Why do patients default from follow-up at a genitourinary clinic?: a multivariate analysis

J D C Ross, A McIver, A Blakely, J Dalrymple, W Peacock, C Wallis

Abstract

Objective—Firstly to compare the proportion of patients defaulting from follow-up at a genitourinary medicine clinic with those attending other hospital based clinics. Secondly to determine which factors are associated with non attendance at a city centre genitourinary medicine clinic.

Methodology—The proportion of patients who defaulted at a genitourinary medicine clinic, a general medical clinic, a general surgical clinic and a dermatology clinic during March 1995 were compared. A multivariate logistic regression analysis was performed comparing attenders and non attenders at the genitourinary medicine clinic with respect to time of appointment, diagnosis, previous contacts with clinic staff, potential domestic commitments and patient demographics in a prospective case control study.

Results—The default rate at the genitourinary medicine clinic was 15% compared with 13%, 15% and 14% for medical, surgical and dermatology clinics respectively. Patients who defaulted from the genitourinary medicine clinic (167) were compared with 172 attenders and significant differences found for timing of appointments, area of residence, frequency of counselling by the health advisor and age of the patient. Other factors such as the diagnosis, whether a woman had children, sexual orientation, whether negative results had been given over the phone, source of referral, sex of patient, employment status and the weather were not found to be significantly associated with defaulting from an appointment.

Conclusions—The time of the appointment and being seen by a health advisor were the only variables identified over which the clinic has control and therefore could potentially reduce non attendance rates.

Keywords: genitourinary medicine; sexually transmitted disease; default; attendance

Introduction

Failure of patients to attend for review appointments may result in the inefficient use of medical and nursing time and also has implications for the control of transmissible infections both for the individual and the community. The proportion of patients defaulting from London genitourinary medicine (GUM) clinics has been reported to be between 28% and 32%1,2 which is comparable to that seen in general practice where rates between 5% to 30% have been reported.3,4 Despite these relatively high default rates little is known about what determines whether patients attend or not. If such factors could be identified, and if these were reversible, there is the potential to reduce levels of non-attendance.

This study compares the default rate of patients who had previously attended a GUM clinic with that of other hospital clinics. To determine which factors are associated with patients' defaulting from follow up a comparison was made between defaulters and attenders at the GUM clinic using a multivariate model.

Methods

The default rate of review patients attending a city centre GUM clinic at Edinburgh Royal Infirmary was calculated as a percentage of total attendances and compared with that of general medical outpatients, general surgical outpatients and dermatology outpatients at the same hospital during March 1995.

A prospective case-control study design was used to compare the characteristics of patients who defaulted from follow up at a city centre GUM clinic with those who attended for review. Initial power studies suggested that to have an 80% chance of detecting a 2.5 fold difference between attenders and non attenders for a variable which occurred in 10% of attenders a sample size of 336 would be required. All patients who failed to attend for a review appointment over a 27 day period were included in the study. The control group were randomly selected from the GUM clinic list of those who had attended for a review appointment. Patients attending for the first time or with a new diagnosis were excluded from the analysis and only the first appointment was included for those who defaulted on more than one occasion within the study period.

A number of variables relating to time of appointment, diagnosis, previous contacts with clinic staff, potential domestic commitments and patient demographics were compared in the two groups using multiple logistic regression with backward conditional analysis on the SPSS for Windows package (SPSS Inc.) to determine the relevant factors.

Results

The default rates in review patients over a one month period in the GUM clinic, general
medical outpatients, general surgical outpa-
tients and dermatology outpatients are shown in
table 1.

One hundred and sixty seven patients who
had appointments for follow up at the GUM
clinic defaulted over the study period. A con-
trol group of 172 patients were selected at ran-
dom from the 914 patients who did attend for
review over the same 27 day time period.

The variables included in the initial analy-
sis and those found to be relevant in the final
model following backward conditional analysis
are shown in table 2. Time of appointment,
area of residence, counselling by the health
advisor and age were all found to be signifi-
cant. Using the eight variables obtained in the
final statistical model to predict which patients
would attend or default would only correctly
classify 65% of patients.

