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Review Article

Integrated Models of Care for Medical Inpatients With Psychiatric Disorders: A Systematic Review

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Objective: *Psychiatric disorders are common among medical inpatient settings and management of psychiatric disorders can be challenging in this setting. Integrated models of care (IMCs) combining psychiatric and medical specialties within a single service may improve psychiatric and medical outcomes, although evidence for IMCs in medical inpatient settings has not been well described.* **Method:** *We searched MEDLINE, Embase, and Google scholar for relevant articles. We included all randomized controlled trials or quasi-experimental studies in English that evaluated IMCs for medical inpatients with psychiatric disorders when compared with usual care. We defined IMCs as models of care where psychiatric and medical providers had joint responsibility for all patients within a given service. We extracted information on the characteristics of IMCs and on the effects of IMCs on psychiatric, medical, and health service outcomes.* **Results:** *Four studies met the inclusion criteria, thereby including 716 participants overall. All studies differed in the study design, models of IMCs, and outcomes reported. In 2 studies, IMCs improved psychiatric symptoms compared with those admitted to a general medical service. Two studies demonstrated reductions in length of stay with IMCs compared with usual care. One study reported an improvement in functional outcomes and a decreased likelihood of long-term care admission associated with IMCs when compared with usual care.* **Conclusions:** *There is preliminary evidence that IMCs may improve a number of outcomes for medical inpatients with psychiatric disorders. Additional well-designed studies of IMCs are required to further evaluate the effect of IMCs on patient outcomes and costs of care.*

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INTRODUCTION

Medical conditions are common among adults with psychiatric disorders, which places the individuals at risk of medical complications due to poor health behaviors and inadequate preventative health care. The prevalence of psychiatric disorders in general medical inpatient settings has been estimated to be between 20% and 40%,[1–5] with certain medical conditions placing patients at higher risk. Up to 50% of patients with coronary artery disease have depressive symptoms,[6] and 42% of hospitalized patients with cancer are affected with major depression.[7] Data from older adults in medical settings demonstrate that the burden of psychiatric illness in this population is even higher, with up to 60% of hospitalized patients aged 65 years and older diagnosed with dementia, delirium, or depression.[8] Psychiatric disorders significantly increase both length of stay (LOS) and postdischarge health services utilization. Studies show that psychiatric disorders are often unrecognized by non–mental health physicians.[9]

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Collaborative or integrated mental health care has been defined as care delivered by general medical physicians working with psychiatrists and other allied health professionals to provide complementary services, patient education, and management to improve mental health outcomes.[10] Integrated models of care (IMCs) are patient-centered, and they not only involve the psychiatrist as a consultant with co-location of psychiatric and medical services, but also involve a shared responsibility for the care of all patients within a service.[11] IMCs involving mental health providers and other health care professionals have demonstrated improved medical and mental health outcomes in primary care settings.[12] In addition, mental health case managers in primary care settings have demonstrated positive outcomes.[13,14] IMCs have also been linked to functional improvement,[15] reduced disability days,[16] increased quality-adjusted life years,[17] and increased compliance with medication[16] when compared with other models of care.

IMCs combining psychiatric services within medical inpatient settings have been investigated as a potential method to improve both psychiatric and medical outcomes for medical inpatients with psychiatric disorders (MIPD). Descriptions of these models have included "medical-psychiatric units"[18] and "joint care wards,"[19] both of which integrate psychiatrists, general medical physicians, and allied health staff into a single inpatient service. To date, there have been no systematic reviews evaluating the effectiveness of IMCs for MIPD. Therefore, the aim of this systematic review is to review the different models of IMCs for MIPD and to examine the effects of IMCs on mental health, medical, and health service outcomes when compared with standard models of care.

METHODS

Search Strategy

We followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines for conducting systematic reviews to guide our review process.[20] We searched the electronic databases MEDLINE and Embase from inception until May 2012 using free-text search terms and medical subject headings. Google scholar was also searched for additional relevant articles. We conducted a further handsearch to identify additional articles of relevance. The key words and medical subject headings included "hospital unit," "psychiatry," "liaison psychiatry," "gerontopsychiatry," "hospital," "general hospital," "geriatric hospital," "medical psychiatric unit," "co-morbidity," "referral and consultation," and "combined modality therapy," The search strategy for MEDLINE and Embase has been included in Appendix 1.

Definition of IMCs

We defined IMCs for MIPD as models of care where psychiatrists and general medical physicians, either in isolation or in combination with other allied health staff, were integrated within a single team to provide care to an entire inpatient population. In this model, the psychiatrists, along with the general medical physicians, are jointly responsible for the care of all patients admitted to the inpatient medical service. An evidence-based model of care and management plan is implemented in a collaborative fashion. An example of an IMC is a medical-psychiatric unit with a co-attending model such that both specialists have shared responsibility for all patients on a service.[21] Typically, there are specific criteria for admission of patients to such a ward and the acuity of both medical and psychiatric symptomatology is taken into consideration.[22] We also included models of care that incorporated psychiatric nurse practitioners or mental health case managers who could implement mental health care as part of the general medical service. We did not include studies that only examined consultation or liaison models of psychiatric care, as this model of care did not meet our definition of IMCs.

Inclusion Criteria

We included all English language publications that evaluated the effects of IMCs for MIPD when compared with either usual medical care or another model of psychiatric care (e.g., psychiatric consultation) for medical inpatients. Both randomized controlled trials and other quasi-experimental (e.g., controlled before-and-after studies) studies were included. Descriptive studies of IMC that did not have a comparison group were excluded. We also excluded studies where the subjects were younger than 18 years.