

Development and validation of the EUROLIGHT questionnaire to evaluate the burden of primary headache disorders in Europe

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Abstract

We developed a 103-item self-reporting questionnaire to assess the burden of primary headache disorders on those affected by them, including headache characteristics, associated disability, co-morbidities, disease-management and quality of life. We validated the questionnaire in five languages with 426 participants (131 in UK, 60 in Italy, 107 in Spain, 83 in Germany/Austria, and 45 in France). After a linguistic and a face-content validation, we tested the questionnaire for comprehensibility, internal consistency and test–retest reliability at an interval of one month. In the different countries, response rates were between 73% and 100%. Test–retest reliability varied between –0.27 to 1.0 depending of the nature of the expected agreement. The internal consistency was between 0.69 and 0.91. The EUROLIGHT questionnaire is suitable for evaluating the burden of primary headache disorders, and can be used in English, German, French, Italian and Spanish.

Keywords

headache, questionnaire, burden, validation

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Introduction

Headache disorders, including migraine, are common and disabling (1) but under-recognised and under-treated (2,3). Consequently, they impose a substantial population burden of ill-health. It is well documented that migraine impairs work and social activities (4,5). The *World Health Report 2001* (3) ranks migraine twelfth in women and nineteenth overall amongst all causes of disability in the world. Less is known about other primary headache disorders, but tension-type headache (TTH), being more prevalent, may impose an even higher population disability burden than migraine (6). Yet this is poorly acknowledged, along with the physical and emotional impact of headache on those directly affected, their carers, family and colleagues, and the socio-economic burden of headache. For example, fewer than half of people with migraine are correctly diagnosed, a prerequisite

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for receiving adequate treatment (7–11). In comparison with other, less prevalent, neurological disorders, headache attracts little attention and is generally accorded low priority (10,12–14).

The EUROLIGHT project (<www.eurolight-online.eu>) is an initiative supported by the EC Public Health Executive Agency and a partnership activity within *Lifting The Burden: The Global Campaign to Reduce the Burden of Headache Worldwide*. One of its main objectives is to gather up-to-date and reliable knowledge of the prevalence and impact of migraine, TTH and chronic daily headache across Europe. There is no validated instrument for collecting the data that will achieve this. Therefore, the EUROLIGHT questionnaire has been developed.

This instrument is based largely on the BURMIG questionnaire, and has additions from instruments developed by *Lifting The Burden* (15). The BURMIG questionnaire was developed in 2004 for a population-based survey of the burden of migraine in the Grand Duchy of Luxembourg. It incorporated previously validated tools for diagnosis, disability assessment and recognition of depression, and added questions on disease management and impact on quality of life (16). It proved to be consistent and reliable for the Luxembourg population. In order to develop the EUROLIGHT questionnaire for use in different European countries, and also to encompass other headache disorders, the BURMIG questionnaire was revised. We integrated sections to assess disability burden, measure general and disease-specific quality of life (QoL), detect anxiety and depression, and enquire into disease management.

The aim of the present study was to assess the test–retest reliability and validity of the EUROLIGHT questionnaire for use throughout Europe. A pilot validation study in the UK was followed by a multicountry study in France, Luxembourg, Germany, Austria, Italy and Spain.

Materials and methods

Questionnaire development

The content of the BURMIG questionnaire was reviewed and thoroughly revised by the steering committee of the EUROLIGHT project. Priority areas for revision had been defined in a pilot study (16), with support from several patient organisations (Migraine Action Association UK, Switzerland and Luxembourg), international headache experts (see Acknowledgements) and the Luxembourg Ministry of Health. The additional or amended items were incorporated into the EUROLIGHT questionnaire after a full literature review of studies on headache burden (17).

The final EUROLIGHT questionnaire (see Appendix) contains 103 items, 7% of which are open questions, 15% numerical questions (i.e. requesting a number for the answer) and 78% categorical (requesting the respondent to place a tick in a box). The first section is biographical (age, gender, language and employment). Next are screening questions for headache (life-time and 1-year prevalence), followed by a section on chronic daily headache. The following questions diagnose the headache that the patient considers to be the most bothersome (if more than one headache type is identified). This approach recognised the virtual impossibility of accurately diagnosing, by self-administered questionnaire, more than one headache type in the same individual. The diagnostic questions, for migraine and TTH, were based on the criteria of the *International Classification of Headache Disorders*, 2nd edition (ICHD-II) (18). Further questions relate to age at onset and frequency of headache during the previous 3 months. This section is followed by questions about headache yesterday (point prevalence), and then by sections on the use of healthcare resources (medicines, investigations, consultations, etc.) and the impact of headache on work, family life and social activities (including the Headache-Attributed Lost Time [HALT] Index (19)), both for those with headache and for their household partners. A set of questions determined body mass index (BMI), a risk factor if high, for frequent headache. Finally, there were questions on general health derived from the World Health Organization Quality of Life BREF (WHO QoL -BREF) (20) and the Hospital Anxiety and Depression Scale (HADS) (21).

Evaluation of the questionnaire

The EUROLIGHT questionnaire was assessed for: (i) face, content and language validity; (ii) test–retest reliability over one month, a period of time during which little or no change in the respondent's headache is expected; (iii) the extent to which it could discriminate between respondents with more or less severe disease (construct validity); and (iv) the extent to which individual items correlated with other items relating to the particular area of enquiry (internal consistency). The respective methods are detailed below.

All parts of the study conformed to the ethical standards described in the Declaration of Helsinki. Ethics committee approval was obtained from the National Ethics and Research Board of Luxembourg.

Study population: People with headache were recruited by different means in five countries. In England, they were recruited from the members of Migraine Action UK. In France, consecutive patients

were recruited in the Department of Evaluation and Treatment of Pain within the Neurosciences Clinic, University Hospital, Nice. In Luxembourg, people with headache were recruited from the French-speaking employees of CRP-Santé by email. The subjects from Luxembourg and France participated in the evaluation of construct validity. The sample from Germany was derived from an existing data bank of the German Headache Consortium, University Hospital of Essen, a population-based cohort including people with and without headache. In Austria, consecutive patients were recruited in the Department of Neurology and Pain Medicine, Konventhospital Barmherzige Brüder, Linz; healthy subjects were enrolled from the personnel working at the hospital and their families. In Italy, 50% of subjects with headache came from the waiting list of the Applied Neurological Research Centre of the C Mondino Foundation and 50% were members of the headache patient organization, AI.Ce. Healthy subjects were enrolled from the staff of the research centre. In Spain, respondents with or without headache were recruited from people attending general practitioners for reasons other than headache.

Face, content and language validity: Initial content validity was explored through systematic review by experts, and face validity was tested by pre-piloting with 23 volunteers. All questions not used previously in validated questionnaires in a particular language were forward-and-back translated by two native translators, with reconciliation by a bilingual headache expert. Comprehensibility was tested by native language-speaking volunteers.