Discussion
The default rate observed in our GUM clinic
population is not significantly different from
that of other hospital departments although
our patients almost certainly differ with
respect to their age, referral source and diag-
nosis. The significant factors in predicting
whether patients fail to attend for follow up
include an afternoon appointment, residing
further from the clinic, not having been previ-
ously seen by a health advisor and age under
25 years. Until the start of 1995 the clinic
policy had been to bring return patients back
in the afternoon and only those who could not
attend at that time were seen in the morning.
Although patients are now reviewed in both
morning and afternoon it is possible that
patients who have been attending for pro-
longed periods may also be those who tend,
historically, to have afternoon appointments.

One limitation of the study was that patients
were not asked why they had not attended.
Contacting non-attenders directly may breach
confidentiality and even if contacted the
answers obtained would have to be interpreted
with caution since patients may be unwilling
to provide accurate explanations. In addition
contact tracing in most clinics is successful in
only around 60% of cases which suggests that
such a strategy would not be very successful
and would also lead to a large selection bias.
Using the variables included in the final statis-
tical model the chance of a patient attending
or defaulting could be predicted accurately in
only 65% of cases suggesting that other factors
are also relevant. Non-attendance may also
occur due to inefficient hospital administra-
tion and confusion about appointment times
with some reports estimating that up to a third
of missed attendances could be due to these
factors.6,7

Although over 300 patients were included in
the analysis the frequency of some factors
was too small to be certain that a type II error
(false negative) had not occurred. For example,
a sample size of over 10 000 would have been
required to detect a 50% difference in
attendance rates for patients with and without
gonorhoea owing to the low prevalence in our
clinic population at present.

Previous work at a London hospital sug-
gested that non-attendance was higher in
those who had previously attended a GUM
clinic and lower in those with a positive atti-
itude to coming to a clinic, but in this study the
numbers were small and neither factor reached
statistical significance.1 Another London study,
in 1985, found a higher default rate in heterosex-
ual men and in those admitting
to three or more partners in the preceding
month but age, residence and presence of
symptoms were not thought to be relevant.7

This study only looked at patients with gonor-
roeaa and the conclusions drawn from it are
limited by potential selection bias (only half
the eligible patients were analysed) and the
univariate analysis method with the potential
for confounding.

Additional health education from the clinic
health advisor was associated with an improve-
ment in attendance and others have also found
that offering additional advice and
emphasising the reasons for follow up can
reduce the default rate.8 The provision of an
information leaflet in isolation may not affect
the overall default rate however.2

Studies performed in general practice sug-
gest that young adults default more frequently9
and our data support this. Given the predomi-

Table 1 Proportion of patients defaulting from follow-up over 1 month

<table>
<thead>
<tr>
<th>Clinic</th>
<th>No booked patients</th>
<th>No defaulters</th>
<th>% age defaulters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genitourinary medicine</td>
<td>1254</td>
<td>192</td>
<td>15%</td>
</tr>
<tr>
<td>Medical outpatients</td>
<td>483</td>
<td>62</td>
<td>13%</td>
</tr>
<tr>
<td>Surgical outpatients</td>
<td>1144</td>
<td>168</td>
<td>15%</td>
</tr>
<tr>
<td>Dermatology outpatients</td>
<td>4157</td>
<td>590</td>
<td>14%</td>
</tr>
</tbody>
</table>

Table 2 Multivariate logistic regression analysis relating risk of defaulting with various factors

