

WHY MILITARY PERSONNEL FAIL TO KEEP MEDICAL APPOINTMENTS

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Abstract

Objectives: Failure to keep medical appointments, commonly referred to as 'Did Not Attend' (DNA), is a frequent problem in both primary and secondary health care and leads to a waste of valuable resources. Although the reasons for DNA within the general population are well documented, little is known about this behaviour amongst people serving in the armed forces. In this paper we report the findings of a questionnaire-based study investigating the reasons why military personnel fail to keep hospital appointments.

Method: A postal questionnaire asking questions about the reasons for not attending the appointment and how they perceived the condition for which treatment had been sought, were sent to 167 military patients known to have missed appointments in either a hospital outpatient department or regional rehabilitation unit. 162 controls, who attended appointments, were also sent a questionnaire asking them about factors leading to their appointment and how they perceived the condition that they attended the appointment for. Illness perception was measured using a previously validated Illness perception Questionnaire (IPQ-R). The controls were matched by rank, gender and corps.

Results: The overall response rate was 51.5%, with 46% response in the DNA group and 55% in the controls.

A previous history of hospital DNA (though not DNA in primary care) and attempting to change the appointment date were associated with DNA ($p=0.01$). Those who received a reminder about the appointment were less likely to DNA ($p<0.001$). Although patients who perceived their condition to be less important were more likely to fail to attend their appointment ($p=0.01$), illness perception as measured on the IPQ-R, was not associated with appointment attendance.

The most frequent reasons cited for missed appointments were due to administrative problems, with many (38%) respondents being simply unaware that they had an appointment at all or believing that they had cancelled it (14%). Forgetting the appointment (8%) or mixing up the date (21%) were also cited by respondents as reasons for not attending. Only 11% of respondents gave reasons that were specific to a military population, most frequently being on exercise at the time of their appointment.

Demographic differences such as age and gender, and practical factors such as appointment day, distance travelled, method of appointment notification, or type of hospital were not found to be associated with attendance.

Conclusion: The most common reasons for not attending appointments were due to administrative error and an inability amongst patients to recall the correct date of the appointment. Whilst efforts to improve attendance through various reminder systems have been found to be effective in the short term at least, improvements in the efficiency of appointment administration is likely to generate a reduction in DNA and in turn will reduce the wastage of resources.

Introduction

Failure to attend appointments

Failure to keep medical appointments, commonly referred to as DNA (Did Not Attend), is a universal problem in health care, at all levels and in all settings, with reported rates ranging between 5 and 39% [1]. More recently, the Information Centre for Health and Social Care [2] reported a DNA rate of 10% within the NHS in England, representing 18,000 lost appointments per day. DNA leads to wasted resources, frustration among staff, delay in treatment for the patient concerned and lengthening of waiting times for others. Stone et al [3] estimated that in 1996/97 DNA cost the NHS £360 million. For the armed forces there is the added penalty that delays to the treatment of

service men and women impacts on the fighting strength of units. Armed forces personnel also appear to exhibit a higher rate of DNA with figures provided by Salisbury District Hospital for a 9 month period in 2004 indicating that the rate of DNA for military personnel attending new appointments was 9.5% compared with an overall Trust rate of 6%.

The most commonly cited reason for non-attendance is forgetting the appointment [4,5,6,7]. Administrative problems [8,9] and transport difficulties [1,10,] are also widely cited.

Whilst there has been a great deal of research into the reasons for non attendance at appointments amongst the general population, little is known about DNA behaviour in armed forces personnel. One exception is a study that investigated attendance at a military psychiatric clinic [11]. There are, however, many possible reasons why patients in the armed forces may not attend appointments, for example, they may be deployed on operations or posted to another location at short notice, or may not be given permission to leave the place of work.

