (0.104–0.171) p-value = 0.0001 $Q=3.152$; inpatient: $N=18$; event rate = 0.091, 95% CI = (0.058–0.142) p-value = 0.0001 $Q=3.152$; mixed: $N=11$; event rate = 0.158, 95% CI = (0.100–0.240) p-value = 0.0001 $Q=3.152$). Treatment modality had no effect on the drop-out rate (individual: $N=36$, event rate: 0.117, 95% CI = (0.091–0.150) p-value = 0.0001, $Q=12.703$; group: $N=27$, event rate: 0.137, 95% CI = (0.100–0.186) p-value = 0.0001, $Q=12.703$; multimodal: $N=8$, event rate: 0.114, 95% CI = (0.069–0.182) p-value = 0.0001, $Q=12.703$; work-related: $N=3$ event rate: