

## Routine general practice care for panic disorder within the lifestyle approach to managing panic study

Rodney A. Lambert

Faculty of Medicine and Health,  
University of East Anglia, Norwich, UK

### Abstract

Routine general practice (GP) care is rarely comprehensively described in clinical trials. This paper examines routine GP care within the *lifestyle approach to managing panic* (LAMP) study. The aim of this paper is to describe/discuss routine GP care for panic disorder (PD) patients within both study arms in the LAMP study. An unblinded pragmatic randomised controlled trial in 15 East of England GP practices (2 primary care trusts). Participants met *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* criteria for PD with/without agoraphobia. Follow-up measures recorded at 20 weeks/10 months following randomisation. Control arm, unrestricted routine GP care (practice appointments, referrals and prescriptions). Trial arm, occupational therapy-led lifestyle treatment comprising lifestyle review of fluid intake, diet pattern, exercise, caffeine, alcohol and nicotine. Primary outcome measure: beck anxiety inventory. At baseline, participants attended 2-3 times more GP appointments than population average, reducing at 10 months to 1.6 times population average for routine GP care and 0.97 population average for lifestyle arm. At 10 months, 33% fewer referrals (6 referrals; 0 mental health) than at baseline (9 referrals; 2 mental health) were made for lifestyle arm patients compared with 42% increase (from 12 referrals; 8 mental health at baseline to 17 referrals; 7 mental health) in GP care arm. Selective serotonin reuptake inhibitors were prescribed most often. Benzodiazepines and beta-blockers were prescribed more often than tricyclic against current clinical guidelines. In conclusion, we found that PD patients at baseline were high healthcare resource users. Treatment in both study arms reduced resource use. Routine GP care requires further review for this patient group.

### Introduction

Usual or routine general practice (GP) care has often been used as a comparator, but is fully

discussed in very few papers, despite its importance in considering cost-effectiveness of interventions. Where provided, description of usual care is often focused on medication alone,<sup>1,2</sup> rather than from a more comprehensive perspective. The main focus of this paper will be the routine GP care provided for panic disorder (PD) patients within both study arms of the *lifestyle approach to managing panic* (LAMP) study. The design and main findings of the LAMP study, and the associated economic evaluation have been reported elsewhere,<sup>3,4</sup> along with its impact on symptom profiles,<sup>3</sup> and therefore only a brief summary of methods and main results will be provided. The discussion identifies key elements of usual GP care for PD patients, including some areas of concern.

### Materials and Methods

An unblinded pragmatic randomised controlled trial and economic evaluation was undertaken to determine the cost-effectiveness of a 16 week occupational therapy-led lifestyle approach to the treatment of PD presenting in primary care compared with routine GP care. Prior approval for the study was provided by the relevant Local Research Ethics Committees. Participants were aged between 16 and 65 years and were recruited from 15 GP practices in the East of England between 2001 and 2003. Participants met the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* criteria for PD with/without agoraphobia,<sup>4</sup> and provided written informed consent including access to their GP practice data. Stable medication dosage was required for at least 4 weeks before entry into the study. Eligible participants were stratified for agoraphobia and for lifestyle factors (caffeine/alcohol/fluid intake, and smoking). After stratification, participants were randomly assigned to either routine GP care or to the occupational therapy-led lifestyle approach. Random allocation was carried out using sealed envelopes prepared in advance by the principal researcher. A power calculation using the Beck Anxiety Inventory (BAI) as the primary outcome measure, estimated that 485 referrals were required to achieve 90% power to detect a 5 point difference on the BAI, including an estimate of 50% participation from referrals received, and 30% loss to follow-up. Intention to treat analysis and analysis of covariance (ANCOVA) using SPSS v12 for Windows were used to report mean difference and 95% confidence intervals as an appropriate indicator of study power and significance of results.

