Quality of life among older people with poor functioning. The influence of perceived control over life

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Abstract

Objective: to investigate the apparently incongruous coupling of poor physical functioning with high QoL.
Study design and setting: face-to-face interview survey of random sample of 999 people aged 65+ across Britain.
Results: twenty-one per cent of respondents reported fairly to very severe levels of functional difficulty, and 62% of these rated their QoL as 'good'. Better self-rated health, lower burden of chronic disease, not having fallen, higher social engagement and higher levels of perceived control over life, distinguished between people who had difficulties with physical functioning and who perceived their QoL to be 'good', rather than 'not good'. The open-ended survey responses broadly supported the quantitative findings.
Conclusion: people with difficulties with physical functioning, who perceived their QoL to be 'not good', as opposed to 'good', were adversely affected by a higher burden of disease and having fewer socio-psychological resources to help them to cope effectively.

Keywords: *physical functioning, quality of life, health status, elderly, old age, control*

Introduction

The 'disability paradox' is an apparently incongruous state in which people with severe disabilities, and apparently poor quality of life (QoL) to an outsider, rate their QoL positively [1, 2]. Explanations include balance theory, whereby people perceive QoL as a balance between body and mind [1]; secondary gain and supportive relationships during illness [3, 4]; and effective coping strategies [5]. One of the most commonly mentioned influences on QoL by older people is health [6, 7]. However, the concept of a 'disability paradox' has been criticised because QoL depends on factors other than health [8]. Moreover, having a health problem is not always equated with poor perceived health [9]. Psychological theory, which links perceived control with perceptions, motivations and actions [10], and models emphasising individual contexts [11], may be helpful in understanding this 'paradox'. This is important for the promotion of independence, especially given the high prevalence of chronic conditions, in older age [12]. The aim of the analyses presented here is to examine the 'disability paradox' among people aged 65+.

Methods

The sample

The sample was derived from four Offices for National Statistics (ONS) Omnibus Surveys in Britain during 2000–01. Omnibus surveys use a small-user postcode sampling frame, with geographic and socio-economic stratification. The socio-demographic characteristics of the sample were comparable to those from mid-year population estimates. Respondents aged 65+, who were interviewed for the Omnibus Survey were asked if they would be willing to be re-interviewed for our module on QoL. Of the 1,299 eligible respondents, 77% (999) were successfully re-interviewed, 19% refused to participate, and 4% were not contactable during the interview period. Responders and non-responders had similar profiles [7, 13].

Measures

QoL was measured using open-ended questions, which were coded by theme and checked independently; these were followed by self-rated overall QoL [7]. The open-ended responses provided insight into why people with

poor physical functioning rated their QoL as good or not. The global QoL scale was worded 'How do you rate the quality of your life as a whole'; using a 7-point Likert scale, ranging from 'As good as can be' to 'As bad as can be'. The QoL uniscale, when used with additional measures, enables distinction between predictors and constituents of QoL [14, 15]. Multidimensional QoL scales do not separate influencing and constituent variables. The value of the uniscale is that respondents can base their overall ratings on whatever is pertinent to them, rather than being restricted to a pre-determined list. The QoL uniscale has good construct validity and is stable over time [6, 7, 16].

Validated measures of potential influences on QoL were also used [16]. These included measures of social networks, social contacts, support and help, using Sherbourne and Stewart's (1991) and Cooper *et al.*'s (1999) scales [17, 18]; social activities; neighbourhood perceptions (e.g. ratings of facilities/services, neighbourliness, safety) [18]; loneliness; self-efficacy; perceived control over life [19]; optimism-pessimism [20]; health values [21]; life expectations, social comparisons; perceived life risks [22]; psychological morbidity (mainly anxiety and depression) using the General Health Questionnaire-12 (GHQ) [23]; physical functioning, using Townsend's scale of activities of daily living (ADL) [24, 25]; number of falls; diagnosed, chronic medical conditions; and a 5-point self-rated health status item [26]. Standard ONS socio-demographic and socio-economic [27, 28] items and classifications were included. All scales involved summed scoring, and had satisfactory levels of reliability and validity [16, 29, 30].