Test-retest reliability: Questions were categorized by the amount of change expected within the relevant time frame, as described previously for the development of a comparable questionnaire (22), as follows: 'no change expected'; 'change unlikely'; 'up to 1 unit change expected'; 'up to 2 units change expected'; and 'up to 3 units change expected'. Respondents in this study completed the questionnaire twice, the second time after an interval of 1 month. At retest, they were blinded (beyond what they might have recalled) to their responses on the first occasion.

To assess test-retest reliability, the two sets of answers were compared. For categorical data, agreement measures were the percentage agreement rate, Kappa values, McNemar's S-test and Bowker's S-test. Percentage agreement measures absolute within-patient agreement. The Kappa coefficient indicates whether this agreement exceeds what might be expected by chance: a value >0.6 is generally considered acceptable. For the questions with discrete integer data, the

intraclass correlation coefficient (ICC) was calculated using a 2-way random effects model for agreement.

Construct validity and internal consistency: Construct validity was intended to be assessed partly by comparing headache-free participants with headache sufferers and partly by measuring the internal consistency of answers to related questions. In the course of this part of the study, it transpired that some participants recruited as 'healthy' were, in fact, reporting occasional headaches. Construct validity assessment was, therefore, based on headache frequency rather than presence or absence (low frequency = 0–3 and high frequency >3 headache-days per month). Comparisons between low-frequency and high-frequency headache sufferers were made for the total scores of the WHO QoL, HALT index and HADS. Comparisons between categorical scores of those diagnosed with migraine, other episodic headache and chronic daily headache were performed by chi-squared test. Continuous scores were compared by one way-ANOVA, with the score as dependent variable. Normality was assessed by Kolmogorov–Smirnov test; if this was significant, data were log-transformed and re-analysed if normally distributed; otherwise the Kruskal–Wallis test was used.

Where appropriate, cross-tabulations were used to check for internal consistency. Blocks of questions corresponding to the ICHD-II criteria, WHO QoL, HALT index and HADS were explored for consistency using Cronbach's alpha coefficient: the larger this coefficient, the more likely it was that items contributed consistently to a scale, with a value of >0.70 suggesting acceptable consistency. Recalculating the alpha coefficient after deleting each question within a set determined how each contributed to the reliability of the scale: when the coefficient increased after a question was deleted, its responses were not highly correlated with those to other questions in the set; conversely, if the coefficient decreased, they were highly correlated.

Sample size calculation: To our knowledge, there is no method to calculate the sample size needed to assess face content, language validity, construct validity and internal consistency in a questionnaire validation study. Therefore, the sample size calculation was based on the test-retest reliability. Assuming an absolute Kappa precision of 0.18 (based on parts of the BURMIG questionnaire that had been validated previously), we estimated that 73 responses to the main questions in the second test would enable a Kappa value of ≥ 0.5 to be detected with a power of 0.95 (two-tailed $\alpha = 0.05$). Thus allowing for a 60% response rate, 135 subjects were considered necessary.

Results

UK pilot study

Before translations, the English version of the questionnaire was tested in a pilot study of 200 members of Migraine Action UK; 136 questionnaires were returned of which five were deleted from the database because they were duplicated or incomplete. Thus the response rate was 65%. Of the 131 included respondents, 83 answered a second questionnaire 1 month later, but 10 of these were excluded because incomplete identification details to link the second questionnaire to the previously completed questionnaire. Therefore the response rate for retest was 63% (Table 1).

Completion rates were $\geq 90\%$ for 86% of single questions at both test and retest. Questions with $< 90\%$ completion rate were those related to income, questions from the HALT Index and those related to impact on children. One question about the 'level of control' over headaches seemed especially difficult to answer, with completion rates of 49% and 55% at test and retest. A question on preventative medications had three response fields (name of medication and how long it had been taken in weeks or months); the first field had completion rates of 45% and 40% for test and retest, respectively, while the two other fields fell below 10%. Questions on investigations such as magnetic resonance imaging (MRI) and computed tomography (CT) also showed completion rates below 10%.

Of the 188 questions and sub-questions of the questionnaire, 79 were analyzed by Kappa coefficient, 55 by ICC, 20 by McNemar test and 59 by Bowker S-test to evaluate the reliability (Table 2). Because of the nature of responses, and the high likelihood of change between test and retest, the reliability of the open-text-field questions could not be quantified.

Among the questions categorized as 'no change expected', two of those analyzed by Kappa coefficient were responsible for lowering the rate of agreement ($< 30\%$) while all others analyzed in this way showed test-retest agreements of 40–100% (Table 2). The Kappa coefficient varied from 0.26 to 1, with questions from the HADS contributing most (from 0.36 to 0.55) to a low value. For questions with quantitative responses, analyzed by ICC, the rate of agreement varied from 1% to 74%, with the extreme low value due to a diagnostic question asking the number of days with headache (Appendix 1, Question 18). Most of these questions were in the range 20–25%. The ICC was good for these questions.

For the questions categorized as 'up to 1 unit change expected', only a third had agreement rates of $< 60\%$. Age had the highest value (98%). These questions were also associated with low Kappa coefficients: only one quarter of them had coefficients > 0.5 .

Only two questions were categorized 'up to 2 units change expected'; these had 12% and 100% agreement rates with Kappa coefficients of 0.16 and 0.66. Six questions were categorized 'up to 3 units change expected': one had an agreement rate of 36%, with a Kappa coefficient of 0.21, which is not a good result, and 5 HALT Index questions showed agreement rates of 25–52%, with an ICC varying from 0.83 to 0.92, which is a good result.

For questions with two response options, McNemar's S-test showed a significant difference for one question, which asked whether the respondent had a headache yesterday (Appendix 1, Question 32). A change of response to all questions about headache yesterday is expected between test and retest. Only three items were significant ($P < 0.05$) on Bowker's S-test: no agreement was observed for questions attempting to measure lost work due to headache (Appendix 1, Questions 36 and 37) and the question about how headache was accepted at work (Appendix 1, Question 53).

Internal consistency was evaluated independently for the blocks of questions derived from WHOQoL, the HALT index and HADS. The standardized values of Cronbach's alpha were, respectively, 0.93, 0.88 and 0.90.

Following this pilot study, the phrasing and the response options of some questions were modified. In general, however, the pilot study showed that the questionnaire was well understood and yielded satisfactory completion rates; therefore, no questions were deleted or added.

Validation study in other countries

The slightly amended questionnaire was translated for validation in the other countries.

Populations

The numbers of subjects participating in each country is given in Table 1. There was a female preponderance in all countries. Most respondents were full- or part-time employed or self-employed, while students, unemployed and retired people accounted for 10–20%. Average age was 40 years except in France where it was 50 years.