Routine GP care in this study was described from data from GP practice records over the 3 month period before baseline, and before follow-up at 20 weeks and 10 months, to include the:

Correspondence: Rodney A. Lambert, Faculty of Medicine and Health, University of East Anglia, Norwich NR4 7TJ, Norfolk, UK.  
Tel. +44.01603.593096 - Fax: +44.01603.593166.  
E-mail: r.lambert@uea.ac.uk

Key words: clinical trial, panic disorder, lifestyle, primary care, occupational therapy.

Acknowledgements: to the grant awarding bodies whose financial support made the research possible. To the patients, the GP Practices and Occupational Therapists who participated in the research, without whose continued support the research could never have been achieved. To my supervisors, Professor Ian Harvey and Dr Fiona Poland who's support and guidance were invaluable. The main research results were presented at the 33<sup>rd</sup> North American Primary Care Research Group Meeting held in Quebec City on October 15<sup>th</sup> - 18<sup>th</sup> 2005. Ethical approval: Norwich District LREC 2000/155; West Suffolk LREC 01/001; East Norfolk and Waveney Research Governance Committee 2000MH23

Funding: this research was supported by a NHS R&D National Primary Care Researcher Development Award Fellowship (Grant RDA99/062) and by a NHS R&D Eastern Region Health Services and Public Health Research Scheme Grant (Grant HSR/0500/1). Clinical Trial Registration details: Controlled-trials.com - ISRCTN51562655 (<http://www.controlled-trials.com/isrctn/search.asp>).

Conflict of interests: the author reports no conflict of interests.

Received for publication: 28 September 2011.

Accepted for publication: 20 June 2012.

This work is licensed under a Creative Commons Attribution NonCommercial 3.0 License (CC BY-NC 3.0).

©Copyright R.A. Lambert, 2012  
Licensee PAGEPress, Italy  
*Mental Illness* 2012; 4:e18  
doi:10.4081/mi.2012.e18

- average number of GP appointments
- average number of non-GP practice appointments
- total number of referrals to other agencies or specialisms
- total number, type and cost of prescriptions.
- The lifestyle intervention used lifestyle review of diet, fluid intake, exercise and habitual lifestyle drug use (caffeine, alcohol and nicotine), providing up to 10 intervention sessions over a 16-week period, delivered in four stages:
  - lifestyle review using self-report mood and lifestyle diaries
  - education to increase patient awareness of health behaviours with potentially detrimental (such as smoking and poor diet pattern)

- and beneficial (such as sufficient exercise and sufficient fluid intake) health effects
- negotiation of specific lifestyle changes (in diet, fluid intake, exercise or habitual lifestyle drug use) between therapist and patient
- monitoring and review of agreed lifestyle changes and changes in symptomatology.

## Results

One hundred ninety-nine referrals were received, unevenly distributed across participating GP practices (minimum 1 referral; maximum 32 referrals; mean=13.3 referrals). From patients referred, 59% (117 patients) were entered into the study and 67 patients completed to final analysis (31 lifestyle arm; 36 GP care arm). No adverse events were reported during the trial.

Demographic and clinical comparisons showed that both groups were similar at baseline. ANCOVA (Figure 1) shows that BAI results were significantly different at 20 weeks (after Bonferroni correction requiring significance at  $P < 0.007$ ) for the total BAI score [ $P < 0.001$ , mean difference (md) -9.8; 95% confidence interval (CI) -15.0 to -4.6]; the neurophysiological ( $P = 0.002$ ); subjective ( $P < 0.001$ ); autonomic ( $P = 0.006$ ) and panic ( $P = 0.041$ ) subscores. There were no significant between-group differences at 10 months although results continued to favour the lifestyle arm.

When comparing mean BAI scores, a significantly greater number [9/34; 26%; Fishers exact test (2-sided)  $P = 0.016$ ] of GP care arm patients recorded an increased BAI score at 10 months, compared with 1/29 (3.4%) in the lifestyle arm.<sup>5</sup>

Cost-effectiveness analysis shows that *while the lifestyle intervention cannot demonstrate cost-effectiveness at greater than 90% certainty, this remains higher than the certainty level recorded for therapist-led cognitive behavioural therapy (CBT) interventions.*<sup>6</sup> Therefore, this showed the lifestyle intervention to be at least as cost-effective as routine GP care, and provided a clinical outcome similar to that of full cognitive behavioural therapy.<sup>5</sup>

### Routine general practice care

The main focus of this paper is on the routine GP care provided in both study arms during the LAMP study, where a range of indicators have been used as stated earlier.