Paradox variable

The dependent 'paradox' variable was composed of physical functioning and self-rated QoL. Townsend's ADLs Scale measures physical difficulty with 15 ADL [24, 25], covering mobility, flexibility for dressing, tying shoelaces, getting in/out of a chair, managing money, getting on a bus, washing self, cutting toenails, going up/down steps/stairs, doing heavy housework, shopping/carrying heavy bags, preparing/cooking hot meal, reaching, bending (item scores of 0−3). Scores were summed, with a range of 0−45; higher scores represent worse functioning. This method of combining items into a scale is the most common, and little is gained from more complex methods or weighting. The scale scored in this way had highly significant discriminative ability [16]. Scores were grouped to describe functioning in three groups from 'No difficulties with ADL' (score 0), 'Slight to moderate difficulty with ADL' (score 1−9), and 'Fairly to very severe difficulty with ADL' (score 10−45). These cut-off points were selected because of the need to ensure sufficient cases for analysis in each group; and they discriminated significantly according to respondents' reported self-rated health, number of chronic conditions, psychological morbidity, and number of falls (see Appendix 1, available online at http://ageing.oxfordjournals.org).

The re-coded ADL was combined with the dichotomised QoL uniscale to create the dependent variable for statistical analysis: 'Activities of Daily Living and Quality of Life group'. Respondents were grouped by their level of difficulty with ADL into those who rated their QoL overall as 'good' ('So good could not be better', 'Very good', 'Good') or 'not good' ('Alright', 'Bad', 'Very bad', 'So bad could not be worse'). These QoL groupings were determined by the distribution of responses (see Results), and their discriminative ability [16]. As is common with generic scales [16], few people rated their lives at the extremes, or negatively, with 'Alright' being preferred to negative responses. While 'Bad' is conceptually distinct from 'Alright', only 3% of the sample rated their lives as bad at all. Thus, these groups were labelled as QoL 'Not good', as opposed to 'Good'. Since the focus of this paper is on the respondents who, despite severe disability, reported good QoL, we considered it most relevant to exclude from this group, not only those who reported 'bad' QoL, but also those who considered their QoL as merely 'alright'.

Statistical analysis

In order to assess the independent strength of the variables in discriminating between ADL-QoL groups, multivariable analysis was conducted with those independent variables, which were associated, at least at the 5% level of significance, with ADL and QoL ratings. Age and gender were included in the modelling on the grounds of their a priori significance, in order to minimise confounding. Both multinomial and binary logistic regression was conducted. Variables were entered in order of their importance in the literature [16], as follows: health, social resources, psychological resources, perceived neighbourhood, socio-economic and demographic variables. Variables were first checked for multicollinearity.

For the multinomial logistic regression, the dependent variable was grouped into the six nominal categories: no difficulty with ADL and QoL good (i); no difficulty with ADL and QoL not good (ii); slight−moderate difficulty with ADL and QoL good (iii); slight−moderate difficulty with ADL and QoL not good (iv); fairly−very severe difficulty with ADL and QoL good (v); fairly−very severe difficulty with ADL and QoL not good (vi). The reference category for the dependent variable was no difficulty with ADL and QoL good (group 1). A reduced model was applied, including only the significant variables from the full model, adjusting for age and gender.

Binary logistic regression was also used to test the strength of the same independent predictors of perceived QoL ('good' or 'not good') restricted to respondents with 'Fairly' to 'Very severe' difficulties with ADL (re-coded into a new binary variable). The aim was to identify whether these variables could also independently predict QoL as 'good' or 'not good' among those at the extreme end of the 'paradox'. A reduced model was applied in the same way as for the multinomial regression.