Response rates

Numbers of responders in each country are given in Table 1, varying between 66% and 100%. In Spain, one questionnaire was deleted from the database as it was incomplete.

Table 1. Sociodemographic and headache variables for the validation samples in different countries

	UK		Italy		Spain		Germany/Austria		France	
	Test	Retest	Test	Retest	Test	Retest	Test	Retest	Test	Retest
Age										
Year (mean \pm SD)	49.9 \pm 11.5	51.3 \pm 11.3	38.18 \pm 11.67	38.18 \pm 11.67	40.44 \pm 11.11	40.71 \pm 11.01	41.10 \pm 11.08	39.43 \pm 11.69	50.14 \pm 11.75	50.98 \pm 11.08
n	131	83	60	60	107	107	83	61	45	43
Gender M/F (n)	21/110	17/65	17/42	18/42	28/79	28/76	29/53	19/41	9/35	8/35
Work status(%)										
Full-time earning	45.9	40.0	68.33	68.33	79.44	78.85	56.25	53.33	68.89	65.12
Part-time earning	28.7	25.0	5.00	5.00	8.41	8.65	22.50	23.33	6.67	4.65
Full-time student	2.3	–	16.67	16.67	7.48	8.65	10.00	13.33	4.44	2.33
Unemployed but seeking employment	1.5	3.7	5.00	6.67	0.93	–	2.50	1.67	6.67	11.63
Unemployed and not seeking employment	7.0	3.7	5.00	3.33	3.74	3.85	6.25	8.33	13.33	16.28
Retired	18.6	27.5	21.55 \pm 4.86	21.47 \pm 4.78	20.60 \pm 3.84	20.65 \pm 3.86	2.50	19.65 \pm 3.51	19.78 \pm 3.37	
Age of finishing education										
Year (mean \pm SD)	19.8 \pm 5.5	20.5 \pm 7.0					16.00 \pm 1.97	15.98 \pm 2.28		
Income										
GB/year (mean \pm SD)	40524 \pm 78018	37379 \pm 24609	11.86	13.56	8.05	10.23	28324 \pm 27338	29617 \pm 26201	21.21	20.59
Partner(%)	81.5	85.4	42.37	38.98	33.33	31.82	62.65	65.57	24.24	23.53
Headache frequency										
days/month (%)										
< 1	1.5%	3.7%	5.09	5.08	18.39	18.18	15.38	10.42	70.45	70.73
1–3	12.2%	17.1%	86.67	86.67	66.36	68.57	50.77	50.00		
4–9	34.3%	33.9%					16.92	27.08		
10–14	25.9%	23.2%					7.69	6.25	2.27	2.56
> 15	25.9%	23.2%	8.89	9.09	11.90	10.00	9.23	6.25	15.91	12.82

Not all subjects answered the question about gender.

Completion rates

Completion rates for each question were adjusted according to expectation. A rate $> 100\%$ meant that the participant was not expected to answer a particular question but nevertheless did: for example, some respondents answered that they had not had headache yesterday, but still had taken medicines to relieve headaches on that day. Per country, the percentages of respondents with completion rates over 90% were: Germany-Austria, 69%; Spain, 75%; Italy, 65%; and France, 82%.

Certain questions had low completion rates. For the question on duration of use of preventative drugs (Appendix 1, Question 45), the rate was $< 30\%$ in Italy and $< 10\%$ in the other countries. The questions concerning MRI and CT scans had completion rates of $< 10\%$ in Italy, $< 30\%$ in Spain and $< 20\%$ in Germany/Austria. The HALT-Index questions had low completion rates in France, ranging from 52% to 61%.

Test-retest reliability

In Italy, 141 questions (including some sub-questions) were used to assess reliability (open questions were excluded, as they could not be quantified). Of these, 42% ($n = 59$) showed $> 80\%$ agreement, 10% ($n = 14$) ranged from 40–80% and 48% ($n = 66$) had $< 40\%$ agreement (Table 2). In Spain, 149 questions were used (again including sub-questions and excluding the open questions). Of these, 46% ($n = 69$) had $> 80\%$ agreement, 16% ($n = 23$) ranged between 40–80% and 38% ($n = 57$) had $< 40\%$ agreement. In Germany/Austria and in France, 116 questions were used (including sub-questions and excluding open questions), of which 36% ($n = 42$) showed $> 80\%$ agreement, 21% ($n = 24$) ranged between 40–80% and 43% ($n = 50$) had $< 40\%$ agreement.

Two 'no change expected' questions were identified as largely responsible for lowering the rate of agreement below 40%. The first (Appendix 1, Question 15) asked for the medication usually taken to treat chronic daily headache; some participants may not have understood well enough the accompanying text to the question. The second (Appendix 1, Question 56) question asked how well subjects were able to control their headache. In this category, two other questions had low reliability scores. The first asked for the number of days with headache (Appendix 1, Question 18), giving respondents the reply options of 'every day' or stating the number of 'days/month' or 'days/year'. The second asked the duration of headache in minutes, hours or days (Appendix 1, Question 20).

Of 'up to 1 unit change expected' questions, 26 out of 48 in Italy had agreement rates of $< 60\%$ (only 11

having Kappa coefficients of > 0.5). Corresponding numbers were 29 of 48 in Spain, 24 of 46 in Germany/Austria and 22 of 48 in France; in all countries these questions accounted for the low Kappa coefficients. The question about investigations (MRI, CT, etc.; Appendix 1, Question 48) unsurprisingly also had low agreement rates. Questions on the effects of headache on education, career and family planning (Appendix 1, Questions 50–76), with 4–6 possible response options, had agreement rates of $< 10\%$ in Italy. As multiple responses could be chosen, completion rate was calculated for each possibility. As a consequence, percentage changes were very low for all responses other than 'no'. Three questions of the WHO QoL and one from the HADS showed significant Bowker S-tests in Germany/Austria, Spain and France, meaning that there was lack of reliability over time.

There was one question with 'up to 2 units change expected', and this had very low agreement rates: Italy 13%; Germany/Austria 10% with Kappa = 0.47; France 33% with Kappa = 0.27; and Spain PA = 13% with Kappa = 0.35.

Of questions in the category 'up to 3 units change expected', only one had low agreement rates: in Italy (3%, Kappa = 0.46), Spain (12%, Kappa = 0.28) and France (30%, Kappa = 0.17). However, the poorest agreement was for the HALT Index, the reliability of which was measured by the ICC associated with the percentage agreement rate: in Italy, 58–65% with ICC = 0.60–0.97; in Spain 90–100% with ICC = 0.88–0.95; in Germany/Austria 28–38% with ICC = 0.55–0.94 and in France 23–36% with ICC = 0.58–0.94.

