

# A Survey of the Impact of Insulin-Treated Diabetes on Employment

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## Abstract

The aim of the survey was to explore some of the perceptions that individuals with insulin-treated diabetes mellitus (DM) hold about their experiences in the employment sector. A semi-structured questionnaire was administered to a sample of 27 individuals. Positive and negative experiences with significant medical and social impact were described. The majority of the combined gender study group (74%) did not perceive that they had experienced discrimination at work on account of their medical condition. Of the important minority who felt they had been discriminated against, men were predominant and represented by 35% of the men surveyed. Views on perceived discriminatory experience were held by 10% of the women surveyed.

## INTRODUCTION

Patients with diabetes mellitus (DM) who are treated on a regular basis with insulin may face major occupational adjustments. The aim of this study was to survey the patients' perception of the effects that insulin treatment for diabetes has had on some aspects of their employment.

## METHODOLOGY

The study was conducted in a district general hospital in Nottinghamshire, England. Patients were recruited from an outpatient diabetes centre setting over the four-month period of March to June 2004. All patients above the age of 18 years, who were in active employment or had become unemployed for reasons related to diabetes, were eligible for inclusion in the study. Informed consent was obtained prior to administration of the questionnaire and after the nature of the study had been explained. Exclusion criteria were patient preference not to participate, and unemployment (not retirement) that was from reasons not related to DM. All eligible patients who agreed to take part in the study during the period were enrolled. A semi-structured questionnaire was administered prospectively to a sample of 27 diabetic patients on regular insulin therapy. A mixture of close-ended (Yes/No) and open-ended questions were posed. A deliberate omission of a neutral category was made to the close-ended questions. This was to try and ensure that patients answered questions as objectively as possible with respect to their individual experiences in employment as

viewed over time.

## RESULTS

Data was analyzed for all 27 patients with males accounting for 17 (63%) of the total. The average duration of diabetes was 17.9 years (Range 2.5 – 40 years) for the men, and 13.3 years (6 – 34 years) for women. Sixteen (59.3%) patients had type 1 DM while 11 (40.7%) had insulin-treated type 2 DM.

Twelve (44.4%) patients were in full-time employment, seven (25.9%) in part-time employment, three (11.1%) had obtained DM related ill-health retirement, one (3.7%) was retired for reasons not related to DM, and four (14.8%) were unemployed at the time of participation in the survey.

Most patients worked between 0900 hours – 1700 hours (or had worked these hours if now retired). This was the case for 21 patients (77.8%). Six patients (22.2%) described a hybrid/variable hour/shift-work pattern.

Close-ended questions were posed relating to 'perceived work related difficulties due to insulin treated DM.' Only the men answered in the affirmative. Fourteen of the 17 men answered 'yes' to any one of the three stem questions in this section. Six patients expressed difficulties in securing employment, five had experienced difficulties in retaining employment, and three felt they had experienced difficulties in gaining promotion. Comparable responses were noted in

the corresponding open-ended questions with some patients providing written examples of scenarios. All ten women answered 'no' to the questions in the 'perceived work related difficulties' section, whether posed in the close-ended or open-ended format.

The section on 'perceived difficulties related to diabetes management' also incorporated close- and open-ended questions. Four stem questions looked at 'difficulties in administration of insulin at work', 'difficulties in monitoring glucose at work', 'the experience of hypoglycaemic episodes at work', and 'difficulties in securing time off work to attend clinics for DM related issues.'

Only four of the 27 patients (3 male, 1 female) felt that they had experienced difficulties in the administration of insulin at work.

Five patients (4 male, 1 female) had experienced difficulties with the monitoring of glucose at work. It was notable that 14 patients, (9 male & 5 female) representing 51.9% of the study group, reported having experienced at least one hypoglycaemic episode at work. Most of the affected individuals (10 out of 14) described the hypoglycaemic episodes as being mild. These episodes had been self-treated and terminated without the need for external party assistance. Only four individuals (all male) described more severe hypoglycaemic episodes and need for external party assistance.

Three patients (all male) had experienced difficulties in securing time off work to attend relevant DM clinics.

A close-ended question was posed asking 'does (did) a shift or variable work pattern affect your diabetes management?' This question was relevant to only six of the patients in the group (4 male, 2 female). Four responded with a 'yes', consisting of 3 men and 1 female.

Some 'complications of diabetes affecting work' were studied with close-ended questions directed at all 27 participants. The complications reviewed were, 'visual problems affecting work', 'kidney problems needing regular hospital visits' and 'nerve involvement affecting work.'

