SHORT REPORT

Quality of occupational health provision: two rating scales and their determinants

Katherine M. Venables and Steven Allender

Introduction

A systematic review has concluded that few occupational health (OH) evaluative studies have been performed [1], particularly on OH provision. In the absence of robust outcome measures, it is necessary to study structure and process and the International Labour Organization (ILO) recommendations on occupational health services (OHSs) (1959, 1985) offer a framework [2,3] for evaluating OH provision. In the UK, there is a wide variation in size of OHSs in UK universities, mainly explained by university size [4,5]. However, large is not necessarily good and in our literature review on OHS provision in UK universities we found that there have been no studies on service quality [6]. We now describe the development of quality scales from data not previously analysed.

Methods

We surveyed 117 UK universities in 2001–04 [4,6]. Quality items, potentially verifiable externally, were derived from ILO recommendations [2] on environmental surveillan ce, health surveillance, information, education, training, advice, first aid (but not treatment), whether service was on or off-site, staff disciplines and qualifications, information technology and equipment. Each item scored 1 point except for the following items which were assigned 5 points: access to an on-site OHS (in-house or contracted), a specialist nurse (as defined by Nursing and Midwifery Council) or a specialist doctor (Membership of the Faculty of Occupational Medicine), generating a 0–32 scale. The respondent subjectively rated OHS factors. Assigning 2 to ‘good’, 1 to ‘adequate’ and 0 to ‘poor’ generated a perceived quality scale (0–32).

Potential determinants considered were number of university staff (Higher Education Statistics Agency, 2003–04); sum of full-time equivalents (FTE) of OHS doctors and nurses; OHS leadership (‘doctor’, ‘nurse’, ‘other’) and type of OHS (‘in-house’, ‘contractor’, ‘other’) [5]. Analysis used SPSS 13.0 and STATA 9. Ethical approval was not required.

Results

Ninety-three (79%) OHSs from 117 universities responded. The items from each quality scale are available in the electronic version (Table 1 available as Supplementary data at Occupational Medicine Online). Ninety-five per cent or
more of services reported: having an information resource, having clinical equipment, accepting management referrals, accepting self-referrals, performing pre-employment health clearances. Fewer than half reported: leading on policy development, membership of influential committees, access to a specialist doctor, providing advice on respiratory protective equipment. Over half considered clinical equipment and current management structure, ‘good’. Over half considered funding arrangements and funding level, ‘poor’.

The scale histograms are shown in Figure 1. Both scales showed wide variation, implying that they are potentially discriminatory between OHSs. As quality on the verifiable scale increased, so did perceived quality ($r_s = 0.65, P < 0.001$). The relationship between scales is available electronically (Figure 1 available as Supplementary data at *Occupational Medicine* Online).

Verifiable quality increased with OH FTE ($r_s = 0.42, P < 0.001$) and number of university staff ($r_s = 0.42, P < 0.001$). Perceived quality also increased, although less strongly for number of university staff ($r_s = 0.38, P < 0.001; r_s = 0.15, P > 0.05$, respectively). The relationships between quality and size of the OHS and number of university staff are available electronically (Figure 1 available as Supplementary data at *Occupational Medicine* Online).

While perceived quality was not clearly related to type of service, 17% of in-house services were in the top 10 of the verifiable scale, 3% of contracted and no ‘other’; 58% of ‘other’ were in the bottom 10. While verifiable quality was not clearly related to service leadership, for perceived quality, 13% of doctor-led services led were in the top 10, 11% of nurse led but no ‘other’; 50% of ‘other’ were in the bottom 10. Relationships between quality and type of OH provision and service leadership are available electronically (Table 2 available as Supplementary data at *Occupational Medicine* Online).

Univariate regressions confirmed that all four determinants influenced quality (Table 2) but number of university staff lost statistical significance when all four were included in the model. The three OHS variables together (type, size and leadership) explained the same percentage of variance in quality as all four determinants, and collectively explained about twice the variance of any one alone.

**Discussion**

OHS quality in universities was associated with service variables: type, size and leadership. In-house and larger OHSs were of higher quality, and leadership by either a doctor or a nurse had similar influences on quality, either being preferable to non-clinical leadership. Universities are large, complex organizations with varied occupational risks [6] and it seems reasonable that professionally led, larger, in-house services should be embedded within their management infrastructure, understand their needs and provide a proportionate service. However, most OHSs in UK universities are small, many not in-house and some led by non-clinicians [4], which may have implications for the quality of service they can provide. The detail of the individual quality items is informative (available electronically in Table 1 as Supplementary data at *Occupational Medicine* Online) and illustrates surprising variations.

Number of university staff was not associated with OHS quality after taking account of service factors. This was the only organizational variable considered, based on previous analyses [5]. In future research, it would be informative to include organizational or management data or the views of service users.

The use of two complementary quality scales adds weight to these findings. That based on the ILO recommendations is potentially verifiable and more objective,
but composed of structure and process items which larger services are more likely to fulfil. That based on perceptions of clinicians incorporates their understanding of outcomes in their university, but is subjective and unverifiable.

The ILO recommendations require updating which may explain why scores on this scale clustered at the upper end of the range. We dealt with this by assigning additional weight to access to a service on-site, a specialist nurse or a specialist doctor which extended the scale and made it more discriminatory between universities. Different approaches to item weighting may be appropriate in other sectors.

Most importantly, the ILO recommendations cover structure and process, not outcomes. The development of simple, widely applicable indices will be more complex than in acute health care because of multiple stakeholders and the relationship of even ‘medical’ variables (e.g. sickness absence) to economic and social factors (e.g. management culture, company profitability and workforce morale). However, because of the lack of research in this area, the general approach might be widely applicable and stimulate debate. Any wider use of these quality scales would require further development and validation.

Interestingly, it would have been difficult to set this study in countries where there are legislative requirements for OHSs. The current lack of regulation in the UK means that OHS quality is not determined by law, guidelines or planning, is thought to vary widely and reflects the priorities of employers and OH providers.

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### Key points

- This appears to be the first study of the quality of OHSs in universities in the UK; it used a verifiable scale generated from the items in the 1985 ILO recommendations as well as a scale generated from self-ratings of aspects of the service.
- Although most of the variance in quality was unexplained, in-house and larger OHSs were of higher quality, and leadership by either a doctor or a nurse had similar influences on quality, either being preferable to non-clinical leadership.
- Individual items where there appeared to be room for improvement included leading on policy development, membership of influential committees, access to a specialist doctor, providing advice on respiratory protective equipment, funding arrangements and funding level.

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Conflicts of interest
None declared.

References