Construct validity and internal consistency

The four populations were relatively similar overall with respect to age, gender and employment status. However, there were significant differences in each country between headache sufferers and participants without headache (Table 3). Age was higher in the French speaking sample with high headache frequency. Males were more frequent amongst the 'headache-free' participants, except in Italy. There were more employed persons amongst people with headache in Italy and Germany/Austria compared with Spain and France/Luxembourg (significantly for France/Luxembourg).

Internal consistency was evaluated independently for each block of questions derived from WHO QoL, HALT Index and HADS. The standardized values of Cronbach's alpha were high in all cases, indicating excellent consistency (Table 4. Internal consistency of question blocks (WHO QoL, HALT, HADS).

It is indicative of good construct validity that the mean scores for WHO QoL, HADS overall, HADS anxiety (HADS-A) and HADS-depression (HADS-D)

Table 3. Internal consistency of question blocks (WHO QoL, HALT, HADS)

	UK	Italy	Spain	Germany/Austria	France/Luxembourg
WHO QoL	0.93	0.86	0.86	0.9	0.82
HALT Index	0.88	0.81	0.86	0.91	0.69
HADS	0.9	0.88	0.89	0.91	0.78

Standardized values of Cronbach's alpha.

Table 4. Construct validity for WHO QoL, HADS and HALT index in relation to headache status

	Country	Headache	No headache	All	P-value
Age (years) (mean ± SD)	Italy	38.5 ± 10.9	37.4 ± 13.4	38.2 ± 11.7	0.4692
	Spain	39.4 ± 10.9	42.9 ± 11.4	40.4 ± 11.1	0.119
	Germany/Austria	42.9 ± 9.9	37.8 ± 12.5	41.1 ± 11.1	0.0597
	France/Luxembourg	47.8 ± 13.1	37.1 ± 11.8	41.8 ± 13.4	< 0.0001
Gender (males) (%)	Italy	25	36.8	28.8	0.34
	Spain	16.2	48.5	26.2	0.0005
	Germany/Austria	26.4	51.7	35.4	0.0219
	France/Luxembourg	17.1	37.2	28.3	0.0326
Economic workers (%)	Italy	73.2	57.9	68.3	0.24
	Spain	75.7	87.9	79.4	0.1492
	Germany/Austria	82.7	71.4	78.8	0.2401
	France/Luxembourg	68.3	86.6	78.5	0.0335
WHO QoL (mean ± SD)	Italy	27.5 ± 4.6	32.6 ± 3.2	29.1 ± 4.9	<0.0001
	Spain	28.1 ± 5.2	30.2 ± 4.7	28.8 ± 5.1	0.0382
	Germany/Austria	30.3 ± 5.9	34.0 ± 4.6	31.5 ± 5.8	0.012
	France/Luxembourg	27.7 ± 5.2	32.2 ± 3.7	30.3 ± 4.9	<0.0001
HADS (mean ± SD)	Italy	13.3 ± 6.3	4.3 ± 3.7	10.4 ± 7.0	< 0.0001
	Spain	12.5 ± 6.9	8.5 ± 7.0	11.2 ± 7.2	0.0047
	Germany/Austria	12.4 ± 7.8	6.1 ± 6.3	10.3 ± 7.0	0.0003
	France/Luxembourg	17.4 ± 6.5	11.6 ± 6.5	14.2 ± 7.1	< 0.0001
HADS Anxiety (mean ± SD)	Italy	6.9 ± 3.7	2.4 ± 2.4	5.5 ± 3.9	< 0.0001
	Spain	6.7 ± 4.0	4.1 ± 4.0	5.9 ± 4.2	0.0005
	Germany/Austria	7.3 ± 4.0	3.4 ± 3.4	5.9 ± 4.2	< 0.0001
	France/Luxembourg	9.9 ± 3.6	7.1 ± 3.7	8.3 ± 3.9	0.0003
HADS Depression (mean ± SD)	Italy	6.2 ± 3.6	1.9 ± 1.8	4.8 ± 3.8	< 0.0001
	Spain	5.7 ± 3.8	4.4 ± 3.5	5.3 ± 3.7	0.095
	Germany/Austria	5.1 ± 4.6	2.6 ± 3.2	4.3 ± 4.3	0.0091
	France/Luxembourg	7.5 ± 3.6	4.7 ± 3.8	5.9 ± 3.9	0.0005
HALT Index (mean ± SD)	Italy	28.7 ± 65.7	1.9 ± 3.5	9.5 ± 36.3	< 0.0001
	Spain				
	Germany/Austria				
	France/Luxembourg				
*HALT Index (mean ± SD)	Italy	12.1 ± 14.2	1.9 ± 3.5	4.7 ± 9.0	< 0.0001
	Spain				
	Germany/Austria				
	France/Luxembourg				

*One subject was excluded due to a high score of 261.

Table 5. Construct validity for WHO QoL, HADS and HALT in relation to headache diagnoses

Variable	Italy				Spain				Germany /Austria				France				
	n	Mean	SD	P-value	n	Mean	SD	P-value	n	Mean	SD	P-value	n	Mean	SD	P-value	
WHO QoL	Other headaches	20	30	3.9	0.0031	47	30	4.7	0.0182	41	32	3.7	0.0041	12	25	5.4	0.0285
	Migraine	12	30	5.1		25	27	5.3		9	24	7.8		16	30	4.8	
	Chronic daily headaches	15	25	3.7		9	25	3.7		6	28	8.1		11	27	3.4	
HADS	Other headaches	19	9	6.1	0.0118	47	11	6.7	0.5368	44	10	6.7	0.0169	12	23	4.8	0.0038
	Migraine	12	12	7.7		24	12	6.8		10	18	6.7		15	16	6.3	
	Chronic daily headaches	16	16	4.7		8	15	8.6		6	16	11.0		12	18	4.9	
HADS-A	Other headaches	20	5	3.7	0.0293	47	6	4.3	0.3914	45	6	3.8	0.0738	12	12	3.1	0.0372
	Migraine	12	7	4.6		25	6	3.6		10	9	3.3		16	9	3.4	
	Chronic daily headaches	16	8	2.7		8	8	3.8		6	8	5.5		12	10	3.3	
HADS-D	Other headaches	19	4	2.8	0.0122	47	5	3.4	0.6366	44	4	3.4	0.013	13	10	2.4	0.0047
	Migraine	12	6	4.2		24	6	3.6		10	8	4.3		16	6	3.3	
	Chronic daily headaches	16	8	3.2		9	7	5.2		6	8	7.4		13	8	2.8	
HALT	Other headaches	17	16	34.2	0.0004	35	8	13.7	< 0.0001	24	2	3.2	0.0003	4	27	18.7	0.121
	Migraine	12	19	11.3		23	16	16.9		7	35	54.8		6	8	5.4	
	Chronic daily headaches	16	67	61.6		9	50	34.3		2	72	53.7		4	68	128.9	

HADS, Hospital Anxiety and Depression scale; HADS-A, HADS-anxiety; HADS-D, HADS-depression.

were significantly different between those with and those without headache in each country. In addition, the HALT index, used to compare groups with low and high headache frequencies in France/Luxembourg, showed significantly higher scores in the latter.