Eight patients (7 male, 1 female) were aware that they had DM related visual problems which affected their work.

Four patients (3 male, 1 female) had DM related kidney problems needing regular hospital visits.

Four patients (all male) had DM related nerve involvement

which they felt had affected their work.

Some issues related to socially relevant impacts of DM were studied using 3 close-ended questions. Questions looked at 'perceived discrimination at work because of diabetes', 'DM perceived as a burden in relation to work', and 'higher insurance premiums on account of diabetes.'

Seven patients (6 male, 1 female) i.e. 25.9% of the study group felt they had faced discrimination at work because of the diabetes.

Likewise, diabetes was perceived as a burden in relation to work in 7 patients (6 male, 1 female).

Thirteen patients (9 male, 4 female) had seen there insurance premiums increase on account of the diabetes, accounting for 48.2% of the group.

The last question focused on transportation issues to/at work, which could potentially be affected by diabetes related complications.

Nineteen of the 27 patients required a form of transportation to work, or at work to carry out their duties. There were 17 drivers of personal cars, one motorcyclist and one bicyclist. Of the nineteen, 12 men and 7 women felt they needed their own means of transportation to get to work. Only 4 (3 male, 1 female) felt they actually needed transport during/for their duties at the workplace.

## **DISCUSSION**

### **METHODOLOGICAL LIMITATIONS**

The limited sample size of this survey means that the findings should be interpreted with caution. Despite our best intentions, the sample selection can not be regarded as truly random because of the possibility of selection bias creeping in during the patient recruitment and consenting process. The absence of researcher and study participant blinding is a limitation though participants were encouraged as much as possible to complete their own questionnaires where practical. It needs to be borne in mind that individuals with particularly negative experiences may have felt more inclined to participate in the study, viewing it as an opportunity to bring some of their experiences to light. Although this cannot be frowned upon, it could have introduced an element of recruitment bias into the results. Recall bias to some of the questions posed could have affected the results.

Whilst recognising the stated limitations, this survey still

brings to the forefront some of the perceptions that patients with insulin-treated diabetes have. The study was not designed to appraise the reliability of the perceptions or to attempt to quantify them, but rather to describe certain perceptions held by this group of patients.

### **INTERPRETATION OF THE FINDINGS**

The interface between the workplace and workers with diabetes mellitus has rightfully begun to receive more attention in the medical literature. Some previous work has been done looking at the impact of the work environment on glycaemic control and adaptation to diabetes. It has been previously described that diabetes affects choice of work and that it often affects relationships at work, as well as raises important financial/job concerns.<sup>1</sup>

We found from our survey that some individuals with insulin treated diabetes appear to hold certain perceptions with regards to the interface between their medical condition and its psycho-social ramifications, with a particular emphasis on the influence on gainful employment.

In general, men appeared to perceive more work related difficulties relating to 1) securing employment, 2) retaining employment and 3) gaining promotion.

The effects of shift work on specific medical disorders have also been reviewed by a previous author and the findings suggested that the strongest evidence exists for an association with peptic ulcer disease, coronary heart disease and compromised pregnancy outcome.<sup>2</sup> In another study (prospective controlled) the authors looked at the diabetes control in 32 diabetic subjects working either regular days or shifts in a large car assembly factory. The authors concluded that diabetic control of insulin treated subjects who worked shifts was not significantly different from individuals who worked days only. The diabetic control in both groups of the study was described as poor, and similar to that of subjects treated with oral hypoglycaemic agents. Slowly rotating shifts were however associated with better diabetic control than more rapidly rotating shifts.<sup>3</sup>

From our survey of individuals with insulin-treated diabetes, we found that the work pattern appeared similar with 20% of the women, and 23.5% of the men surveyed being in a hybrid/shift pattern as opposed to a regular 0900 -1700 hour working day. Despite this similarity, men were more likely to express the view that they felt the shift pattern adversely affected the management of their diabetes, as compared to the women (75% versus 50%).

The commonest DM related management problems described whilst at work were hypoglycaemic episodes. However, most of these cases of hypoglycaemia were mild (71.4%) and self treated (no external help required).

