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The Oxford Happiness Questionnaire: a compact scale for the measurement of psychological well-being

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Abstract

An improved instrument, the Oxford Happiness Questionnaire (OHQ), has been derived from the Oxford Happiness Inventory, (OHI). The OHI comprises 29 items, each involving the selection of one of four options that are different for each item. The OHQ includes similar items to those of the OHI, each presented as a single statement which can be endorsed on a uniform six-point Likert scale. The revised instrument is compact, easy to administer and allows endorsements over an extended range. When tested against the OHI, the validity of the OHQ was satisfactory and the associations between the scales and a battery of personality variables known to be associated with well-being, were stronger for the OHQ than for the OHI. Although parallel factor analyses of OHI and the OHQ produced virtually identical statistical results, the solution for the OHQ could not be interpreted. The previously reported factorisability of the OHI may owe more to the way the items are formatted and presented, than to the nature of the items themselves. Sequential orthogonal factor analyses of the OHQ identified a single higher order factor, which suggests that the construct of well-being it measures is uni-dimensional. Discriminant analysis has been employed to produce a short-form version of the OHQ with eight items. © 2002 Published by Elsevier Science Ltd.

Keywords: Subjective well-being; Oxford Happiness Inventory; Oxford Happiness Questionnaire; Measurement of well-being; Happiness

The Oxford Happiness Inventory (OHI, Argyle, Martin, & Crossland, 1989) was devised as a broad measure of personal happiness, mainly for in-house use in the Department of Experimental Psychology of the University of Oxford in the late 1980s. The development of the scale and some of its properties were reviewed by Argyle, Martin, and Lu (1995). The scale has been found to behave consistently, and other workers have reported its use both in the UK (Furnham & Brewin, 1990, Joseph & Lewis, 1998), in Spain (Sanchez, 1994) and the USA (Valiant, 1993). The OHI has

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also been used cross-culturally to compare students in Australia, Canada, the UK and USA (Francis, Brown, Lester, & Philipchalk, 1998). A Hebrew translation has been applied in Israel (Francis & Katz, 2000) and it forms the basis of the Chinese Happiness Inventory (CHI) which has been used in Taiwan (Lu & Shih, 1997).

The OHI follows the design and format of the Beck Depression Inventory (BDI, Beck, Ward, Mendelson, Hock, & Erbaugh, 1961) which provided, when reversed, a set of 20 multiple-choice items relevant to subjective well-being. Further items were added to cover aspects of happiness which were not otherwise included and 29 items were retained in the final scale. Each item was presented in four incremental levels, numbered from 0 to 3, for example:

I am not particularly optimistic about the future[1]
I feel optimistic about the future.
I feel I have so much to look forward to.
I feel that the future is overflowing with hope and promise.

The BDI was designed for clinical application with the purpose of diagnosing manic and depressive states of mind. In non-clinical populations, few are manic or depressive and the extremes of the corresponding OHI item alternatives are little used. In practice, "normal" participants mainly endorse one or other of the two central items. For a substantial minority of items the mean scores are less than, or do not comfortably exceed, their corresponding standard deviations. This suggests that answers to these items may be uniformly, rather than normally distributed, and might not be making their full contribution to the measurement of happiness. The statistical properties of the individual items would be improved if respondents could select answers from a wider range. The multiple-choice format also necessitates a bulky scale that can only be presented as a stand-alone instrument.

An alternative scale, the Oxford Happiness Questionnaire (OHQ) has been devised which consists of single items that can be answered on a six-point Likert scale (Appendix). These items may easily be incorporated into larger questionnaires in random order, and the opportunity has also been taken of reversing about half of the items. These changes should reduce the probability of contextual and compliant answering (Hills & Argyle, 1998a). The purpose of this paper is to describe the improved scale and its psychometric properties and, by placing it in the public domain, to allow its wider use and further examination by others.

1. Method

1.1. Participants

One hundred and seventy-two undergraduate students of Oxford Brookes University and their friends and relations (66 men, 99 women, seven unspecified) took part in the study. Ages ranged from 13 to 68 ($M = 30.9$, SD $= 12.9$) years.