### Average number of general practice and non-general practice appointments

The population average (any age-group) for GP visits is 5 appointments per year,<sup>7</sup> or 1.25

times in a 3 month period. A lower average of 2 appointments per person per year (0.5 in 3 months) is reported for non-GP appointments within GP practices.<sup>7</sup> Figure 2 shows that at baseline, patients in both study arms attended GP appointments at between twice and three times as often as this average. By the 10 month follow-up, GP care arm patients were attending at 1.6 times the population average (2 in 3 months), and lifestyle arm patients at 0.97 times (1.2 in 3 months) the population average. This provided a between-group difference approaching the level of significance ( $P = 0.063$ ), and represented a 31% reduction in the average number of GP appointments in the routine GP care arm and a 66% reduction in the lifestyle arm.

Smaller non-significant differences were

observed in appointments with other members of the primary care team, with a 16% reduction from baseline to 10 months in the GP care arm (0.37 to 0.31) and a 24% reduction in the lifestyle arm (0.9 to 0.68).

### Referrals to other agencies

There were no significant between-group differences for referrals during 3 month periods before each assessment. A total of 54 referrals were made to 18 different specialisms over the 10 month study period, with 22 (41%) being specific mental health referrals [lifestyle arm 4/19 (21%); GP care arm 18/35 (51%)] (Table 1).

The pattern of changes in referrals differed between the study arms (Figure 3). In the GP

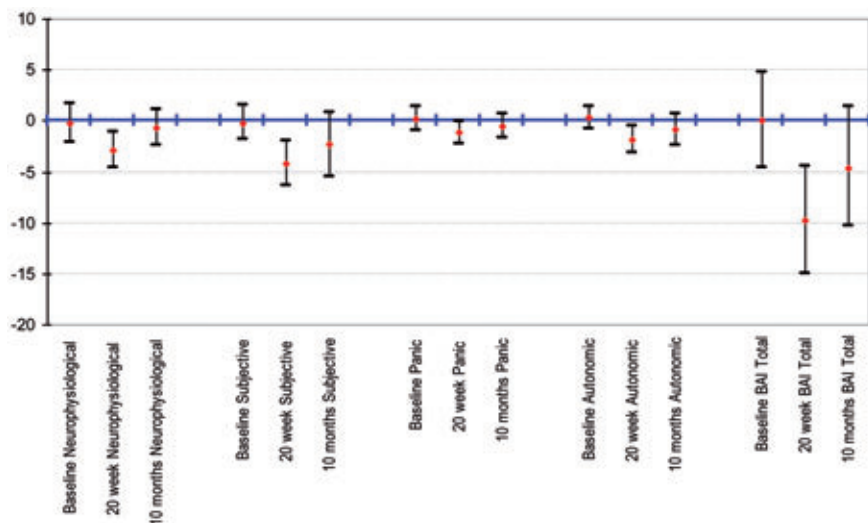


Figure 1. Ancova for Beck Anxiety Inventory total score and subscores (negative change favours the lifestyle arm).