Results

Almost half (48%, 480/999) of respondents were female, and over a third (38%, 275) were aged 75+. Most (98%, 983) were

white, as would be expected from a nationally representative sample of people aged 65+ in Britain. Around a third reported no difficulties with ADL (32%, 316, scored 0), a third had slight difficulties (33%, 324, scored 1−4), just over one in ten had moderate difficulties (14%, 133 scored 5−9), and just over a fifth had severe difficulties (21%, 210, scored 10−45). Women were more likely than men to have fairly to very severe difficulties with activities (score of 10−45): 26% (122) versus 17% (88) ($P<0.001$); and people aged 75+ were more likely to have fairly to very severe difficulties than younger respondents: 32% (116) versus 15% (95) ($P<0.001$).

People reporting the greatest difficulties with ADL were more likely to report diagnosed, chronic conditions (all statistically significant at $P<0.001$). For example, 40% (128) of those with no difficulties with ADL (ADL score of 0) reported one or more chronic conditions, compared with 61% (198) of those with slight difficulties (ADL score of 1−4), 77% (102) of those with moderate difficulties (ADL score of 5−9), 89% (112) of those with fairly severe difficulties (ADL score of 10−18), and 91% (77) of those with very severe difficulties (ADL score of 19−45) ($P<0.001$). At least 90% of those reporting each condition had experienced it for a year or more.

Five per cent (54) of men and women rated their QoL as 'So good it could not be better', 45% (449) as 'Very good', 31% (316) as 'Good', 15% (150) as 'Alright', and 3% (30) as 'Bad' or 'Very bad' or as 'So bad it could not be worse.' Differences in QoL ratings with gender were slight; there were no independent, statistically significant differences with age. Dichotomised, most, 82% (807), respondents rated their QoL as 'good', and 18% (177) as 'not good'. Thirty-two per cent (316) reported no difficulties with ADL and of these, 91% (288) reported their QoL as good. In comparison, 21% (210) reported fairly severe to very severe difficulties with daily activities and of these 62% (130) rated their QoL as good (see Table 1).

Using the group with no difficulty with ADL and 'good' QoL as the reference category (odds ratio = 1), comparisons of explanatory variables were made of those reporting 'good' or 'not good' QoL in each stratum of functioning (ADL), using multinomial logistic regression. Those variables which achieved significance at least at the 0.05 level were entered into a reduced model (for the full model, see Apendix 2

Table 1. Activities of daily living (ADL) score by self-rated Quality of Life (QoL) good or not good

ADL score:	QoL good (1)		QoL not good (0)	
	Row %	(*n*)	Row %	(*n*)
0 (0: no difficulty)	91	(288)	9	(28)**
1 (1−4: slight difficulty)	87	(282)	13	(42)
2 (5−9: moderate difficulty)	80	(107)	20	(27)
3 (10−18: fairly severe difficulty)	66	(83)	34	(42)
4 (19−45: very severe difficulty)	55	(47)	45	(38)
No. of respondents	**82%**	**807**	**18%**	**177**

** $P<0.01$.

available online at http://ageing.oxfordjournals.org): self-rated health status, number of chronic conditions, number of falls, number of different social activities, marital status, and perceived control over the important things in life, age group and gender. Table 2 shows the results of the reduced model and the significance values for the overall model (likelihood ratio test). Each of the independent variables, except marital status, were highly significant.

Comparisons are made with the referent (those with no difficulty with ADL and QoL good). Respondents who had 'Slight to moderate difficulty' and 'Fairly to very severe difficulty' with ADL, and who reported their QoL as 'not good', had increased odds (just over 12 and 53 times respectively) of rating their health status as 'Fair or Poor', rather than 'Excellent, Very good or Good'. They had increased odds (just over three and 17 times) of reporting one or more diagnosed chronic condition, as opposed to none; and of having had a fall in the last 12 months (twice and five times the odds). They had just over three and eight times the odds respectively of having fewer social activities (0−2), and three and just over six times the odds of having 'Little/no' perceived control. They had almost twice and four times the odds of being female. The trends with age were inconsistent. Caution in interpretation is required as confidence intervals were often wide.