We further investigated construct validity by comparing those with different types of headaches (migraine, other episodic headache or chronic daily headache; Table 5). The mean scores of WHO QoL were significantly different between these in each country. The mean HADS, HADS-A and HADS-D scores were significantly different between these in each country except Spain. The mean scores of the HALT Index were significantly different in each country except France/Luxembourg.

Discussion

This paper describes the development and testing of the EUROLIGHT questionnaire to evaluate the burden of headache disorders in different European populations. The questionnaire originated in the BURMIG questionnaire, and was revised after a systematic literature

review and discussions among headache experts and lay persons in the EUROLIGHT steering committee. The English version was tested in a UK pilot study and, after some minor amendments, the resulting questionnaire was translated and tested in a German version in Austria and Germany, a French version in France and Luxembourg, a Spanish version in Spain and an Italian version in Italy.

As to test-retest reliability, good response rates were achieved, and completion rates for each question were generally good with the majority (65–80%) above 90%. A small number of questions required modification in the light of likely causes for low completion rates. Sub-questions asking for the total number of days or occasions were deleted as they were not completed by respondents. Questions with text field for respondents to fill in also had to be avoided. Questions from WHO QoL and HADS showed good completion rates, and good reliability. This was not the case for the HALT Index, especially in France.

For methodological purposes, we had defined the amount of change expected for each question before administering the questionnaire. Questions where a

change had been expected did show higher amounts of change, indicating that these items were understood correctly and, therefore, can be used as part of the EUROLIGHT questionnaire.

The reliability coefficients also showed convincing results. Kappa and ICC showed values above the defined significance threshold (see Materials and methods). However a small number of questions needed to be modified to increase the reliability of the questionnaire.

Internal consistency was found to be excellent for WHO QoL, HADS, HADS-A, HADS-D and the HALT Index.

Construct validity was found to be acceptable in different countries as the relevant questions were able to discriminate between groups of respondents with different headache frequencies and diagnoses. The tools WHO QoL, HADS and HALT Index used within the questionnaire discriminated well between those with and those without headache. In headache sufferers alone, questions from the HADS showed a low discrimination between headache types, which is unsurprising, as co-morbidity is known to differ little between headache types but more depending on headache frequency (23–25). The headache-specific tool HALT showed good discriminative power in most countries, although not in France and Luxembourg.

For questions on disease management, test–retest agreements ranged from 77% to 98% (except for questions with multiple response options). Kappa coefficients ranged from 0.68 (0.62 for questions with multiple response options) to 1.00, which indicates good agreement.

The majority of questions about private and social impact were of the type with several response options, and these scored poorly in terms of agreement rate (10–30%) but had a good test–retest reliability (Kappa coefficients ranging from 0.52 to 0.97). As the responses to these questions were stable over time, we believe that they truly reflected the headache impact on patients' lives over a certain period and not only how they perceived it on that day.

It is a weakness in the development of the questionnaire that the diagnostic questions have not yet been validated against a gold standard method for diagnosing headaches (interview and examination by a headache expert), which is mandatory when diagnostic accuracy is of paramount importance (26). Diagnostic validation should be done in the population to be studied and, since the present study was mostly performed among headache patients who had already been diagnosed and treated, this was not done. When the population-based studies with the EUROLIGHT questionnaire are performed, some sort of validation in the different countries is planned in order to assess the diagnostic precision of the questionnaire.

Conclusions

The EUROLIGHT questionnaire was developed in order to estimate the burden of headache disorders in Europe. Established and recently validated tools for diagnosis, disability and co-morbidity were supplemented with more detailed questions on disease management and impact on school, work, family, social life and quality of life. The resulting questionnaire was tested in UK, Italy, Spain, Germany, Austria, France and partly in the Grand Duchy of Luxembourg. Reliability and consistency were found to be comparable to those of previously published questionnaires (16,22). The validation process resulted in relatively minor changes. We believe the final EUROLIGHT questionnaire, at least in the five languages that have been tested, will give a reliable and valid picture of the impact and burden of primary headache disorders in European populations and offer additional valuable information to the results of the American Migraine Prevalence and Prevention (AMPP) questionnaire (27–29).

Since headache is a considerable burden for people everywhere, we hope that the questionnaire can be adapted for use in many other countries and cultures.

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Appendix 1

EUROLIGHT Questionnaire

1	Please enter today's date	Day __/month __/year __
2	What is your age?	__ years
3	What is your gender? (Please tick)	<input type="checkbox"/> Male <input type="checkbox"/> Female
Social situation questions		
4	Which of these is closest to your personal situation? (Please tick)	<input type="checkbox"/> Employed or self-employed <input type="checkbox"/> Homemaker or housewife student <input type="checkbox"/> Unemployed <input type="checkbox"/> Retired
5	Are you now married or living with a household partner? (Please tick)	<input type="checkbox"/> No <input type="checkbox"/> Yes
6	What is your total net household income per year? (Please tick)	<input type="checkbox"/> < €18,000 <input type="checkbox"/> €18,000–29,999 <input type="checkbox"/> €30,000–41,999 <input type="checkbox"/> €42,000–59,999 <input type="checkbox"/> > €59,999
7	How old were you when you left full-time education?	__ years <input type="checkbox"/> Still in process
8	What is your native language? (The language you first learned to speak)	Enter name of language _____
9	What language do you usually speak in your own home?	Enter name of language _____
Screen questions		
10	Have you ever had a headache? (Please tick) (If no, go directly to Question 74)	<input type="checkbox"/> No <input type="checkbox"/> Yes
11	Have you had a headache during the last year? (Please tick) (If no, go directly to Question 74)	<input type="checkbox"/> No <input type="checkbox"/> Yes
12	During the last 30 days, on how many of these days did you have a headache? (please enter number of days between 0 and 30) If you answered 15 or more, please continue with Questions 13–16. Otherwise, go directly to Question 17	____ days
Daily headache questions		
You have said that you had headache on 15 or more days in the last month. Please think about these headaches		
13	How long, during each day, do these headaches usually last? (Please enter the number of minutes or hours)	__ min, or __ hours
14	Do you usually take any medication to treat these headaches? (Please tick) (Please note that this question is about treatment to relieve the headache, not daily treatment to prevent headache)	<input type="checkbox"/> No <input type="checkbox"/> Yes (if no, go directly to Question 17)
15	What medications do you use most to treat these headaches? (please note that this question is only about treatment to relieve headache) (if you use no medications at all for these headaches, please tick the box)	<input type="checkbox"/> None Name the most-used medications _____ _____ _____ _____
16	Altogether, on how many days in the last 30 days did you take these medications? (Please enter number of days between 0 and 30)	____ days
'Most bothersome headache' questions		
These are questions on the headaches that interfere most with your life. These headaches may be the same as the headaches you have just described, or they may be different headaches if you have more than one type of headache		
17	Please think about your headaches. Do you think they are all of one type, or are they of more than one type? (Please tick)	<input type="checkbox"/> One <input type="checkbox"/> More than one
If you answered one, the next questions are to diagnose this headache. Please start at Question 18. If you answered more than one, please start also at Question 18 but from now on focus only upon the headache type that on the whole bothers you most (i.e. interferes most with your life)		

