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aftermath of an incident and in the longer term should also be considered. Future research could focus on management of patients and support of staff.

Declaration of interest

None.

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REUVEN MANFRED MAGNES

Out-patient appointments: a necessary evil? A literature review and survey of patient attendance records

AIMS AND METHOD

To describe the effect of a postal reminder system on UK adult psychiatry clinic attendance. A literature review was completed and a serial cross-sectional survey of patient attendance records in an inner-city psychiatric hospital during 2006 and 2007 was undertaken.

RESULTS

A simple postal prompt reduces non-attendance by up to 50% and data from the serial cross-sectional survey of attendance records ($n=36$) powered at 77% supported this finding. Postal prompts in the survey accounted for 30% improvement in the variance (r^2).

CLINICAL IMPLICATIONS

A simple postal prompt that takes less than 30 s to read, sent up to 2 weeks prior to the appointment improves attendance by up to 50% and is useful for maintaining standards of excellence.

Missed appointments continue to be a major contributor to wasted resources in planned mental healthcare services and non-attendance is an area of concern for all healthcare providers. The national figure of 12% for non-attendance at out-patient clinics in the UK hides large variations between specialties and between regions. Studies report figures that range from 5% to 34% (Sharp & Hamilton, 2001). A Cochrane review (Reda & Makhoul, 2001) suggests that a very simple prompt to attend clinic is financially sound advice for managers as well as being good clinical practice.

Method

Literature search

A literature review of peer-reviewed psychiatry journals 1974–2007 was conducted. A number of databases were searched (EMBASE, MEDLINE, PsycLit, King's Fund, CINAHL, PsycINFO) with keywords: 'psychiatry out-patient', 'improve out-patient attendance', 'non-attendance'. The search was limited to papers published in English and peer-reviewed journals. Among the publications found, seven were suitable for inclusion (Rusius,



1995; Killaspy *et al*, 2000; Reda & Makhoul, 2001; Sharp & Hamilton, 2001; Hamilton *et al*, 2002; Mclvor & Ek, 2004; Hawker, 2007) and the decision to include a study was based on whether it was carried out on an adult service in the UK and whether it was informative on improving out-patient attendance. The papers under review are presented in Table 1 (Sharpe & Hamilton, 2001 is not included as it is not a research study).

Serial cross-sectional survey

Individuals ($n=36$) attending an out-patient clinic in an inner-London psychiatric hospital were monitored for attendance over a 12-month period from 2006 to 2007. Individuals had been randomly allocated to the specialist registrar clinic by accrual over time. Other parallel clinics run by consultant and senior house officer were similarly allocated. After the first 6 months of monitoring, all those due to attend were sent a simple orientation statement taking less than 30 s to read 2 weeks prior to their appointment. Attendance was analysed by converting the raw data into continuous variables thereby making them comparable. Paired *t*-testing with $P < 0.05$ was carried out on mean differences in attendance ratios. Five people were not included in the study (one suicide, two discharged before the end of the study and two failed to respond to repeated invitations to attend). A scatterplot of appointments offered *v.* appointments attended was constructed and a straight line was drawn by the method of linear regression (Swinscow, 1997) with $y = rx + c$. A correlation coefficient of $r > 0.8$ is generally described as strong correlation. The coefficient of determination (r^2) (variance) represents the percentage of data that is closest to the line of best fit, accounting for the linear relationship. The amount of variation remaining unexplained is therefore $1 - r^2$.

Results

Postal reminders

A randomised controlled study (Rusius, 1995) has shown that a postal reminder sent 3 days prior to the appointment reduced non-attendance by at least 50% ($P < 0.05$). It was suggested that the non-attending group were mixed in terms of socio-demographic factors, diagnosis and severity of symptoms. Other forms of postal reminder systems have included an opt-in system (Hawker, 2007). Opt-in systems require the patient to respond in some way to the offer of an appointment. Evidence from nine studies, including one controlled trial, suggested that median non-attendance rates fell from around 27% to around 4% when opt-in systems were introduced. An important question concerns the risk to those who fail to opt-in and are therefore not seen.

Consistent factors that distinguish non-attenders

Waiting times

One factor often quoted is length of waiting time and forgetting first appointments (Rusius, 1995; Sharp & Hamilton, 2001). However, no data reached significance ($P > 0.05$) when non-attending new patients were compared with non-attending follow-up patients.