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[1] It could be argued that respondents might be averse to endorsing a multiple choice item with an apparent score of zero. In versions of the OHI used at, and distributed from, Oxford Brookes University since 1998, the items in the OHI have been identified as a, b, c, and d, and scored on a 1–4 scale.

1.2. Measures

Respondents were invited to complete and return a self-report questionnaire constructed from the OHI, the OHQ, and a number of published scales that are known to correlate with well-being. These were the Extraversion, Neuroticism and Psychoticism sub-scales of the short form Eysenck Personality Questionnaire (Eysenck, Eysenck, & Barrett, 1985), Rosenberg's Self-esteem Scale (Rosenberg, 1989), the Life Orientation Test (Scheier & Carver, 1985)—a measure of dispositional optimism, the Life Regard Index (Battista & Almond, 1973)—a measure of both purpose in life as represented by the existence of a set of life goals and the extent to which an individual feels that he has fulfilled them, and the Depression–Happiness Scale (Joseph & Lewis, 1998). To ensure uniformity of presentation, items in the original scales were reworded where necessary as single statements to which participants could respond on a uniform six-point Likert scale ranging from "strongly agree" to "strongly disagree". Before administration, the individual items of all the scales with the exception of the OHI, were combined and rearranged in random order. It was not, therefore, considered necessary to retain any filler items included in the original scales. Questionnaires were administered in alternative versions; in one, the OHI was presented first and in the other, last.

2. Results and discussion

2.1. Scale reliabilities

Both the OHI and the OHQ demonstrated high scale reliabilities with values $\alpha(167) = 0.92$ and $\alpha(168) = 0.91$ respectively. The inter-item correlations for the OHI ranged from -0.03 to 0.58, mean 0.28, and the corresponding values for the OHQ were -0.04 to 0.65, mean 0.28. These virtually identical results show that the multiple-choice items of the OHI can be replaced with the more compact single choice items of the OHQ without detriment. The observation that the maximum inter-item correlations within the two scales, $r = 0.65$ and $r = 0.58$, suggests that no two items are so alike that they are measuring the same facet of happiness; in other words, no items are semantically redundant. The questionnaires used in this study were administered in two versions in which the OHI was completed either first or last. A comparison of means (independent samples t-tests) showed that the order of presentation resulted in no significant differences between versions for either of the scales. The OHI and OHQ scores aggregated over all items were strongly and significantly related, $r(163) = 0.80$, $P < 0.001$, which shows that both scales provide very similar results.

2.2. Internal consistencies

The collected data were split into high and low groups above and below the mean aggregated values for the OHI and the OHQ, respectively. The difference between the means of individual item scores were then compared (independent samples t-tests) with respect to the two groups. There were significant differences between the high and low groups for every item of the OHI and the OHQ. Most were highly significant, $P < 0.001$, and all differences were in the same direction as

the partitioned total scores. This indicates that all the items of both the OHI and the OHQ are making a valid contribution to the measurement of overall happiness.

2.3. Between scales consistencies

Table 1 presents the correlations between corresponding items of the OHI and OHQ of which all were significant at the $P < 0.001$ level. The mean value was $r = 0.50$, SD $= 0.11$ with individual values ranging from 0.69 down to 0.26. The table also identifies the 14 items that were administered in reverse form in the OHQ. Since these items are more or less evenly distributed when the correlations are arranged in descending order of magnitude, it would appear that item reversal has not significantly affected the nature of the measure. This conclusion was supported by the

