Schizophrenia: Treatment Outcomes Research—Editors’ Introduction

by Anthony F. Lehman, James W. Thompson, Lisa B. Dixon, and Jack E. Scott

Abstract

Considerable research over the past few decades on the nature and treatment of schizophrenia has yielded important advances to improve the outcomes of this disorder. Recent action plans, including the “Decade of the Brain,” the National Institute of Mental Health (NIMH) A National Plan for Schizophrenia Research, and NIMH’s report, Caring for People With Severe Mental Disorders: A National Plan of Research to Improve Services, promise major new advances over the next several years. As research advances, it is critical to ensure that patients in everyday practice receive the most effective treatments being developed. This issue of the Schizophrenia Bulletin reviews the research on outcomes of treatments for schizophrenia and lays out an agenda for available research knowledge to be translated into practice and for future research to improve outcomes.


Schizophrenia afflicts nearly 1 percent of the population during their lifetime, exacting a heavy cost in human suffering, loss of productivity, and expenditure of private and public resources. This syndrome has baffled clinicians, patients, their families, their communities, and societies for decades, indeed centuries. Lack of understanding about the nature of schizophrenia has stimulated great debates and controversies among those who seek to help its victims; inflicted much shame, guilt, and unnecessary suffering among persons and families who are affected by it; and produced periodic spasms of neglect (even persecution) and zealous reform in societies trying to cope with its impact.

While history may look back on the end of the 20th century as yet another period of well-intended but failed reform in the care of persons with schizophrenia, there is reason to hope that we are entering a time of considerable forward movement in the treatment of persons with this syndrome. Poletic debates about the causes and nature of schizophrenia that have divided efforts to develop optimal treatment approaches earlier in this century have given way to integrative models that recognize schizophrenia’s biological underpinnings and the contribution of psychological and social factors to its onset and course. This conceptual progress has been supported by advances in the basic neurosciences and by recent emphasis on well-controlled clinical studies of biological and psychosocial treatments for schizophrenia. The current Federal emphasis on the “Decade of the Brain” (National Institute of Mental Health 1989), including basic and applied research on schizophrenia (as exemplified by the National Institute of Mental Health’s [NIMH’s] A National Plan for Schizophrenia Research [Keith and Matthews 1989]) and on services for persons with severe and persistent mental disorders (as exemplified by NIMH’s Caring for People With Severe Men-

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tal Disorders: A National Plan of Research to Improve Services [National Institute of Mental Health 1991], promises to advance our commitment to care for persons with schizophrenia.

At the same time that knowledge about effective treatment for schizophrenia is growing rapidly, there is much concern that this knowledge is not being disseminated so that all persons may benefit from it (Torrey et al. 1988). The field faces three related problems: (1) many aspects of treatment must be applied without decisive empirical data on effectiveness; (2) many apparently ineffective treatments have been introduced and have achieved popular application; and (3) the best empirically based knowledge of effective treatment has insufficient impact on ordinary practice in typical settings.

The Schizophrenia Patient Outcomes Research Team (PORT)

The University of Maryland School of Medicine and the Johns Hopkins University School of Public Health are conducting a Schizophrenia PORT funded by the Agency for Health Care Policy and Research (AHCPR) and NIMH. The PORT combines the expertise of three major research centers at two universities: the Center on the Organization and Financing of Services for the Severely Mentally Ill (Johns Hopkins University and the University of Maryland), the University of Maryland Center for Mental Health Services Research, and the Maryland Psychiatric Research Center (at the University of Maryland). This PORT is 1 of 14 funded by AHCPR to facilitate the transfer of medical technology effectiveness information into practice. It is the first to address a psychiatric disorder.

The Schizophrenia PORT is proceeding through several interrelated phases. On the basis of a comprehensive literature review and analysis of practice variations reflected in secondary claims data, additional primary data on patient outcomes and service variations are being collected. The purpose of this effort is to elucidate areas in which existing data are equivocal and to further clarify the significance of large-scale variations in care identified in the secondary data. The information developed from these early phases will form the basis for the development of treatment recommendations, emphasizing associations between specific treatment interventions and specific domains of outcomes. Finally, the recommendations will be disseminated and the impact of this dissemination on provider and public knowledge about the treatment of schizophrenia, practice patterns, and patient outcomes will be evaluated.

This issue of the Schizophrenia Bulletin summarizes the findings of the PORT's review of the literature on the treatment of schizophrenia.

Conceptual Framework for the Reviews of the Literature

A conceptual matrix relating specific outcome domains to specific interventions has guided these reviews (see table 1). Studies are grouped according to the interventions on which they focus, taking into consideration variations in patients and service organizations when possible.