Severity of illness

A prospective cohort design (Killaspy *et al*, 2000) was used to show differences between new and follow-up patients and that primary diagnosis in new patients was mostly depression ($P < 0.001$) and in follow-up patients was mostly schizophrenia ($P = 0.003$). Follow-up patients were more severely ill than new patients and follow-up non-attenders were more severely ill than follow-up attenders. Non-attending for 12 or more months made

Table 1. Studies reviewed

Study	Type	<i>n</i>	Measurement	Assessment and methodology notes
Killaspy <i>et al</i> , 2000	Cohort	224	Follow-up non-attenders more severely ill with higher risk of admission	Prospective cohort of randomly selected attenders and non-attenders, participants interviewed at recruitment, 6 months and 12 months
Rusius, 1995	Randomised controlled trial	144	Attendance measured before and after sending reminder	Patients randomised into routine group or reminder sent 3 days prior to appointment
Hawker, 2007	Literature survey		Non-attendance with and without opt-in	9 studies, 1 randomised controlled trial, 1 with no opt-in and rest were before and after comparisons with specified time intervention
Mclvor & Ek, 2004	Cross-sectional survey	482	Comparison of non-attendance in psychologist appointments and different grades of doctors	Attendance records used to obtain rates over a 21-month period
Hamilton <i>et al</i> , 2002	Cohort		Factors significantly associated with non-attendance, male, younger age, deprivation, prolonged interval between appointments	Prospective approach from 26 general practitioners
Reda & Makhoul, 2001	Cochrane review		To estimate the effect of simple prompting by professional carers	Randomised studies comparing the addition of prompts to standard care in patients with severe mental illness



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admission significantly more likely in follow-up patients ($P=0.018$).

Deprivation

Non-attenders had socio-economic situations of high deprivation as measured by the Jarman Index (Jarman, 1983) (Killaspy *et al*, 2000; Sharp & Hamilton, 2001; Hamilton *et al*, 2002).

Doctors training

Non-attendance rates were examined (McIvor & Ek, 2004) by cross-sectional survey of patients seen by psychiatrists of different grades and a consultant clinical psychologist over a 21-month period. The clinical psychologist's patients had the lowest rate of non-attendance (7.8%), followed in turn by those of consultant psychiatrists (18.6%), specialist registrars (34%) and senior house officers (37.5%). Factors such as continuity of care, perceived clinical competence and the provision of non-medical interventions might have an impact on attendance rates.

Serial cross-sectional survey

Attendance records of 31 patients were analysed. There were 14 females (45%) and 17 males (55%). The average age was 42.6 years with average male age 43.5 years and female age 39.9 years. After 6 months of monitoring, two-thirds (66%) of appointments had been attended. For the second 6 months, reminders were sent and attendance was 75%.

Attendance was computed as the ratio of appointments attended to appointments offered. This was done for each 6-month block and mean attendance was compared: $0.57:0.71=1.25$. The paired Student's *t*-test was used to compare means, and at $P<0.05$, critical $t(30);0.05=1.697$. The mean difference in attendance was 0.354 (s.d.=0.285; 95% CI 0.45–0.25); $t=\text{mean difference}/\text{s.d.}; \sqrt{n}=7$; and H_0 is rejected as no significant differences between groups. This confirmed that the ratio of 1.25 attendance after sending a reminder was not due to chance alone.

Discussion

Poor psychiatric out-patient attendance continues to be an extravagant waste of resources with wasted appointments being up to 35% or higher. It has been suggested that non-attending patients differ from those who attend. This might have something to do with patient's perceptions of the treatment. New patients who do not attend are usually depressed and less unwell than follow-up patients. It is often quoted that waiting time and forgetfulness contribute to non-attendance. However, the ratio of attended:offered is probably more complex, the main associations being male, youth, substance misuse and levels of socio-economic deprivation as measured by the Jarman Index. It is possible that doctors of lesser seniority have higher non-attendance rates.

It remains unclear when best to send reminders; prompts sent at 14 days seem to work as well as prompts 3 days prior to the appointment. The effect of a prompt accounts for $r^2=56\%$ ($P<0.001$) of the variance where $y=3/4x+0$ as opposed to $y=1/2x+0$ prior to the prompt. The rest of the variance being unaccounted for and due to lurking variables such as outliers, levels of socio-economic deprivation, transport, weather, child care or doctor–patient relationship, which could all theoretically influence attendance. By comparing r^2 for each 6-month period, there was a 30% improvement which implies that the influence of confounders was reduced by sending a prompt and that there was a strong correlation ($r=0.75$) between prompts and improved attendance.

Conclusion

Sending postal reminders prior to the appointment helps to maintain good clinical practice and is in concordance with clinical governance. It also helps to maintain standards of excellence. The reliability of the study would be improved if larger out-patient numbers were used and comparisons made with other out-patient settings in adult psychiatry or comparisons with consultant or senior house officer clinics.

Correlation does not prove causation and therefore the relationship between reminders and attendance must be a complex one worthy of further study because of the significant effect of confounders and the unknown meaning that the patient attaches to the prompt and the uncertainty about when best to send a reminder.

Declaration of interest

None.

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