Table 1
Correlations of corresponding OHI and OHQ items

Item[a]	OHI/OHQ correlation[b]
28. look attractive (−)	0.69
12. wake up rested (−)	0.67
10. make decisions easily	0.65
16. feel healthy	0.63
15. mentally alert	0.62
21. can organise time	0.60
06. pleased with self (−)	0.58
04. in control	0.57
23. cheerful effect on others	0.57
05. life is rewarding (−)	0.55
13. feel energetic (−)	0.55
09. interested in others (−)	0.54
25. committed and involved	0.54
18. happy memories (−)	0.53
08. life is good	0.51
29. find things amusing	0.51
27. laugh a lot (−)	0.46
24. life has meaning and purpose (−)	0.45
20. done things wanted	0.44
26. world is good (−)	0.44
14. find beauty in things	0.43
02. optimistic (−)	0.41
19. joy and elation (−)	0.41
17. warmth for others	0.39
01. feel happy	0.37
03. satisfied with life	0.37
22. have fun with others (−)	0.36
07. good influence (−)	0.33
11. can do most things	0.26

OHI, Oxford Happiness Inventory; OHQ, Oxford Happiness Questionnaire.
[a] (−) items reversed in scoring.
[b] All correlations significant at the $P < 0.001$ level.

observation that the sums of the positive and negative OHQ items both had high and virtually equal correlations with the whole OHQ scale, $r(168) = 0.92$, $P < 0.001$ and $r(168) = 0.94$, $P < 0.001$ respectively, and that the positive and negative items scores were also highly correlated, $r = 0.73$, $P < 0.001$. However, while the significance and magnitude of the associations between corresponding items are satisfactory for the large majority of items, the correlation coefficients vary over a considerable range. This implies that participants' endorsements of some individual items differ between the OHI and the OHQ and this is particularly marked for, say, the six items with inter-correlations of < 0.40.

2.4. Construct validities

Past research has established relationships between the OHI and a variety of trait and cognitive variables that are associated with psychological well-being. Argyle and Lu (1990) found a strong positive association with extraversion, which was confirmed by Furnham and Brewin (1990), who also identified a strong negative asssociation with neuroticism. Substantial positive associations have also been reported between the OHI and self-esteem, the life regard Index and the life orientation test (Hills & Argyle, 2001a), and satisfaction with life (Hills & Argyle, 2001b). Joseph and Lewis (1998) found a strong positive association between the OHI and the depression–happiness Scale.

Table 2 reports the correlations between the earlier variables and the OHI and the OHQ. Psychoticism excepted, all correlations are substantial and equally and highly significant. There is no difference in the strength of associations with extraversion, but in all other instances, the personality variables correlate more strongly with the OHQ than with the OHI. It has previously been reported (Argyle & Hills, 2000) that the association between psychoticism and the OHI does not achieve significance. The present results confirm this observation, but there is a weak negative relationship between psychoticism and happiness as measured by the OHQ. The overall relationships with the personality variables suggest that the construct validity exhibited by the OHI

Table 2
Correlations between trait and cognitive variables for theOHI and OHQ

Personality variable	OHI	OHQ
Extraversion	0.61***	0.61***
Neuroticism	−0.56***	−0.59***
Psychoticism	0.02	−0.17*
Satisfaction with life	0.68***	0.77***
Self-esteem	0.66***	0.81***
Life orientation test	0.70***	0.79***
Life regard index	0.64***	0.77***
Depression–happiness (DH) Scale	0.79***	0.90***
DH positive items	0.78***	0.87***
DH negative items	0.76***	0.85***

OHI, Oxford Happiness Inventory; OHQ, Oxford Happiness Questionnaire.
 * $P < 0.05$.
 *** $P < 0.001$.

can safely be extended to the OHQ. Moreover, since the relationships are stronger for the OHQ, the OHQ may be the preferred instrument for measuring happiness.

2.5. Factor analysis

Previous factor analyses of the OHI have provided variable results. Using a sample of 101 participants, Furnam and Brewin (1990) extracted nine factors with Eigen-values in excess of unity of which only three were interpretable: satisfaction with personal achievements, enjoyment and fun in life, and vigour and good health. Argyle et al. (1995) reported that an earlier factor analysis had found seven factors which could be "loosely labelled" as positive cognition, social commitment, positive affect, sense of control, physical fitness, satisfaction with self, and mental alertness. Working with data from a relatively large sample ($N = 275$) Hills and Argyle (1998b) also found seven factors, identified as satisfaction with life, efficacy, sociability/empathy, positive outlook, well-being, cheerfulness and self-esteem.

