

LETTER

Seasonality and attendance at a pulmonary rehabilitation programme

Pulmonary rehabilitation (PR) programmes have been shown to reduce symptoms, improve exercise tolerance and reduce readmission rates in chronic obstructive pulmonary disease (COPD).^{1,2} PR has the potential to reduce the economic burden of COPD upon the NHS but, if poor attendance results in groups running at less than capacity, the cost-effectiveness of the service is markedly reduced. Understanding and responding to the factors that influence attendance is vital to ensuring maximum benefit is gained from PR programmes. The role of seasonality in attendance at PR programmes has not previously been evaluated, and there is conflicting evidence regarding the role of seasonality from other outpatient settings.^{3,4}

We reviewed attendance rates between 2007 and 2010 at our PR programme in a central London borough. We collected data on attendance at initial assessments and subsequent biweekly PR sessions and examined the data by season, winter months incorporating October to March and summer months April to September.

During this period 506 assessment appointments were made to achieve 258 attendances, an attendance rate of 51%. For assessments, there was no difference in attendance between the winter and summer months (50% and 51%, respectively). The overall attendance rate at the PR group

sessions was 69% (2325 appointments were made to achieve 1613 attendances). The attendance rate at group sessions during winter was 64% compared with 74% during summer. A Mann–Whitney U test was performed to compare monthly attendance rates and showed the seasonal difference to be statistically significant ($p < 0.05$).

The attendance data were correlated with local monthly weather data using the Pearson product moment correlation coefficient. Attendance rates showed a weak positive correlation with maximum and minimum temperatures ($r = 0.51$ and $r = 0.44$, respectively) and with sunlight hours ($r = 0.55$), and a weak negative correlation with amount of rainfall ($r = -0.33$).

Attendance rates at assessments were worse than for the subsequent PR sessions and showed no seasonal variation. However, attendance rates at the PR sessions themselves were significantly worse during winter months than during the summer months. In practice, this corresponds to increased time spent arranging and rearranging appointments, leaving PR groups with unfilled spaces. This pattern has not previously been explored in the literature despite the well-documented association between seasonality and COPD symptoms and exacerbations.⁵ The weak correlation we found between attendance and specific weather indicators suggests that weather conditions may contribute to this pattern. However, confounding patient factors such as illness exacerbation and environmental issues such as transport are likely to play an important role, and these need to be further evaluated in the context of seasonality to

better understand this relationship. The patterns we observed need to be taken into account when planning PR services, and we hope to open up a discussion into potential methods of addressing this variation in order to maximise patient participation and hence service effectiveness.

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REFERENCES

1. **Lacasse Y**, Goldstein R, Lasserson TJ, *et al*. Pulmonary rehabilitation for chronic obstructive pulmonary disease. *Cochrane Database Syst Rev* 2006; (4):CD003793.
2. **Seymour J**, Moore L, Jolley CJ, *et al*. Outpatient pulmonary rehabilitation following acute exacerbations of COPD. *Thorax* 2010;**65**:423–8.
3. **Tu W**, Stump TE, Damush TM, *et al*. The effects of health and environment on exercise-class participation in older, urban women. *J Aging Phys Act* 2004;**12**:480–96.
4. **Corfield L**, Schizas A, Noorani A, *et al*. Non-attendance at the colorectal clinic: a prospective audit. *Ann R Coll Surg Engl* 2008;**90**:377–80.
5. **Donaldson GC**, Wedzicha JA. COPD exacerbations. 1: Epidemiology. *Thorax* 2006;**61**:164–8.