

and their continuing changes over time underline the need of integrated care treatment systems, targeting people with severe and persistent mental illness and those with the highest risk for service disengagement or medication non-adherence (8). Such systems commonly include intensive care outpatient models such as intensive case management or assertive community treatment (9). Compared to standard care, most such systems have shown lower rates of service disengagement and medication non-adherence (8,10), better multidimensional outcomes (8,10) and lower service costs (8).

## References

1. Tiihonen J, Haukka J, Taylor M et al. A nationwide cohort study of oral and depot antipsychotics after first hospitali-

zation for schizophrenia. *Am J Psychiatry* 2011;168:603-9.

2. Day JC, Bentall RP, Roberts C et al. Attitudes toward antipsychotic medication: the impact of clinical variables and relationships with health professionals. *Arch Gen Psychiatry* 2005;62:717-24.

3. Kreyenbuhl J, Slade EP, Medoff DR et al. Time to discontinuation of first- and second-generation antipsychotic medications in the treatment of schizophrenia. *Schizophr Res* 2011;131:127-32.

4. Mortimer AM, Singh P, Shepherd CJ et al. Clozapine for treatment-resistant schizophrenia: National Institute of Clinical Excellence (NICE) guidance in the real world. *Clin Schizophr Relat Psychoses* 2010;4:49-55.

5. Heres S, Reichhart T, Hamann J et al. Psychiatrists' attitude to antipsychotic depot treatment in patients with first-episode schizophrenia. *Eur Psychiatry* 2011;26:297-301.

6. Karow A, Czekalla J, Dittmann RW et al. Association of subjective well-being, symptoms, and side effects with compliance after 12 months of treatment in schizophrenia. *J Clin Psychiatry* 2007;68:75-80.

7. Grimaldi-Bensouda L, Rouillon F, Astruc B et al. Does long acting injectable risperidone make a difference to the real-life treatment of schizophrenia? Results of the cohort study for the general study of schizophrenia. *Schizophr Res* 2012;134:187-94.

8. Schöttle D, Karow A, Schimmelmann BG et al. Integrated care in patients with schizophrenia: results of trials published between 2011 and 2013 focusing on effectiveness and efficiency. *Curr Opin Psychiatry* 2013;26:384-408.

9. Nördén T, Malm U, Norlander T. Resource group assertive community treatment (RACT) as a tool of empowerment for clients with severe mental illness: a meta-analysis. *Clin Pract Epidemiol Ment Health* 2012;8:144-51.

10. Lambert M, Bock T, Schöttle D et al. Assertive community treatment (ACT) as part of integrated care versus standard care: a 12-month trial in patients with first- and negatively selected multiple-episode schizophrenia-spectrum disorders treated with quetiapine IR. *J Clin Psychiatry* 2010;71:1313-23.

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# Public health and physician focused strategies to improve medication adherence in psychotic disorders

SAEED FAROOQ

Staffordshire University, Black Country Partnership NHS Foundation Trust, Wolverhampton, UK; Postgraduate Medical Institute, Peshawar, Pakistan

Increasing the effectiveness of adherence interventions may have far greater impact on the health of the population than any improvement in specific medical treatments (1). However, literature on treatment adherence in mental health, as is evident in the scholarly review by Kane et al, is focused too narrowly on patient related and therapy factors. The structural barriers to adherence are generally overlooked.

I argue that action is needed to address two important health system related factors: a) providing access to treatment for the estimated 40 million people suffering from schizophrenia living in low and middle income

(LAMI) countries, and b) improving adherence through the implementation of evidence-based guidelines for treatment of schizophrenia.

The treatment gap for schizophrenia is estimated to be 70-90% in LAMI countries (2), where the mean duration of untreated psychosis (DUP) in the first episode is 125.0 weeks (3). Endemic poverty in these countries seems to be associated with poor access to treatment and lack of adherence, except perhaps for most acute episode care. In a study that investigated the DUP and its relationship with gross domestic product purchasing power parity (GDPppp), it was shown that in LAMI countries an additional thousand dollars of per capita GDPppp was associated with a decline in mean DUP of ten weeks (3).