Principal components analysis of the data obtained in the present study extracted seven factors with Eigen values > 1 for the OHI and eight for the OHQ, which accounted for 60.9 and 64.3 of the respective total variances. Both solutions were rotated orthogonally (Varimax) to increase interpretability, accompanied by computation of the individual factor scores. While the solution obtained for the OHI was similar to that previously reported (Hills & Argyle, 1998b), the solution for the OHQ was less satisfactory. Overtly similar items appeared in different factors and a substantial minority of items loaded more or less equally on two or more factors. Under these circumstances, the extracted OHQ factors could not plausibly be interpreted. The correlations between the factor scores for OHI and OHQ reported in Table 3, quantify this behaviour. Were the factor solutions similar, one would expect to find a small number of substantial and significant one-to-one relationships with relatively few secondary relationships. That this is not the case suggests that the apparent factorability of the OHI may be due more to the fixed sequence in which the items are presented than to the items themselves.

Table 3
Correlations of OHI and OHQ factor scores

OHI factors	OHQ factors							
	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8
F_1	0.32***	0.10	0.36***	−0.05	0.05	−0.13	0.15*	0.01
F_2	0.28***	0.47***	0.18*	0.02	−0.08	−0.02	0.06	−0.12
F_3	0.15	0.06	0.12	0.58***	0.01	0.04	−0.17	0.06
F_4	0.17*	0.23**	−0.07	0.15	0.28***	0.21**	0.24**	−0.12
F_5	0.05	−0.11	0.25***	0.06	0.10	0.59***	0.00	0.06
F_6	−0.03	0.29***	0.20*	−0.07	0.23**	−0.01	0.00	0.33***
F_7	0.21**	−0.21**	−0.08	0.07	0.20*	−0.05	0.15	0.17*

OHI, Oxford Happiness Inventory; OHQ, Oxford Happiness Questionnaire.
 * $P < 0.05$.
 ** $P < 0.01$.
 *** $P < 0.001$.

Table 4
Stepwise discriminant analysis of OHQ items

Step	Variable entered	Wilks λ	Exact F
1	life is rewarding	0.63	99.3***
2	mentally alert	0.50	81.1***
3	pleased with self	0.45	66.1***
4	find beauty in things	0.41	57.7***
5	satisfied with life	0.39	50.7***
6	can organise time	0.37	45.1***
7	look attractive	0.36	40.3***
8	happy memories	0.35	36.7***

*** $P < 0.001$.

It could be argued that the non-interpretability of the OHQ was a consequence of the relatively large number of factors extracted using the Eigen-value criterion. However, interpretability was not facilitated in a series of alternative factorisations in which the number of factors extracted was sequentially reduced from seven down to three, during which the proportion of the total variance explained fell to an unacceptably small value. Finally, the OHQ data was subjected to oblique (Direct Oblimin) rotation to permit the extracted factors to be inter-correlated and so allow the identification of any second-order factors. Re-analysis of the initial eight factor scores extracted only one second-order component, which suggests that the construct of well-being measured by the OHQ can better be considered as uni-dimensional.

2.6. Short scale

A shorter version of the OHQ was devised for use when time is limited. The total OHQ scores were partitioned into two groups above and below the scale mean, and stepwise discriminant analysis employed to identify whether a smaller number of OHQ items could successfully predict group membership. The analysis extracted only one discriminant function, and this provides corroborative evidence for the uni-dimensionality of the OHQ. The results reported in Table 4 identify the eight items that were sufficient correctly to classify 90% of the grouped cases. The results for the full and shorter versions were significantly and strongly correlated, $r(168) = 0.93$, $P < 0.001$. It is also worthy of note that the significance and strength of the correlations between the individual differences variables and the short form of the OHQ were very similar to the corresponding values for the full OHQ reported in Table 2.