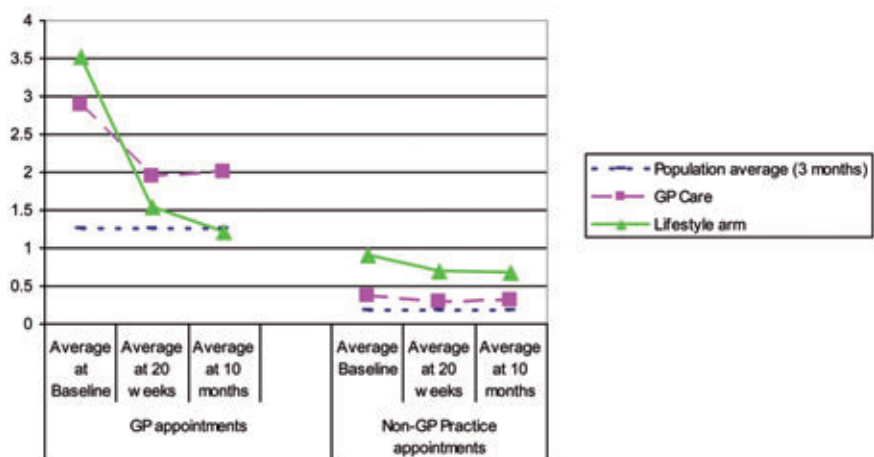


Figure 2. Average general practice and non general practice appointments by trial stage and study arm.

care arm at baseline, 67% (8/12) of referrals were specifically for mental health, reducing to 50% (3/6) at 20 weeks and 41% (7/17) at 10 months. This represented a 42% increase in total referrals compared with baseline, and a 12% reduction in mental health referrals (from 8 to 7). In the lifestyle arm 22% (2/9) specific mental health referrals were made, increasing to 50% (2/4) at 20 weeks and reducing to 0% (0/6) at 10 months. This represented a 33% reduction in total referrals, with no further specific mental health referrals.

### Prescriptions

Prescriptions were itemised and medication costs were taken from the British National Formulary, September 2002 and MIMS January 2003.<sup>7,8</sup> This section will focus on number and type of prescriptions as economic data is reported separately.<sup>6</sup> No significant between-group differences were observed for the number of prescriptions at any stage. For the 3 month period before baseline, GP care arm patients received 300 prescriptions compared with 239 prescriptions for lifestyle arm patients. In the 3 month period before the 20-week follow-up, 234 prescriptions were made to GP care arm patients (22% reduction), compared with 115 prescriptions to lifestyle arm patients (52% reduction). At 10 months a further 210 prescriptions were made to GP care arm patients (30% reduction from baseline). In the lifestyle arm, a further 100 prescriptions were made (58% reduction from baseline). Over the full 10 month period of the research, patients in the GP care arm received 663 prescriptions, compared with lifestyle arm patients who received 340 prescriptions.

Throughout the research period, 210 different medication/dosage combinations were prescribed. It was often impossible to determine, without individual review of each patient with their GP, which medications were prescribed as a direct result of the patient's PD. Analyses were therefore based on the 10 most favoured medications used in the three month period before each assessment. Fourteen medication types were identified as being the most favoured by GPs in the trial. Figure 4 shows that four antidepressant types were most commonly used with PD patients in the following order of preference; SSRIs, benzodiazepines, tricyclic antidepressants (TCA) and noradrenergic and serotonergic antidepressants, and that beta-blockers were the third most preferred medication type used.

### Discussion

Lower than expected referrals (486 planned; 199 received) led to the study being underpowered compared to that planned. The

main study results show that an occupational therapy-led lifestyle approach to the treatment of panic disorder presenting in primary care provided significant short term clinical benefit, and was at least as cost-effective as routine GP care over a 10-month period.

Routine GP care in the LAMP study was characterised through 3 main features: i) GP appointments and appointments with other members of the primary care team; ii) referrals to specialist services outside the GP practice; iii) number and type of prescriptions.

Previous findings suggest that PD patients represent a formidable disease burden, and are frequent users of medical resources.<sup>8-10</sup> In the LAMP study, the number of GP appoint-

ments for participants in the 3 months before baseline were between 2 and 3 times the population average. A 31% reduction in the GP care arm to 1.6 times the population average is compared with a 66% reduction to 0.97 times the population average in the lifestyle arm. In contrast, little change was observed during the study in the number of appointments made with other members of the primary care team.