<table>
<thead>
<tr>
<th>Variables in initial model</th>
<th>No defaulting</th>
<th>No attending</th>
<th>OR (95% CI) of defaulting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afternoon appointment</td>
<td>72</td>
<td>56</td>
<td>1.25 (0.95-1.65)</td>
</tr>
<tr>
<td>More than 4 previous attendances</td>
<td>34</td>
<td>38</td>
<td>0.81 (0.59-1.11)</td>
</tr>
<tr>
<td>Diagnosis of gonorrhoea</td>
<td>4</td>
<td>3</td>
<td>1.31 (0.51-3.33)</td>
</tr>
<tr>
<td>Diagnosis of warts</td>
<td>88</td>
<td>84</td>
<td>1.21 (0.89-1.65)</td>
</tr>
<tr>
<td>Diagnosis of chlamydia/NSU</td>
<td>19</td>
<td>32</td>
<td>0.86 (0.58-1.26)</td>
</tr>
<tr>
<td>Negative HIV test performed</td>
<td>13</td>
<td>17</td>
<td>0.89 (0.57-1.37)</td>
</tr>
<tr>
<td>D3 diagnosis made</td>
<td>8</td>
<td>6</td>
<td>0.91 (0.48-1.77)</td>
</tr>
<tr>
<td>Last seen by doctor of same sex</td>
<td>91</td>
<td>110</td>
<td>0.88 (0.48-1.46)</td>
</tr>
<tr>
<td>Woman with children</td>
<td>18</td>
<td>30</td>
<td>0.9 (0.61-1.35)</td>
</tr>
<tr>
<td>Tuesday appointment</td>
<td>43</td>
<td>32</td>
<td>0.96 (0.65-1.42)</td>
</tr>
<tr>
<td>Wednesday appointment</td>
<td>15</td>
<td>26</td>
<td>0.8 (0.51-1.26)</td>
</tr>
<tr>
<td>Thursday appointment</td>
<td>42</td>
<td>35</td>
<td>1.05 (0.72-1.53)</td>
</tr>
<tr>
<td>Friday appointment</td>
<td>39</td>
<td>51</td>
<td>0.71 (0.47-1.06)</td>
</tr>
<tr>
<td>Homosexual</td>
<td>19</td>
<td>17</td>
<td>0.92 (0.57-1.5)</td>
</tr>
<tr>
<td>Resident in Edinburgh</td>
<td>116</td>
<td>128</td>
<td>0.55 (0.35-0.87)</td>
</tr>
<tr>
<td>Resident in Lothian (not Edinburgh)</td>
<td>30</td>
<td>36</td>
<td>0.55 (0.33-0.89)</td>
</tr>
<tr>
<td>Negative results given on phone</td>
<td>17</td>
<td>8</td>
<td>1.5 (0.91-2.45)</td>
</tr>
<tr>
<td>Seen by health advisor</td>
<td>61</td>
<td>87</td>
<td>0.72 (0.55-0.93)</td>
</tr>
<tr>
<td>Self referred</td>
<td>103</td>
<td>78</td>
<td>1.2 (0.93-1.56)</td>
</tr>
<tr>
<td>Male sex</td>
<td>80</td>
<td>73</td>
<td>1.18 (0.87-1.6)</td>
</tr>
<tr>
<td>Symptoms present at last visit</td>
<td>129</td>
<td>136</td>
<td>1.0 (0.72-1.4)</td>
</tr>
<tr>
<td>Over 5 weeks since last visit</td>
<td>32</td>
<td>19</td>
<td>1.42 (0.99-2.03)</td>
</tr>
<tr>
<td>Aged under 25 years</td>
<td>102</td>
<td>88</td>
<td>1.3 (0.94-1.71)</td>
</tr>
<tr>
<td>Unemployed</td>
<td>76</td>
<td>65</td>
<td>1.22 (0.95-1.56)</td>
</tr>
<tr>
<td>Raining on appointment day</td>
<td>15</td>
<td>13</td>
<td>1.19 (0.73-1.95)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variables in final model</th>
<th>No defaulting</th>
<th>No attending</th>
<th>OR (95% CI) of defaulting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aged under 25 years</td>
<td>102</td>
<td>88</td>
<td>1.37 (0.99-1.74)</td>
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</tbody>
</table>
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stantly young age of the GUM clinic population this may be a particularly relevant factor but unfortunately not one which is readily changed.

Our data suggest that a number of variables may influence the rate of non attendance at GUM clinics. Of these the timing of the appointment and review by a health advisor were the only factors which were amenable to change and patients who had appointments in the afternoon and had not previously seen the health advisor were twice as likely to default (OR 2.3, 95% CI 1.28–4.17). Overall 44% of patients had been seen by a health advisor but, although there is scope to increase this proportion, this would have associated resource implications. Since this study was completed our clinic has started an evening appointment service and we intend repeating the study once this has become established.

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