Diagnostic questions

- 18 How often do you have this type of headache?
(Please tick or enter the number of days per month or per year)
- 19 How long does this type of headache usually last?
(Please enter the number of minutes, hours or days)
- 20 Is your last answer (to Question 19) with or without having taken medication?
(Please tick)
(If you answered without medication, please go to Question 22)
- 21 How long would it last if you did not take medication?
(Please enter the number of minutes, hours or days)
- 22 How bad is this headache usually?
(Please tick)
- 23 There are many ways of describing a headache, but most headaches are either throbbing or pressing.
Thinking still of this type of headache, which best describes the pain? (Please tick)
Throbbing means varying in time with the heart beat
- 24 Is the pain of this headache usually on only one side of the head? (Please tick)
- 25 Does exercise (like walking or climbing stairs) tend to make it worse?(Please tick)
- 26 Thinking still of this type of headache, how does it affect your ability to do day-to-day activities?
(Please tick)
- 27 With this headache, do you usually feel sick (as though you may throw up)?
(Please tick)
- 28 With this headache, are you usually actually sick (do you throw up)? (Please tick)
- 29 When you have this type of headache, does daylight or other lighting bother you? In other words, do you prefer to be in the dark? (Please tick) This question refers to ordinary levels of light, not bright lightning
- 30 When you have this type of headache, does noise bother you? In other words, do you prefer to be in the quiet? (Please tick) This question refers to ordinary levels of noise, not very loud noise
- 31 Has a doctor ever given you a diagnosis for this headache?
(Please tick and, if applicable, enter the diagnosis)

The next series of questions are specifically about any headache you had yesterday (the day before you fill in your answers). This may be the same headache as the one you have just been describing, or it may be a different type of headache if you have more than one type.

It is very important that the answers you give are about yesterday and not any other day.

Questions about yesterday

- 32 Did you have a headache yesterday? (Please tick)
- 33 Was this the type of headache you have just been describing? (Please tick)
- 34 Please now think about the headache you had yesterday. How long did it last?
(Please tick)
- 35 How bad was your headache yesterday?
(Please tick)
- 36 Please now think about everything you wanted to do yesterday if you had not had a headache.
How much of this did you actually do? (Please tick)
- 37 Was yesterday a workday (either at your job or at school)? (Please tick)
(If no, go directly to Question 41)
- 38 Because of your headache, were you absent from work or school yesterday?
(If absent the whole day please go to Question 40)

39	If you went to work or school with your headache yesterday, how much of your work did you get done? (Please tick) (If everything, please go to Question 41)	<input type="checkbox"/> Nothing <input type="checkbox"/> Less than half <input type="checkbox"/> More than half <input type="checkbox"/> Everything
40	Will you be able to make up for this today or later? (Please tick)	<input type="checkbox"/> No <input type="checkbox"/> Yes
41	This question is about household work or general chores that you wanted to do yesterday if you had not had headache. How much of this did you actually do? (Please tick)	<input type="checkbox"/> Nothing <input type="checkbox"/> Less than half <input type="checkbox"/> More than half <input type="checkbox"/> Everything
42	This question is about leisure and social activities that you wanted to do yesterday if you had not had headache. How much of this did you actually do? (Please tick)	<input type="checkbox"/> Nothing <input type="checkbox"/> Less than half <input type="checkbox"/> More than half <input type="checkbox"/> Everything
43	What treatment did you take for the headache you had yesterday? (Please tick the box if you took nothing; otherwise, please list the names and amounts of all medications taken yesterday) (Please list medications for headache, not for any other illnesses)	<input type="checkbox"/> Nothing at all List medications: How many times you took each yesterday _____ _____ _____
Healthcare questions		
The aim of the following questions is to help us know how much healthcare should be available to meet the needs of people with headache		
44	Many different medications may be used to treat headache. This question is about any of these medications you may have taken for headache in the last 30 days Please tick the first box if you took nothing at all in the last 30 days. Otherwise, please look at these lists, and think about which of these you have used in the last 30 days. Please tick one box by each medication.	<input type="checkbox"/> Not used
	Almotriptan (Almigran)	
	Eletriptan (Relert)	
	Naratriptan (Naramig)	
	Rizatriptan (Maxalt)	<input type="checkbox"/> Once <input type="checkbox"/> > Once
	Sumatriptan, Imitrex, Merck-sumatriptan (Finigraine)	<input type="checkbox"/> Once <input type="checkbox"/> > Once
	zolmitriptan (Zomig)	<input type="checkbox"/> Once <input type="checkbox"/> > Once
	Ergotamine Dihyergot, Dystonal (Cafergot)	<input type="checkbox"/> Once <input type="checkbox"/> > Once
	Domperidone Motilium (Zilium)	<input type="checkbox"/> Once <input type="checkbox"/> > Once
	Metoclopramide Primperan, (Docmetoclo, Dibertil)	
	Aspirine Acetylsalicylique acide (Sedergine, Dispril)	<input type="checkbox"/> Once <input type="checkbox"/> > Once
	Diclofenac Voltaren, Motifene	<input type="checkbox"/> Once <input type="checkbox"/> > Once
	Ibuprofene Brufen, Nurofen, Spidifen,(Advil-mono)	<input type="checkbox"/> Once <input type="checkbox"/> > Once
	Ketoprofene Rofenid	<input type="checkbox"/> Once <input type="checkbox"/> > Once
	Naproxene Aleve, Apranax (Naprosyne)	
	Paracetamol Dafalgan, Panadol, Perdolan (Dolprone)	<input type="checkbox"/> Once <input type="checkbox"/> > Once
	<i>Proprietary combination drugs:</i>	
	Migpriv (acetylsalicylate lysine, metoclopramide HCl)	<input type="checkbox"/> Once <input type="checkbox"/> > Once
	Please list any other medications you have used to treat your headache in the last month?	<input type="checkbox"/> Once <input type="checkbox"/> > Once
	Name(s) of medication(s):	<input type="checkbox"/> Once <input type="checkbox"/> > Once
	(Please list medications for headache, not for any other illnesses)	<input type="checkbox"/> Once <input type="checkbox"/> > Once
		<input type="checkbox"/> Once <input type="checkbox"/> > Once
		Name(s) of medication(s):