Fifty-four referrals of PD patients to 18 agencies were made during the trial. The number of general medical referrals decreased in the lifestyle arm between baseline and 10 months (7 to 6), but increased in the GP care arm (4 to 10). Mental health

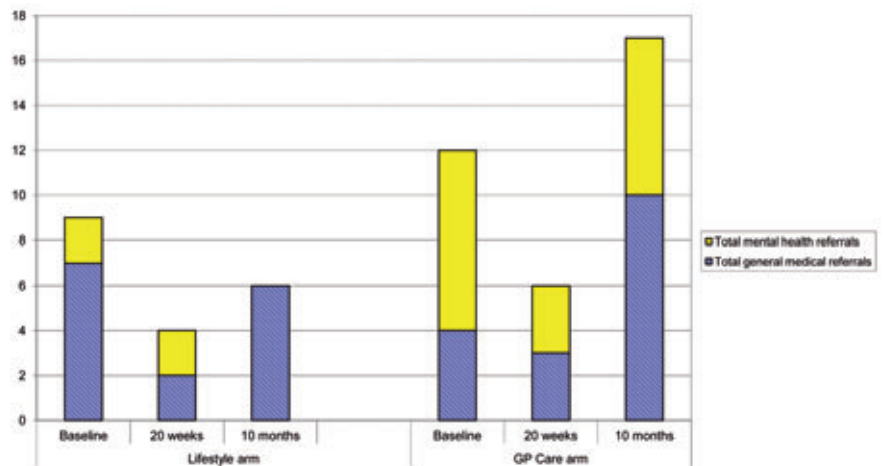


Figure 3. Referrals to other agencies by trial stage and study arm.

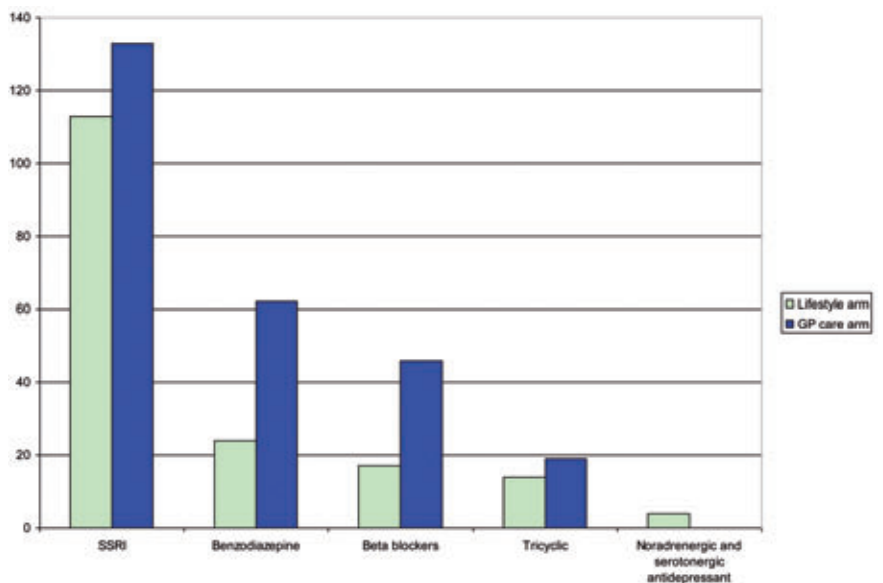


Figure 4. Panic disorder specific medications.

referrals reduced in both study arms, from 2 to 0 in the lifestyle arm compared with from 8 to 7 in the GP care arm. Over the full research period, general medical referrals were broadly similar in both study arms (GP care arm=17; lifestyle arm=15), but showed a marked difference in mental health referrals (GP care arm=18; lifestyle arm=4).