This finding is consistent with a recent 12-month prospective study in Edinburgh, United Kingdom (UK) looking at the frequency, severity, and morbidity of hypoglycaemia occurring in the workplace in 243 people with insulin-treated diabetes.<sup>4</sup> The authors described the common occurrence of hypoglycaemic episodes in their cohort of regular workers. Mild hypoglycaemia occurred at work in a total of 580 reported episodes. However, severe hypoglycaemic episodes at work (requiring external help) were noted to be uncommon in the study cohort and seldom caused disruption or serious morbidity. A total of 35 episodes of severe hypoglycaemia were reported by 27 individuals (representing 11% of the entire 243 study population) and giving an over-all incidence of 0.14 episodes per person per annum. The point was presented that the restriction of employment opportunities for most people with insulin-treated diabetes may indeed be difficult to justify. The authors acknowledged that the inherent risk of severe hypoglycaemia in insulin-treated individuals could not be fully eliminated. They put forward the potential for improved employment opportunities of people with insulin-treated diabetes subject to: 1) a careful evaluation of the hazards in the workplace, 2) an assessment of the risks should an episode of severe hypoglycaemia be experienced, and 3) an evaluation of the risk of severe hypoglycaemia in the relevant individuals. <sup>4</sup>

Other problems relevant to diabetes management and experienced at work were 1) difficulties in insulin administration, 2) difficulties in glucose monitoring and 3) difficulties in securing time off for clinic attendances in the case of the men. Surprisingly, none of the 10 women in the survey indicated having ever experienced difficulties in securing time off to attend their scheduled clinics.

A previous questionnaire study of close to 2500 employer-businesses and industries in eight different areas of the UK reported on a finding that up to 16% of firms employing a diabetic person did not allow paid time off for clinic visits. It was also found that a total of 7% of those firms with a diabetic employee reported that diabetic workers were more often absent from work due to sickness. A duly noted finding however was that the majority of employers seemed to indicate that diabetes in itself does not limit employment prospects since most people with diabetes have few

problems arising from their condition and can make good employees in a range of occupations.<sup>5</sup>

The majority of our study group (20 out of 27, representing 74%) did not perceive that they had experienced discrimination at work on account of their having insulin-treated DM. Of the seven who felt they had been discriminated against, men were predominant (6 male, 1 female), and this represented 35% of the men and only 10% of the women surveyed.

A higher insurance premium was a common experience with 40% of the women and 53% of the men sharing this view. Transportation was considered to be important to both men and women, whether as a means of getting to work, or more so in the case of the men, as a necessity to carry out the requirements of their work. The nature of work performed at the workplace could to some extent explain the latter finding as many of the men were in occupations that required driving or job-related transfers e.g. postman, salesmen, small-vehicle company drivers, couriers etc.

### **LEGISLATION**

Hypoglycaemia is a recognised and common side-effect of insulin therapy and the perception remains that this could present significant risks in certain occupations. The potential safety issues towards the individuals and that of others is often a recurring theme. Consequently, health and safety legislation may sometimes place restrictions on, and limitations to, the employment opportunities of individuals with insulin-treated diabetes in some industries.

Employment legislation in many developed countries now place some safeguards on the employee rights of individuals considered to have a disability as defined by Acts of legislation. The disability discrimination act (DDA) of 1995, as applicable in the UK is an example of such legislation, though its remit reaches beyond the area of employment.<sup>6, 7</sup>

In the UK, insulin-treated diabetes mellitus is one of the conditions covered by the DDA.<sup>8</sup> The DDA makes it unlawful to treat any person less favourably on the grounds of their disability. Service providers are under a duty to make reasonable adjustments to practices, policies or procedures that make it impossible or unreasonably difficult for disabled people to use a service. The Act requires that employers consider reasonable adjustments in, or to the workplace, to accommodate individuals with the said disability, in this instance the worker with insulin-treated diabetes. It readily becomes apparent that employers and

employees may not agree as to the practicalities and ramifications of what either party would consider to be a reasonable adjustment to safeguard the effective discharge of duties. Adequate risk assessment on an individual basis by the employer would be essential before far reaching and long term decisions regarding employee suitability and safety for duties are made.

Striking the right balance on what can be accepted as a 'reasonable adjustment' in the workplace may need to be judged by an external tribunal in certain cases. The DDA has evolved since it came into force in 1996 and judicial reviews have been required to reflect major changes to the Act.<sup>6</sup>

### **CONCLUSION**

This study raises further awareness that some individuals with insulin-treated DM perceive that they experience work related difficulties. In certain situations, they perceive discrimination against them in the workplace on account of their insulin-treated diabetes status. The women in this survey certainly did not appear to be exempt from these views, but the case appeared to be stronger for their male work colleagues. Being a survey based on a small number of participants, far reaching conclusions can not be drawn from the results noted. However, some pertinent issues and questions have been raised.

The need is evident to explore these perceptions in larger studies looking at individuals with insulin-treated diabetes and their employment experience.

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