The variables which were entered into the full multinomial regression model were also entered in the same order, into a binary logistic regression analysis for the group with 'Fairly' to 'Very severe' difficulties with ADL (ADL score 10−45) and a QoL rating as good (1, $n = 130$) or not good (0, $n = 80$). The variables which were statistically significant at least at the 5% level in the full logistic regression model (at least at 0.05 level) were entered into a reduced model along with age and gender. Table 3 shows their associations with the dependent variable, in terms of the odds ratios, adjusted for age and gender.

Within the group with 'Fairly to Very severe' difficulties with ADL, those who had no psychiatric morbidity (GHQ non-case) had almost three times the odds of GHQ cases of rating their QoL as 'good', rather than not good. Those with the most social support/help had almost five times the odds of those with less support/help, of rating their QoL as 'good', rather than not good. Respondents who perceived they had a 'Lot/some' control had almost three times the odds over those with less perceived control, of rating their QoL 'good', rather than not good. Respondents who rated their chances of being assaulted or having an accident as the same or lower than others, had over twice the odds of others of rating their QoL as 'good', rather than not good. Age, gender and chronic diseases were not significant. The wide confidence intervals indicate that the results should be treated with some caution.

Lay models

Respondents with poor functioning ('Fairly' to 'Very severe' difficulties with ADL), and with 'good' ($n = 130$), rather than 'not good' ($n = 80$) QoL, were more likely to mention

Table 2. Results of multinomial regression analysis, adjusted for age and sex (reduced model+), to show relationships of respondents' characteristics to their self-ratings of difficulties with activities of daily living (ADL) 'and quality
of life (QoL)

	No difficulty (ADL 0)/QoL good Referent (1)	No difficulty (ADL 0)/ QoL not good (2)	Slight to moderate (difficulty (ADL 1-9)/QoL good (3)	Slight to moderate difficulty (ADL 1-9)/QoL not good (4)	Fairly to very severe difficulty (ADL 10-45)/QoL good (5)	Fairly to very severe difficulty (ADL 10 45)/QoL not good (6)
	Age-sex, fully adjusted odds ratio: Exp. B (95% CI)					
Self-rated health compared to others same age						
Fair-poor (0) referent	1	4.11	4.54	12.89	19.19	53.74***
versus		(1.34−12.56)	(2.48−8.32)	(6.03−27.53)	(9.46−38.94)	(23.16−124.73)
Excellent to good (1)						
Number of diagnosed chronic conditions						
1+ conditions (0) referent	1	1.23	2.56	3.46	9.21	17.39***
versus		(056−2.73)	(1.81−3.60)	(1.84−6.53)	(4.83−17.54)	(5.97−50.67)
none (1)						
Falls in past year						
One or more (0) referent	1	0.63	1.80	2.03	3.63	5.40***
versus		(0.19−2.11)	(1.18−2.76)	(1.06−3.90)	(2.07−6.39)	(2.73−10.65)
none (1)						
Number of different social activities in the last month						
0−2 activities (0) referent	1	1.58	1.75	3.70	5.19	8.49***
versus		(0.62−4.04)	(1.14−2.68)	(1.98−6.9)	(2.96−9.12)	(4.22−17.06)
3 or more (1)						
Marital status						
Unmarried (0) referent	1	1.97	1.02	1.72	1.40	1.80 ns
versus		(0.86−4.54)	(0.70−1.49)	(0.92−3.20)	(0.80−2.43)	(0.89−3.63)
Married/cohab (1)						
Perceived control over life						
Little/none (0) referent	1	0.96	1.897	3.21	2.14	6.86**
versus		(0.15−6.26)	(0.91−3.96)	(1.26−8.21)	(0.85−5.38)	(2.67−17.67)
Lot/some (1)						
Age ≠						
75+ (0) referent	1	0.88	2.54	3.41	7.30	5.08***
versus		(0.33−2.35)	(1.73−3.72)	(1.83−6.34)	(4.19−12.72)	(2.53−10.20)
65<74 (1)						
Gender ≠						
Female (0) referent	1	1.30	2.84	1.87	3.90	4.10***
versus		(0.57−2.98)	(1.99−4.06)	(1.02−3.44)	(2.26−6.72)	(2.07−8.13)
Male (1)						
N.	288	28	389	69	130	80