Almost 3 times as many prescriptions in the present study were for SSRIs (246 prescriptions, 44%) compared with benzodiazepines (86 prescriptions, 15%). This contrasts with the findings,<sup>11</sup> that 3 times as many PD patients were prescribed benzodiazepines than SSRIs. Minor between-group differences were observed for SSRI prescriptions (lifestyle arm 113; GP care arm 133), while over two and a half times as many prescriptions for benzodiazepines were given to GP care arm patients (lifestyle arm 24; GP care arm 62). Almost 3 times as many prescriptions for beta-blockers (63 prescriptions, 11%) were given to GP care arm patients compared with lifestyle arm patients (46 GP care arm; 17 lifestyle arm). A substantial proportion of GPs therefore prescribed beta-blockers for PD against the available evidence and advice. Approximately equal numbers of prescriptions for TCAs were given in both study arms (total prescriptions 33, 6%: lifestyle arm 14; GP care arm 19). Four prescriptions for one other antidepressant, mirtazepine (a noradrenergic and serotonergic antidepressant), were recorded. The remaining 35% of prescriptions were related to other medical problems such as asthma, gastro-intestinal disorders and diabetes. In the lifestyle arm, 16 prescriptions were made for medication targeted at smoking cessation (7 before baseline, and 9 at 10 months) compared with none in the GP care arm.

### Strengths and limitations of this study

The reporting of main study results using ANCOVA and 95% confidence intervals provides an appropriate and valid method of assessing actual study power in an otherwise underpowered study.<sup>12</sup> Routine GP care was reported using a wider range of variables than in previous studies of PD. It was often not possible to determine whether referrals made were specifically related to PD. The number of appointments made within each speciality was not recorded and may underestimate resource use.

The UK guidelines for the treatment of PD, and those from Australia and New Zealand, were published after the end of the trial. It is possible therefore that prescribing and referral practices may have changed since the end of the trial.

**Table 1. Referral agencies used for panic disorder patients from primary care.**

General medical	Total lifestyle	Total general practice care	Total
Orthopaedic	3	3	6
Physiotherapy	2	1	3
Ophthalmologist	1	0	1
Dentist	0	1	1
Neurology	1	4	5
Dermatology	1	1	2
General surgery	0	2	2
X-Ray	0	1	1
BUPA	0	1	1
Gynaecology	0	1	1
ENT	1	0	1
Gastroenterology	3	0	3
Breast Clinic	0	1	1
Hospital Dept. of Medicine	3	1	4
<i>Total</i>	<i>15</i>	<i>17</i>	<i>32</i>
Mental health			
Psychologist	2	0	2
CPN	0	6	6
CMHT	1	7	8
Psychiatrist	1	5	6
<i>Total</i>	<i>4</i>	<i>18</i>	<i>22</i>

ENT, ear, nose, and throat; CPN, community psychiatric nurse; CMHT, community mental health team.

### Comparison with existing literature

Links between the existing literature for GP practice appointments and referrals have been made throughout. Recommendations for appropriate medication for PD have been produced in practice guidelines by the American Psychiatric Association,<sup>11</sup> the Royal Australian and New Zealand College of Psychiatrists and the UK National Institute for Clinical Excellence.<sup>13,14</sup> In the UK guidelines, SSRIs, imipramine or clomipramine, are primarily recommended, with other classes of antidepressant medication to be used only if there is no improvement. The American guidelines recommend that treatment decisions should be *guided by considerations of adverse effects and the physician's understanding of the patient's personal preferences [...] and other aspects of the clinical situation* (12 p 570). They are cautious about combining medication and psychological therapies. However, the Australian and New Zealand guidelines, and those from the UK support the use of TCAs and SSRIs as being equal in efficacy, with both being preferred to benzodiazepines,<sup>15,16</sup> and that behaviour therapy should accompany drug treatment. Recent evidence suggests that beta-blockers continue to be regularly prescribed for PD patients,<sup>13</sup> despite, no support being given for the use of beta-blockers

or calcium-channel blockers in the treatment of PD in any of the stated clinical guidelines.