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Methods

A questionnaire was designed to ascertain the reasons for DNA in the Wessex Region of the Army Primary Healthcare Service (APHCS), addressing 3 separate areas: demographic data; details of the appointment and the stated reason for non-attendance; illness perception. The Illness Perception Questionnaire [12] provides a quantitative assessment of five components of illness representation: identity, cause, timeline, consequences and control/cure. It has been used in studies of illness adaptation in patients with a wide variety of conditions and, whilst it does not appear to have been used specifically in the context of DNA, the questions address issues that are likely to be important in making a decision about whether to attend a hospital appointment. The same authors developed a Revised Illness Perception Questionnaire (IPQ-R) in 2001 [13] to include additional subscales assessing cyclical timeline perceptions, illness coherence and emotional representations. The revised version was used in this study.

Sample

Following ethical clearance from the Ministry of Defence (Navy) Personnel Research Ethics Committee (MOD(N)PREC), DNA patients were recruited from: service patients referred from APHCS Wessex Region medical centres to NHS hospitals and patients who failed to attend appointments at the APHCS Wessex Regional Rehabilitation Unit.

The questionnaire was sent to consecutive patients notified as DNA by any hospital outpatient department and to all non-attenders at the Regional Rehabilitation Unit (RRU). For each questionnaire sent to a non-attender, one was sent to a patient known to have recently attended an appointment from the same medical centre. These controls were matched for rank, gender and unit. A second questionnaire was sent to non-responders at 3 weeks. Any remaining non-responders after a further 3 weeks were contacted by telephone to request participation in the study.

Data analysis

Data were analysed in SPSS for Windows 12.0.1. Categorical data were analysed using χ^2 tests.

Mean IPQ-R scores were analysed parametrically using the student's t-test for paired groups or one-way analysis of variance (ANOVA) where there were more than 2 groups. A significance level of 0.05 was used throughout.

Results

Baseline characteristics of participants

Questionnaires were sent to a total of 329 patients, 167 DNA and 162 controls (Figure 1). Completed questionnaires were received from 65 DNA and 81 controls, with 12 incomplete questionnaires that were unusable. Of these, questionnaires from 21 DNA and 24 controls were received only after being sent a reminder. Contacting individuals by telephone reminding proved particularly difficult and produced no additional returns. 22 were returned by units because the participant had been posted, left the Army or was otherwise unavailable, making an overall return rate of 51.5%. Summary patient characteristics are shown in Table 1, divided into RRU and hospital patients. The mean age was 31.1 years. They were predominantly male (90%) and of British nationality (95%). There were no significant differences in the baseline characteristics between patients referred to hospitals and RRU patients, which were therefore combined for further analysis.

There were no significant differences in the demographic data for both DNA and control participants (Table 2).

The data were analysed for distance from unit to hospital, type of hospital (NHS or MDHU), hospital department and day of the week appointment was booked for. No significant differences were found between DNA and controls for any of these characteristics.

There was a strong association between receiving a reminder and attending the appointment, with 80% of the 35 respondents who received a reminder attending, compared with 43% of those who did not receive a reminder ($p < 0.001$) (Table 3). There was also a significant difference for attempting to change or cancel the appointment and non-attendance, with 25% of DNA respondents changing their appointment compared with 8% of controls ($p < 0.001$).

A history of DNA for a previous hospital appointment was associated with current DNA ($p = 0.01$), though numbers are small with only 15 participants admitting to previous non-attendance. Even fewer ($n = 11$) admitted to missing an appointment with their GP, with no significant difference found between DNA and controls.

The perceived importance of the current illness or injury was scored on a 5-point scale (0 = not at all important and 5 = extremely important). Controls (mean 4.32 (SD 0.82)) rated their condition to be significantly more important than DNA respondents (mean 3.75 (SD 1.01)) ($p = 0.01$). There were no significant differences between the groups for how or when they were notified of the appointment, or the number of similar previous appointments.