Table 1. Interventions for schizophrenia and their target outcomes

<table>
<thead>
<tr>
<th>Intervention category</th>
<th>Clinical status</th>
<th>Functional status</th>
<th>Resources and opportunities</th>
<th>Life satisfaction (quality of life)</th>
<th>Family well-being</th>
<th>Patient satisfaction with intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antipsychotic medications</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjunctive somatic treatments</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychological therapies</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family interventions</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Vocational rehabilitation</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Case management and assertive community treatment (ACT)</td>
<td>ACT</td>
<td>ACT</td>
<td>ACT</td>
<td>ACT</td>
<td></td>
<td>X</td>
</tr>
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</table>

1The primary target outcomes marked by an "X" are those that are theoretically most directly related to the focus of the intervention.
Each article in this issue reviews the literature on outcomes for a specific set of interventions: conventional antipsychotic drugs, clozapine, risperidone, adjunctive somatic treatments (medications and electroconvulsive therapy), psychological treatments, family interventions, vocational rehabilitation, assertive community treatment, and case management. We specifically look at interventions rather than intervention settings because most or all of these intervention techniques can be applied across various service settings. The setting depends more on patient acuity of illness and various economic factors unrelated to efficacy.

Although much of the literature addresses only a narrow band of clinical outcomes, the review framework sought information about a wider range of outcomes, including clinical status, functional status, access to resources and opportunities, subjective quality of life, family well-being, and patient satisfaction with services. These domains of outcomes have been defined to correspond to the types of problems that interventions may address. "Clinical status" outcomes encompass the symptoms of schizophrenia (positive and negative) as well as behaviors of clinical relevance, such as suicidality and substance abuse. "Functional status" refers to the individual's capacity to function in such areas as school, work, marriage, parenting, interpersonal relations, and self-care. "Access to resources and opportunities" refers to environmental and social conditions available to persons with schizophrenia, such as housing, financial supports, job opportunities, access to leisure activities, a safe neighborhood, and freedom from discrimination and stigma. "Subjective quality of life" refers to feelings of life satisfaction and personal well-being. "Family well-being" refers to the material, physical, and emotional well-being of families facing the burden of a loved one ill with schizophrenia. "Patient satisfaction with services" refers to the patient's perceptions of the quality, accessibility, helpfulness, and "user friendliness" of the services.

This broad view of outcomes reflects the concerns of the various "stakeholders"—the practitioners, patients, families, policy leaders, and researchers who are affected by and influence policies related to schizophrenia. Such a view seems essential in taking stock of what we know and do not know about the treatment of schizophrenia as health care reform moves forward and as the Nation's research agenda is reassessed.

Methods of the Review Issue

Each article in this issue of the Bulletin is a condensation of a detailed review of the literature written for the PORT.1 The quantity and quality of the literature, as well as the degree to which these areas have been previously reviewed, vary considerably across interventions, making a standard review approach difficult. To standardize the review process across interventions as much as possible, the PORT established a centralized literature search capacity, providing on-line access to computerized bibliographic data bases and support to obtain printed copies of articles. All reviews followed a standard outline. Each introduces the nature of the interventions being considered and identifies a series of review questions. The methods used for the specific review are explained, including the computerized search procedures and the rationale for using prior reviews and primary studies. The findings of these reviews and primary studies are organized according to the review questions, and, when data are available, the reviews comment on patient and organizational variables that modify outcome impacts.

The need to rereview previously reviewed literature was based on the quality of existing reviews. This was assessed using the criteria established by Beaman (1991), which include whether the review (1) cites prior reviews, (2) critiques prior reviews, (3) reports how this review differs from or extends previous reviews, (4) describes what retrieval procedures were used, (5) gives the beginning and ending dates of the search, (6) searched bibliographies of earlier reviews, (7) reports the findings of the individual studies, (8) discusses the full set of located studies or gives reasons why studies were excluded, (9) gives direction and magnitude of results of including measures of significance from individual studies, (10) examines design characteristics of individual studies, (11) addresses theoretical
implications of the findings, (12) states specific recommendations for policy or practical applications from the reviewed studies, and (13) suggests directions for future research. Although few, if any, prior reviews met all these criteria, a number of excellent reviews were identified in most areas. Examination of these reviews focused on areas of agreement and disagreement, and, when necessary, primary studies from the reviews were accessed to clarify points. Evaluation of primary studies was undertaken when no adequate prior reviews were identified, when reviews did not address current review questions, and when primary studies identified in our search were not covered by previous reviews. Whenever possible, the review of primary studies was restricted to controlled clinical trials to maintain acceptable scientific quality. Occasionally, when a primary study without adequate controls raises an important point for further consideration, it is briefly mentioned.