### Implications for future research or clinical practice

Only 2 referrals for psychologist input and no specific referrals for CBT were made. Clinical guidelines suggest that psychological therapies are currently considered the most effective form of treatment, followed by medication and self-help,<sup>16</sup> despite recent evaluations that appear to query the overall efficacy of the Increasing Access to Psychological Therapies initiative.<sup>14</sup> Reasons for such persisting referral patterns require further investigation, although anecdotal evidence from discussions with GP practices during the trial suggest that, while the picture is improving, low levels of access and long waiting lists may contribute.

Beta-blockers appear to remain a relatively common medication used with PD patients, when their use has not been recommended in any published guidelines. Benzodiazepines were also favoured over TCAs. Further examination of prescribing practices is therefore required.

The lifestyle intervention was found to be at least as cost-effective as routine GP care over 10 months, but needs further investigation

with a larger sample size to establish whether the clinical and economic gains observed during the LAMP study can be repeated.

## References

1. Roy-Byrne P, Russo J, Dugdale DC, et al. Undertreatment of panic disorder in primary care: role of patient and physician characteristics. *J Am Board Fam Pract* 2002;15:443-50.
2. Roy-Byrne PP, Katon W, Cowley DS, Russo J. A randomized effectiveness trial of collaborative care for patients with panic disorder in primary care. *Arch Gen Psychiatry* 2001;58:869-76.
3. Lambert R, Caan W, McVicar A. Influences of lifestyle and general practice (GP) care on the symptom profile of people with panic disorder. *Journal of Public Mental Health* 2008;7:18-24.
4. American Psychiatric Association. *Diagnostic & Statistical Manual of Mental Disorders; DSM-IV TR*. Fourth (Text Revision) ed. Washington DC: American Psychiatric Association; 2000.
5. Lambert RA, Harvey I, Poland F. A pragmatic, unblinded randomised controlled trial comparing an occupational therapy-led lifestyle approach and routine GP care for panic disorder treatment in primary care. *J Affect Disord* 2007;99:63-71.
6. Lambert RA, Lorgelly P, Harvey I, Poland F. Cost-effectiveness analysis of an occupational therapy-led lifestyle approach and routine general practitioner's care for panic disorder. *Soc Psychiatry Psychiatr Epidemiol* 2010;45:741-50.
7. Walker A, Traynor J, Fox K, et al. Living in Britain: results from the 2001 general household survey. Available from: <http://www.statistics.gov.uk/lib2001/resources/fileAttachments/GHS2001.pdf>
8. Smit F, Willemse G, Meulenbeek P, et al. Preventing panic disorder: cost-effectiveness analysis alongside a pragmatic randomised trial. *Cost Eff Resour Alloc* 2009; 7:8.
9. Roy-Byrne PP, Stein MB, Russo J, et al. Panic disorder in the primary care setting: comorbidity, disability, service utilization, and treatment. *J Clin Psychiatry* 1999;60: 492-9.
10. Pollack MH, Marzol PC. Panic: course, complications and treatment of panic disorder. *J Psychopharmacol* 2000;14:S25-S30.
11. American Psychiatric Association. *Practice guidelines for the treatment of psychiatric disorders*. Washington DC: American Psychiatric Association; 2000.
12. Van Breukelen GJ. ANCOVA versus change from baseline: more power in randomized studies, more bias in nonrandomized studies [corrected]. *J Clin Epidemiol* 2006;59: 920-5.
13. Das M. Panic disorder: propranolol and behavioural therapy. *BMJ* 2006;332:1094.
14. Clark DM, Layard R, Smithies R, et al. Improving access to psychological therapy: Initial evaluation of two UK demonstration sites. *Behav Res Ther* 2009;47:910-20.
15. Andrews G. Australian and New Zealand clinical practice guidelines for the treatment of panic disorder and agoraphobia. *Australian and New Zealand Journal of Psychiatry* 2003;37:641-56.
16. NICE. *Anxiety (amended): management of anxiety (panic disorder, with or without agoraphobia, and generalised anxiety disorder) in adults in primary, secondary and community care*. London: National Institute for Health and Clinical Excellence; 2007. Report No.: NICE Clinical Guideline 22 (amended).