Reasons for DNA

The reasons given by patients to explain their non-attendance are shown in Table 4. The one important statement that was not included in the survey was 'I received no notification of the appointment'. 27 (38%) patients used variations of this statement in the catch-all statement 'other'. The reasons for DNA can be broadly grouped into those which were within the control of the patient and those over which the patient had no control, as shown in Table 4. The single most common reason indicated was that the individual had cancelled their appointment (14%), followed by 'mixing up the date' (11%).

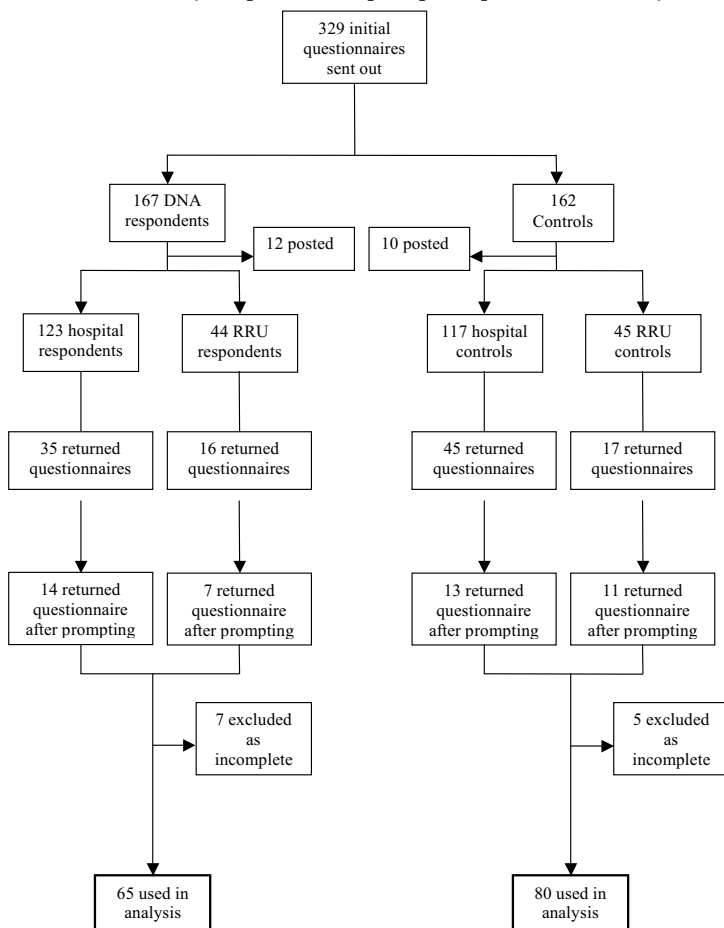


Figure 1. Subject participation summary.

Subject Characteristic	Total population	Hospital	RRU	P-value for differences between the groups
Number	145	89	56	
Mean age (years)	31.14	32.06	29.68	0.16
Standard deviation	8.29	8.81	7.21	
Confidence interval	29.78-32.50	27.75-31.61	30.20-33.91	
Gender				0.32
Male	130 (90%)	78 (88%)	52 (93%)	
Female	15 (10%)	11 (12%)	4 (7%)	
Nationality				0.39
British	137 (94%)	84 (94%)	53 (95%)	
Other	8 (6%)	5 (6%)	3 (5%)	
Stage of training				0.95
Phase 2	5 (3%)	3 (3%)	2 (4%)	
Completed	140 (97%)	86 (97%)	54 (96%)	

Table 1. Summary of patient baseline characteristics by healthcare setting.

Subject Characteristic	Total (95% confidence interval)	DNA (95% confidence interval)	Control (95% confidence interval)	P-value for differences between the groups
Number	145	69	76	
Mean age (years)	31.14 (29.8-32.5)	30.42 (29.9-33.7)	31.79 (28.4-32.4)	0.26
Standard deviation	8.29	8.36	8.23	
Sex				0.94
Male	130 (90%)	62 (90%)	68 (89%)	
Female	15 (10%)	7 (10%)	8 (11%)	
Rank				0.434
Private	38 (26%)	22 (33%)	16 (21%)	
JNCO	49 (34%)	21 (32%)	28 (37%)	
SNCO	38 (26%)	16 (24%)	22 (15%)	
Officer	20 (14%)	10 (15%)	10 (13%)	

Table 2. Differences in baseline characteristics between non-attenders (DNA) and attenders (control).