45	Medications to prevent headaches are usually taken daily. Are you taking any of these? Please enter the name(s) and, by each one, for how long in weeks or months you have been taking it	<input type="checkbox"/> weeks <input type="checkbox"/> months
46	Botulinum toxin (Botox or Dysport) is used sometimes as a treatment for headaches, although it is not proven to be helpful. Have you been treated with Botulinum toxin for your headaches in the last year?	<input type="checkbox"/> No <input type="checkbox"/> Yes

47	<p>Many people with headache treat themselves, but others need professional advice. Have you had professional advice about your headaches in the last year? Who from, and how many times? (Please tick all boxes that apply; for each ticked box, enter the number of times in the last year)</p>	<p><input type="checkbox"/> No-one <input type="checkbox"/> Nurse <input type="checkbox"/> Physical therapist (physiotherapist, osteopath, chiropractor) <input type="checkbox"/> Primary-care doctor (GP) <input type="checkbox"/> Headache specialist <input type="checkbox"/> Hospital emergency room <input type="checkbox"/> Other (please specify): _____ _____</p>
48	<p>Most people with headache do not require any investigations, but occasionally these tests are done. Because of your headaches, have you had any of these tests in the last year? (Please tick all that apply)</p>	<p><input type="checkbox"/> MRI brain scan <input type="checkbox"/> CT brain scan <input type="checkbox"/> X-rays of the neck <input type="checkbox"/> Eye tests (for glasses) <input type="checkbox"/> Blood tests <input type="checkbox"/> Other (please specify): _____</p>
49	<p>Have you, in the last year, been admitted to hospital because of your headaches? (Please tick the no or yes box and, if yes, also tick the box to indicate the total number of days you spent in hospital)</p>	<p><input type="checkbox"/> None <input type="checkbox"/> No <input type="checkbox"/> Yes If yes, how many days: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3-7 <input type="checkbox"/> > 7</p>
Impact questions		
The next questions are about the effects your headaches are having or have had on your own life		
50	<p>Have your headaches interfered with your education? (Please tick all boxes that apply because of your headaches)</p>	<p><input type="checkbox"/> No <input type="checkbox"/> Yes, I did less well <input type="checkbox"/> Yes, I gave up early</p>
51	<p>Do you believe your headaches have made you less successful in your career? (Please tick all boxes that apply because of your headaches) (If this question is not applicable to you, please tick 'no' and go directly to Question 54)</p>	<p><input type="checkbox"/> No <input type="checkbox"/> Yes, I have done less well <input type="checkbox"/> Yes, I have taken an easier job <input type="checkbox"/> Yes, I have taken long-term sick leave <input type="checkbox"/> Yes, I have retired early <input type="checkbox"/> Yes, I am on a disability pension</p>
52	<p>Have your headaches resulted in reduced earnings? (Please tick) (If this question is not applicable to you, please tick 'no' and go directly to Question 54)</p>	<p><input type="checkbox"/> No <input type="checkbox"/> Yes</p>
53	<p>Do you feel that your employer and work colleagues understand and accept your headaches? (Please tick)</p>	<p><input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Not applicable</p>
54	<p>Do you feel that your family and friends understand and accept your headaches? (Please tick)</p>	<p><input type="checkbox"/> No <input type="checkbox"/> Yes</p>
55	<p>Do you avoid telling people that you have headaches? (Please tick)</p>	<p><input type="checkbox"/> No <input type="checkbox"/> Yes</p>
56	<p>Taking into account everything you do to treat your headaches, do you feel you are in control of your headaches? (Please tick)</p>	<p><input type="checkbox"/> Always <input type="checkbox"/> Often <input type="checkbox"/> Sometimes <input type="checkbox"/> Rarely <input type="checkbox"/> Never</p>

The next questions are about lost time because of your headaches

- 57 On how many days in the last 3 months could you not go to work or school because of your headaches? _____ days
(Please enter the number of days missed completely during the last 3 months)
- 58 On how many days in the last 3 months could you do less than half your usual amount in your job or schoolwork because of your headaches? _____ days
(Please enter the number of days; do not include days you counted in Question 57 where you missed work or school)
- 59 On how many days in the last 3 months could you not do any household work because of your headaches? _____ days
(Please enter the number of days lost completely during the last 3 months)
- 60 On how many days in the last 3 months could you do less than half your usual amount of household work because of your headaches? _____ days
(Please enter the number of days; do not include days you counted in Question 59 where you did not do any household work)
- 61 On how many days in the last 3 months did you miss family, social or leisure activities because of your headaches? (Please enter the number of days) _____ days

The following questions aim to understand how much your headaches affect you even when you do not actually have an attack

Please think carefully about the last day when you did not have a headache

- 62 On that day, were you anxious or worried about your next headache episode? ___ No ___ Yes
(Please tick)
- 63 On that day, was there anything you could not do or did not do because you wanted to avoid getting a headache? (Please tick) ___ No ___ Yes
- 64 On that day, did you feel completely free from all headache-related symptoms? (Please tick) ___ No ___ Yes

The next three questions are about the effects your headaches have on your relationships, love life and family planning

Please answer no to any that do not apply.

- 65 Have your headaches affected your family planning? (Please tick all boxes that apply because of your headaches) ___ No
___ Yes, I have had fewer children
___ Yes, I have avoided having children
___ Yes, I have avoided oral contraception (women only)
- 66 During the last 3 months, have your headaches caused difficulties in your love life? (Please tick) ___ No ___ Yes
- 67 Have your headaches caused a relationship to break down? (Please tick one box) ___ No
___ Yes, they have caused separation
___ Yes, they have caused divorce
- 68 Do you have children of school age (Please tick one box) ___ No ___ Yes
If you ticked 'no', please go directly to Question 71
- 69 During the last 3 months, have your headaches caused one or more of your children to miss school? (Please tick) ___ No ___ Yes
If 'yes', estimate the total number of missed days: _____
___ No
___ Once
___ More than once
- 70 During the last 3 months, have your headaches prevented you from caring for your children? (Please tick) ___ No ___ Yes
- 71 Are you currently living with a partner? (Please tick) ___ No ___ Yes
If you are not now living with a partner, please go directly to Question 79
- 72 During the last 3 months, have your headaches caused your partner to lose time from work? (Please tick) ___ No ___ Yes
If 'yes', enter the total number of days lost: _____
- 73 During the last 3 months, have your headaches caused your partner to miss social activities? (Please tick) ___ No ___ Yes
If 'yes', enter the total number of occasions missed: _____

The next five questions are about your household partner

Whether you have headaches yourself or not, we would like to know if your partner has headaches and, if so, how they affect your life.