3. Conclusions

The Oxford Happiness Inventory is a relatively lengthy measure of well-being constructed from 29 multiple choice items. A more compact instrument, the Oxford Happiness Questionnaire has been devised which consists of a similar number of similarly worded, single items that respondents may answer on a uniform six-point Likert scale. The latter scale, which contains roughly equal numbers of positive and negative items that can be intermingled with other items in the

construction of personality questionnaires, should be less susceptible to questionnaire and respondent bias.

In a series of comparative tests between the OHI and the OHQ, the aggregate scores of both measures were strongly correlated, and both measures demonstrated high scale and item reliabilities. All cross-scale correlations between corresponding items were highly significant, $P < 0.001$, and for the large majority of items the correlations were strong. However, there were differences in the size of the correlations, which implies that participants' endorsements of similar items vary between the OHI and the OHQ. Since the wordings of the items are virtually identical, it would appear that the results are influenced more by differences in the formats and order of item presentation in the two scales than by the nature of the items themselves.

The construct validity of the OHI has previously been established by the associations of the measure with a variety of individual differences in trait and cognitive variables. In the present study, these associations were compared for both the OHI and OHQ. All were equally and highly significant and, with the exception of an equal association with extraversion, those for the OHQ were stronger. In terms of construct validity, the OHQ appears to be the preferred measure.

Although several factor analyses of the OHI have been reported, it was not found possible convincingly to interpret several alternative orthogonal factor analyses of the OHQ. Successive oblique rotations of the OHQ data suggest that the OHQ may best be represented by a single, second-order component, which argues for the OHQ scale being represented as uni-dimensional.

Finally, a short-form version of the OHQ was devised for use when time and space is limited using discriminant analysis of the full scale. Eight items were sufficient correctly to classify respondents' scores with an accuracy of 90%, and the correlation between the results of the full and short scales was greater than 0.90 and highly significant, $P < 0.001$.

Appendix. The Oxford Happiness Questionnaire

INSTRUCTIONS. Below are a number of statements about happiness. Would you please indicate how much you agree or disagree with each by entering a number alongside it according to the following code:

1 = strongly disagree;	2 = moderately disagree;	3 = slightly disagree;
4 = slightly agree;	5 = moderately agree;	6 = strongly agree.

You will need to read the statements carefully because some are phrased positively and others negatively. Don't take too long over individual questions; there are no 'right' or 'wrong' answers and no trick questions. The first answer that comes into your head is probably the right one for you. If you find some of the questions difficult, please give the answer that is true for you in general or for most of the time.

1†.   I don't feel particularly pleased with the way I am (−)   . . . .
2.   I am intensely interested in other people   . . . .
3†.   I feel that life is very rewarding   . . . .
4.   I have very warm feelings towards almost everyone   . . . .
5.   I rarely wake up feeling rested (−)   . . . .

6.   I am not particularly optimistic about the future (−)   . . ..
7.   I find most things amusing   . . . .
8.   I am always committed and involved   . . . .
9.   Life is good   . . . .
10.   I do not think that the world is a good place (−)   . . . .
11.   I laugh a lot   . . . .
12†.   I am well satisfied about everything in my life   . . . .
13†.   I don't think I look attractive (−)   . . . .
14.   There is a gap between what I would like to do and what I have done (−)   . . . .
15.   I am very happy   . . . .
16†.   I find beauty in some things   . . . .
17.   I always have a cheerful effect on others   . . . .
18†.   I can fit in everything I want to   . . . .
19.   I feel that I am not especially in control of my life (−)   . . . .
20.   I feel able to take anything on   . . . .
21†.   I feel fully mentally alert   . . . .
22.   I often experience joy and elation   . . . .
23.   I do not find it easy to make decisions (−)   . . . .
24.   I do not have a particular sense of meaning and purpose in my life (−)   . . . .
25.   I feel I have a great deal of energy   . . . .
26.   I usually have a good influence on events   . . . .
27.   I do not have fun with other people (−)   . . . .
28.   I don't feel particularly healthy (−)   . . . .
29†.   I do not have particularly happy memories of the past (−)   . . . .

Notes. Items marked (−) should be scored in reverse. †Indicates components of the OHQ short scale. The sum of the item scores is an overall measure of happiness, with high scores indicating greater happiness.

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