Illness Perception Questionnaire

No significant differences were found between mean illness perception scores for DNA participants and controls for each of the IPQ-R components.

Discussion

Just over half of the non-attendances were attributed to administrative error. The single most commonly stated reason for failing to keep their appointment was not being aware that they had one. Although data on whether the medical centres received hospital appointments were not collected, personal communication with staff confirms that they were not always notified of the appointment by the hospital. A further area of communication breakdown appeared to be between the medical centre and the individual's unit, with appointments being sent to the unit but not always being passed on to the soldier. Similar communication problems have been found to be a cause for DNA in other studies (for example 8,9). Better communication at all levels is an obvious area for reducing DNA and has the greatest potential benefit for improvement.

Aside from attempting to cancel the appointment, most of the reasons given that were within the control of the patient relate to either forgetting the appointment or mixing up the date or time. Whilst some medical centres and units within the armed forces have a system for reminding patients, a recent decision to halt the publication of medical appointment times in 'routine orders' in the interests of patient confidentiality will make appointment reminders more difficult. Since the use of reminders, by

telephone, letter or SMS text messages have all been shown to reduce DNA rates [14,15], it would seem beneficial to consider using a similar reminder system within military medical centres.

A small proportion of respondents stated that army specific factors such as being on exercise were a reason for non-attendance, suggesting the need for a system that ensures that either appointments are made only when patients are known to be available or they can be released from military training to attend.

The most commonly cited association for DNA in the literature is youth (for example 8,16,17). Being male is also commonly associated with DNA in published studies [8,16,18], though less consistently, with some reporting an association with being female [19,20,21] and some identifying no gender differences [22,23,24]. In our study, however, characteristics such as age and gender, and demographic differences, including regiment or rank were not found to be associated with DNA.

Some studies have identified an association between the day of the week, specifically Monday, and DNA [25,26]. However, no significant difference was found between the groups for day of the week in this study, though fewer appointments in general took place on Monday or Friday. Intuitively one might expect DNA to be associated with having to travel further to the appointment, but that was also not the case for this population. Nor was there any significant association between the hospital department referred to or whether the hospital was a MDHU or a NHS hospital.

The timing of the appointment notification was not associated with DNA. Some previous studies have linked DNA to both short notice of an appointment because they have no time to

Subject Characteristic	Total	DNA	Control	P-value for differences between the groups
Who notified the patient?				0.33
Med centre in person	25 (22%)	9 (21%)	16 (37%)	
Med centre by letter	59 (50%)	25 (58%)	34 (79%)	
Med centre by phone	13 (11%)	2 (5%)	11 (26%)	
Unit	9 (8%)	2 (5%)	7 (16%)	
Hospital	11 (9%)	5 (12%)	6 (14%)	
How long before the appointment was notification received?				0.76
< 1 week	11 (9%)	5 (11%)	6 (8%)	
1 week – 1 month	78 (66%)	30 (67%)	48 (64%)	
1 - 6 months	30 (25%)	10 (22%)	21 (28%)	
Was a reminder received?				0.00
Yes	35 (24%)	7 (10%)	28 (27%)	
No	109 (79%)	62 (90%)	47 (63%)	
Was the appointment changed/cancelled?				0.00
Yes	23 (16%)	17 (25%)	6 (8%)	
No	122 (84%)	52 (75%)	70 (92%)	
How many similar appointments in last year?				0.92
Mean	2.61	2.52	2.70	
Standard deviation	4.28	3.60	4.83	
Confidence interval	1.91-3.32	1.66-3.39	1.59-3.80	
Previous Hospital DNA?				0.01
Yes	15 (10%)	12 (17%)	3 (4%)	
No	130 (90%)	57 (83%)	73 (96%)	
Previous GP DNA?				0.63
Yes	11 (8%)	6 (9%)	5 (7%)	
No	134 (92%)	63 (91%)	71 (93%)	
How important? (score range 1-5)				0.01
Mean	4.05	3.75	4.32	
Standard deviation	0.95	1.01	0.82	
Confidence interval	3.90-4.21	3.53-4.00	4.13-4.50	