- 74 Has your partner had a headache in the last year? (Please tick one box) No Yes
If not applicable, go directly to Question 77 Not applicable
- 75 During the last 30 days, on how many days did he/she have a headache? (Please enter the number of days between 0 and 30) days
- 76 During the last 3 months, have your partner's headaches caused you to lose time from work? (Please tick) No
 Once
 More than once
- 77 During the last 3 months, have your partner's headaches caused you to miss social activities? (Please tick) No
 Once
 More than once
- 78 During the last 3 months, have your partner's headaches caused difficulties in your love life? (Please tick) No Yes

The next three series of questions are general, to be answered by everyone, with or without headaches*Body mass index questions*

Your answers to these questions will give an indication of your level of fitness

- 79 What is your weight? kg
(Please enter your weight in kilograms or in stones and pounds) st lb
- 80 What is your height? cm
(Please enter your height in centimetres or in feet and inches) ft in
- 81 What is your waist measurement? cm
(Please enter the measurement in centimetres or in inches) in
Please take a tape measure and put it around your waist or take a string put it around your waist and then measure the length of the string with a ruler

Quality of life questions (WHO QoL)

This set of eight questions, developed by the World Health Organization, are for everybody, whether they have headaches or not. They will help us compare people with headaches and people without.

The questions ask how you feel about your quality of life, health or other areas of your life. Each question has five response options. Please choose the answer that appears most appropriate by ticking the box in the appropriate column. If you are unsure about which response to give to a question, the first response you think of is often the best one.

Please keep in mind your standards, hopes, pleasures and concerns. We ask that you think about your life in the last 4 weeks.

- 82 How would you rate your quality of life? Very poor
 Poor
 Neither poor nor good
 Good
 Very good
- 83 How satisfied are you with your health? Very dissatisfied
 Dissatisfied
 Neither satisfied nor dissatisfied
 Satisfied
 Very satisfied
- 84 How satisfied are you with your ability to perform your daily living activities? Very dissatisfied
 Dissatisfied
 Neither satisfied nor dissatisfied
 Satisfied
 Very satisfied
- 85 How satisfied are you with yourself? Very dissatisfied
 Dissatisfied
 Neither satisfied nor dissatisfied
 Satisfied
 Very satisfied

86	How satisfied are you with your personal relationships?	<input type="checkbox"/> Very dissatisfied <input type="checkbox"/> Dissatisfied <input type="checkbox"/> Neither satisfied nor dissatisfied <input type="checkbox"/> Satisfied <input type="checkbox"/> Very satisfied
87	How satisfied are you with the conditions of your living place?	<input type="checkbox"/> Very dissatisfied <input type="checkbox"/> Dissatisfied <input type="checkbox"/> Neither satisfied nor dissatisfied <input type="checkbox"/> Satisfied <input type="checkbox"/> Very satisfied
88	Do you have enough energy for everyday life?	<input type="checkbox"/> Not at all <input type="checkbox"/> A little <input type="checkbox"/> Moderately <input type="checkbox"/> Mostly <input type="checkbox"/> Completely
89	Have you enough money to meet your needs?	<input type="checkbox"/> Not at all <input type="checkbox"/> A little <input type="checkbox"/> Moderately <input type="checkbox"/> Mostly <input type="checkbox"/> Completely
Depression and anxiety questions (HADS)		
<p>The final series of questions ask about depression and anxiety, both of which are common in the general population. Please read each item and place a firm tick in the box-circle the number which comes closest to how you have been feeling in the past week. Don't take too long over your replies: your immediate reaction to each item will probably be more accurate than a long thought out response</p>		
90	I feel tense or 'wound up'	<input type="checkbox"/> Most of the time <input type="checkbox"/> A lot of the time <input type="checkbox"/> Time to time <input type="checkbox"/> Occasionally <input type="checkbox"/> Not at all <input type="checkbox"/> Nearly all of the time
91	I feel as if I am slowed down	<input type="checkbox"/> Very often <input type="checkbox"/> Sometimes <input type="checkbox"/> Not at all <input type="checkbox"/> Definitely as much
92	I still enjoy the things I used to enjoy	<input type="checkbox"/> Not quite so much <input type="checkbox"/> Only a little <input type="checkbox"/> Not at all <input type="checkbox"/> Not at all <input type="checkbox"/> Occasionally
93	I get a sort of frightened feeling like 'butterflies in the stomach'	<input type="checkbox"/> Quite often <input type="checkbox"/> Very often <input type="checkbox"/> Very definitely and quite badly <input type="checkbox"/> Yes, but not too badly
94	I get a sort of frightened feeling like something awful is about to happen	<input type="checkbox"/> A little, but it doesn't worry me <input type="checkbox"/> Not at all <input type="checkbox"/> Definitely <input type="checkbox"/> I don't take as much care as I should
95	I have lost interest in my appearance	<input type="checkbox"/> I may not take quite as much care <input type="checkbox"/> I take just as much care as ever <input type="checkbox"/> As much as I always could
96	I can laugh and see the funny side of things	<input type="checkbox"/> Not quite so much now <input type="checkbox"/> Definitely not so much now <input type="checkbox"/> Not at all <input type="checkbox"/> Very much indeed
97	I feel restless as if I have to be on the move	<input type="checkbox"/> Quite a lot <input type="checkbox"/> Not very much <input type="checkbox"/> Not at all

98	Worrying thoughts go through my mind	<input type="checkbox"/> A great deal of the time <input type="checkbox"/> A lot of the time <input type="checkbox"/> From time to time but not too often <input type="checkbox"/> Only occasionally <input type="checkbox"/> A much as I ever did
99	I look forward with enjoyment to things	<input type="checkbox"/> Rather less than I used to <input type="checkbox"/> Definitely less than I used to <input type="checkbox"/> Hardly at all <input type="checkbox"/> Not at all
100	I feel cheerful	<input type="checkbox"/> Not often <input type="checkbox"/> Sometimes <input type="checkbox"/> Most of the time <input type="checkbox"/> Very often indeed
101	I get sudden feelings of panic	<input type="checkbox"/> Quite often <input type="checkbox"/> Not very often <input type="checkbox"/> Not at all
102	I can sit at ease and feel relaxed	<input type="checkbox"/> Definitely <input type="checkbox"/> Usually <input type="checkbox"/> Not often <input type="checkbox"/> Not at all
103	I can enjoy a good book or radio or TV programme	<input type="checkbox"/> Often <input type="checkbox"/> Sometimes <input type="checkbox"/> Not often <input type="checkbox"/> Very seldom