We sought information on both efficacy and effectiveness. Efficacy refers to the impact that a treatment exerts under optimal circumstances, those typically approximated in controlled clinical trials. Effectiveness refers to the impact of a treatment under usual treatment conditions, in which patient factors (comorbid conditions, noncompliance, access), provider factors (knowledge and training, workload, ideology, organizational limitations), and service system factors (financing, work force, organization) that can affect treatment outcomes are not controlled. Discrepancies between efficacy and effectiveness are critical to an understanding of how efficacious treatment technologies are translated into routine care and how the translation of research findings into practice can be improved.

Each article ends with an assessment of the current literature in the area, identification of what is and is not known about treatment outcomes, and implications for current practice and future research. The numbers of citations identified for each intervention type across the period 1965 to 1993 are shown in table 2. Citations for articles published since 1993 are covered in the individual articles.

This Theme Issue and Future Directions

The major contribution of this issue of the Bulletin is to draw together in one place up-to-date reviews on outcomes for the range of treatments available for persons with schizophrenia. At a time when the value of all health care services is under intense scrutiny, these reviews provide reason for optimism as well as raise issues for critical consideration in our practice and in our research.

Among the key points raised are the following:

- Substantial data from controlled trials support the efficacy of conventional antipsychotic medications for positive symptoms of schizophrenia, but a limited number of studies also suggest that the effectiveness of these agents in everyday practice is substantially

<table>
<thead>
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<th>Table 2. Numbers of citations found in searches</th>
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<tbody>
<tr>
<td>Conventional antipsychotic medications</td>
</tr>
<tr>
<td>Clozapine</td>
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<tr>
<td>Risperidone</td>
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<tr>
<td>Adjunctual somatic treatments</td>
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<td>Psychological treatments</td>
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<td>Family interventions</td>
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<tr>
<td>Vocational rehabilitation</td>
</tr>
<tr>
<td>Case management and assertive</td>
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<tr>
<td>community treatment</td>
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<tr>
<td>Period totals</td>
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</table>
less than their efficacy. Although many factors may be involved, we do not know specifically why this efficacy—effectiveness gap exists.

- The newest antipsychotics, clozapine and risperidone, are efficacious and offer certain advantages (albeit different ones) over the older antipsychotic agents. However, it remains to be seen if either group substantially affects deficit symptoms and functional status.

- Adjunctive somatic therapies, benzodiazepines, lithium, antidepresants, anticonvulsants, and electroconvulsive therapy benefit significant subgroups of patients. However, we do not know to what degree these adjunctive therapies are used in an appropriately targeted manner in practice.

- "Supportive" psychological treatments are widely used but have not been subjected to controlled outcome assessment to determine efficacy. Their future reimbursement may depend on new (and positive) outcome research in this area. Targeted, illness-specific psychological interventions are being developed, but these are much less well known and used than generic supportive therapies.

- Family interventions using psychoeducation, problem solving, and support are not widely employed, but a strong body of evidence favors their efficacy for reducing relapse. Barriers to their adoption need to be overcome.

- Vocational rehabilitation programs have seldom fulfilled the expectation for competitive employment. However, this field is rapidly moving to newer models of supported employment that may produce better outcomes.

- Case management is not a panacea. The research does not permit conclusions about the impact of various case management approaches.

- Assertive community treatment is a highly efficacious mode of organizing community-based treatment for high-risk patients. However, its effectiveness is determined by the fidelity of its implementation, which may often be lacking, as well as by its judicious targeting of persons at high risk for relapse and service lapses.

These are some of the major findings from the PORT literature review. While not everyone will agree fully with our reading of the literature, we do hope that this issue will bring into focus the research that needs to be done on the treatment of schizophrenia. We also hope that these articles will serve as a guide for clinicians and policymakers as they strive to provide the best possible care for persons with this illness.

References


Acknowledgments

The Schizophrenia Patient Outcomes Research Team (PORT) is a collaborative study involving staff from the University of Maryland at Baltimore; the Johns Hopkins University School of Hygiene and Public Health; Survey Research Associates; the RAND Corporation; the Department of Veterans Affairs; and Systemetrics, Incorporated. The principal investigator is Anthony F. Lehman, M.D. (Department of Psychiatry, University of Maryland School of Medicine, 645 West Redwood St., Baltimore, MD 21201). The co-principal investigators are Donald M. Steinwachs, Ph.D. (Health Services Research and Development Center, School of Hygiene and Public Health, the Johns Hopkins University, 624 North Broadway, Baltimore, MD 21205). Co-investigators at the University of Maryland include William T. Carpenter, Jr., M.D.; Lisa B. Dixon, M.D.; Howard H. Goldman, M.D., Ph.D.; Fred Osher,
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The Schizophrenia PORT is funded jointly by the Agency for Health Care Policy and Research (AHCPR) and the National Institute of Mental Health (NIMH) (Contract No. 282-92-0054). The project officer at AHCPR is Ms. Charlotte Mullican. The project officer at NIMH is Ann Hohmann, Ph.D.

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