Table 3. Questions about the appointment.

rearrange other commitments or organize transport [27,28,29] or a longer time between referral and appointment, presumably because patients either recover from their illness or simply forget [16,18,30,31].

Predictably, given that forgetting the appointment is the most commonly given reason for DNA in the literature [4,5,6,7], we found a highly significant association between receiving a reminder and attending the appointment. As only a quarter of respondents said they had received a reminder, this is clearly a fertile area for improving the administration of the appointment system to reduce DNA.

The most consistently reported predictor of DNA is a past history of DNA [1,21,26,29,31,32,33]. This study confirms these findings, suggesting that preventive measures should be targeted at those most at risk. Paradoxically, there is no association with a history of DNA for GP appointments, though that may be because access to primary care appointments in most APHCS medical centres is relatively immediate.

The perceived seriousness of illness when measured on an individual 5-point scale was significantly associated with attendance, though illness perception when measured on a multi-dimension scale (IPQ-R) was not found to be associated with

appointment attendance. Although the IPQ-R has been widely used in studies of many aspects of health care, it has failed to cast any particular light on the predictors of DNA in this study. Illness perception has been identified in at least one other study [34] as a potential predictor of hospital attendance (at cardiac rehabilitation clinics), with patients perceiving that they have more control over their illness and that their illness has a greater consequence on their life, being less likely to miss an appointment. Whilst it is difficult to explain why we did not see similar associations between illness perception and appointment attendance, since much ill-health within the armed forces is due to injury [35], it is possible that the respondents in our study did not perceive their illness as having long-term effects on their life.

Conclusions

There have been concerted efforts over recent years to reduce the rate of DNA. More recently, since the completion of this study, the procedure for allocating appointments to soldiers at the MDHUs has been revised to improve its efficiency. Military patient administration cells (MPAC) have been created in the MDHUs to receive all referrals of military patients. The MPAC makes the appointment with the host NHS trust and notifies the

patient's medical centre. The appointment is only offered a maximum of one month ahead and the medical centre is required to confirm the appointment with the patient.

The other area where intervention could be effectively applied to reduce DNA is in reminding patients. This should become less of a problem with reduced waiting times, however it is worth considering whether it would be practical to introduce such a system, even if targeted only at those patients with a history of DNA who have been demonstrated to be more likely to fail to attend subsequently, or those with a less serious condition who nevertheless require an outpatient appointment.

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Statement No	Reason	Number
Within the control of the patient		
1	I forgot about it	6 (8%)
2	I cancelled my appointment	10 (14%)
4	I mixed up the date	8 (11%)
5	I mixed up the time	1 (1%)
6	I was too late getting there	1 (1%)
7	I felt better	1 (1%)
8	I didn't think they could do anything for me	0
9	I was too ill to go	2 (3%)
11	I was too busy	2 (3%)
12	I was worried about what the doctor would say or do	0
13	I was too embarrassed	1 (1%)
14	I didn't think it was important	0
16	I was on holiday	3 (4%)
18	I was scared about what they might do to me	0
Subtotal		35 (47%)
Outwith the control of the patient		
3	The hospital cancelled my appointment	2 (3%)
10	I was not allowed to go by my unit	1 (1%)
15	I was on exercise	6 (8%)
17	I couldn't arrange transport	1 (1%)
19	Other (not notified of appointment)	27 (38%)
Subtotal		37 (51%)
Total		72

Table 4. Reasons given for DNA.

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