≠ Unadjusted odds ratios.
** $P<0.01$; *** $P<0.001$; ns not statistically significant at 0.05 level.
P values derived from likelihood ratio test for models including/excluding the predictor variables.
+ Reduced model re-entering significant variables (at least reaching $P<0.05$) from full multinomial model.

the effect of psychological outlook on their QoL: 37% (48) : 23% (18) ($P = 0.029$). They commented that their optimistic outlook, their ability to cope and feel in control, were key to their ability to 'carry on'. They mentioned making 'the best of things', and of 'being able to do things despite health problems'. They more often mentioned adequate financial circumstances contributing to their QoL, compared to the poor functioning and 'not good' QoL group: 22% (29) : 13% (10) ($P = 0.076$); and living in a neighbourly area with good facilities/services: 21% (27) : 10% (8) ($P = 0.042$). Those

with poor functioning, and 'not good' QoL, more often commented on the negative effects of their health on their ability to do things they wanted to do: 41% (33) : 22% (29) ($P = 0.0035$).

Discussion

The results presented here indicate that a lower disease burden and greater levels of psycho-social resources explained the apparent paradox between level of functioning (ADL) and perceived QoL. Those with poor functioning, and

Table 3. Results of logistic regression analyses (reduced model)+ of respondents with 'Fairly' to 'Very severe' difficulties with activities of daily living (ADL) and quality of life (QoL) rating 'Good' (1) or 'Not good' (0), adjusted for age and sex

Independent variable:	ADL-Qol group Odds ratio: (95% CI)
GHQ-12:	
Case (score 4–12) (0) referent	2.84**
versus	(1.48–5.44)
Non-case (1) (score 1–3)	
Social support	
Can call for help in 0–2 areas (0) referent	4.61**
versus	(1.66–12.80)
Can call on help/support in 3–5 areas (1)	
Perceived control over important things in life	
A little/none (0) referent	2.94**
versus	(1.36–6.51)
A lot/some (1)	
Self-rated chances of assault/accident	
Higher (0) referent	2.24**
versus	(1.15–4.36)
Same/lower than others same age/sex (1)	
Age group $\neq$	
75+ (0) referent	0.59^{ns}
versus	(0.30–1.14)
65<75 (1)	
Gender $\neq$	
Female (0) referent	0.88^{ns}
versus	(0.46–1.69)
Male (1)	

$\neq$ Unadjusted odds ratios.
** $P<0.01$; ** $P<0.001$. + Reduced model re-entering significant variables (at least reaching $P<0.05$) from the full binary logistic regression model.

who perceived their QoL to be good, rather than 'not good', tended to feel in control of their lives, adopting a 'can do', positive approach, and using coping strategies of acceptance and compensation. This supports theories of mind-body balance [1], and of greater perceived control leading to more effective coping [5, 10, 30]. The significant role of social and practical support is consistent with the literature on the role of social support as a buffer to stress [3, 4, 16]. The importance of self-rated health supports the need for a less biologically dependent model of illness. However, some caution in interpretation of the data is needed due to the wide confidence intervals, the small numbers who rated their QoL as 'bad', and, because the survey was cross-sectional, the direction of cause and effect cannot be specified. Although longitudinal analyses are required, the data presented indicate areas that could potentially be acted upon to help people to build up their reserves to maintain independent living.

Key points

- About a fifth of respondents reported fairly to very severe levels of functional difficulty, and 62% of these rated their quality of life (QoL) as 'good'.
- Those with poor physical functioning, and who perceived their QoL to be 'good', rather than 'not good', tended to feel in control of their lives, adopting a 'can do', positive approach, using coping strategies of acceptance and compensation.
- It appears that a lower disease burden and greater levels of psycho-social resources explained the apparent paradox between level of physical functioning and perceived QoL.
- The findings support theories of mind-body balance, control over life and social support leading to more effective coping. This also indicates a need for a less biologically dependent model of illness.

Conflict of interest

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