Public health strategies which ensure free access to medication have

been successfully implemented in other areas of medicine. In tuberculosis, for example, partial treatment adherence is more dangerous than no treatment at all, as partially treated cases result in drug resistance. This means that, once started, treatment must be completed. Therefore, tuberculosis control programmes worldwide have adopted a strategy called DOTS (directly observed treatment, short course). Two essential elements of this strategy are: a) regular uninterrupted supply of all essential anti-tuberculosis drugs backed by governments' commitment, and b) standardized treatment regimen administered under supervision. DOTS programmes have significantly reduced non-adherence to treatment in most developing countries, and are considered to be one of the most cost-effective health interventions (4). Such programmes have not only been implemented for

high mortality disorders like tuberculosis and HIV infection, but also for non-communicable diseases such as diabetes mellitus.

We believe that resources must be mobilized for a global fund to supply free medicines targeting the initial two years in the course of schizophrenia (3,5). This would help to overcome non-adherence to treatment during this “critical period” in the course of illness, which is the strongest predictor of long-term outcome and disability. Such a treatment could be provided in DOTS-like programmes. The key elements of supervision and administration of medication by a close family member have already been adopted for schizophrenia. A proof-of-concept study showed that patients receiving treatment in the Supervised Treatment for Schizophrenia in Outpatients (STOPS) programme had significantly better adherence to medication compared to treatment as usual ( $p < 0.02$ ) and showed significantly better outcomes in terms of symptoms and functioning at 1-year follow-up (6).

Worsening of symptoms in psychotic disorders is often regarded as a consequence of poor treatment adherence, but there is robust evidence that premature treatment discontinuation is frequently due to poor control of symptoms (7). One study reported that treatment discontinuation due to inadequate symptom control was three times as likely as discontinuation due to medication intolerability. Ongoing depression and poor treatment response were found to be independent predictors of poor medication adherence in first episode psychosis patients (8).

Current treatments have well-known limitations in controlling psychotic symptoms. However, evidence shows that the lack of adherence to treatment guidelines by treating physicians may be a major contributory factor to inadequate symptom control even in the best treatment centres. A multisite hospital study involving 508 people in Germany showed that, amongst patients with persistent psychotic symptoms, 73% received insufficient antipsychotic drug management and about 58% of those with depressive symptoms were not treated according to guidelines. Patients with more severe psychotic illness had a higher likelihood of not being treated according to guidelines (9). How much this poor adherence to treatment guidelines contributes to patients’ poor compliance to treatment is not known at present. However, physicians may need to develop insight into their prescribing practices as much as the patients are expected to develop concordance with their advice.

Pharmacological development in schizophrenia has been stagnant now for some decades. Optimizing treatment adherence can ensure that the available interventions are used in the most effective way. Taking medicine continuously for years with significant side effect burden in an illness that carries enormous stigma and disability is not easy. A public health approach is required, in which adherence is considered as a problem of the health system and the wider economic context, not just of the individual patient refusing to take medicine due to lack of insight.

## References

1. Haynes RB, Ackloo E, Sahota N et al. Interventions for enhancing medication adherence. *Cochrane Database of Systematic Reviews* 2008:CD000011.
2. Lora A, Kohn R, Levav I et al. Service availability and utilization and treatment gap for schizophrenic disorders: a survey in 50 low- and middle-income countries. *Bull World Health Organ* 2012;90:47-54B.
3. Large M, Farooq S, Nielssen O. Duration of untreated psychosis in low and middle income economies: the relationship between GDP and DUP. *Br J Psychiatry* 2008;193: 272-8.
4. World Health Organization. Stop tuberculosis initiative. [apps.who.int](http://apps.who.int).
5. Farooq S. Early intervention for psychosis in low and middle income (LAMI) countries needs a public health approach. *Br J Psychiatry* 2013;202:168-9.
6. Farooq S, Nazar Z, Irfan M et al. Schizophrenia treatment adherence in resource poor setting: randomised controlled trial of Supervised Treatment in Outpatients for Schizophrenia (STOPS). *Br J Psychiatry* 2011;199:467-72.
7. Kinon BJ, Liu-Seifert H, Adams DH et al. Differential rates of treatment discontinuation in clinical trials as a measure of treatment effectiveness for olanzapine and comparator atypical antipsychotics for schizophrenia. *J Clin Psychopharmacol* 2006;26:632-7.
8. Perkins DO, Gu H, Weiden PJ et al. Predictors of treatment discontinuation and medication nonadherence in patients recovering from a first episode of schizophrenia, schizophreniform disorder, or schizoaffective disorder: a randomized, double-blind, flexible-dose, multicenter study. *J Clin Psychiatry* 2008;69:106-13.
9. Weinmann S, Janssen B, Gaebel W. Guideline adherence in medication management of psychotic disorders: an observational multi-site hospital study. *Acta Psychiatr Scand* 2005;112:18-25.

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