

Changes in the key areas of quality of life associated with age and time since diagnosis of long-term conditions

Chronic Illness

8(2) 112–120

© The Author(s) 2012

Reprints and permissions:

sagepub.co.uk/journalsPermissions.nav

DOI: 10.1177/1742395312436747

chi.sagepub.com



Lisa A Osborne,¹ Neil Bindemann,²
J Gareth Noble¹ and Phil Reed³

Abstract

This study examined whether quality of life areas, that were considered to be important by people with long-term and chronic conditions, altered as a function of their age ('maturation') and time since diagnosis ('adaptational'). Seventy-one individuals from two age groups (31–40 and 41–50 years), who had been diagnosed for different lengths of time (<1 year and 10–20 years), creating four groups, were asked to say what quality of life meant to them, and the results were qualitatively analysed. The key theme in determining the quality of life across the entire sample was 'independence and normality' in the participants' lives. However, the other key themes differed across the groups, suggesting that both 'maturation' and 'adaptation' play a role in determining the key areas that people consider, relating to their quality of life. The younger newly diagnosed group made more mention of 'involvement' than the other three groups, all of which mentioned different forms of wellbeing (social-emotional, physical and psychological) as the second most important aspect of their quality of life. These findings have implications for the assessment of quality of life.

Keywords

Quality of life, independence and normality, wellbeing, 'maturation' changes, 'adaptational' changes

Received 15 November 2011; accepted 30 November 2011

The assessment and measurement of a person's quality of life has become an increasingly important aspect of intervention for long-term and chronic conditions,^{1,2} and the UK Department of Health and the UK Medical Research Council are placing greater emphasis on the assessment of

¹Long-term and Chronic Conditions Centre, College of Human and Health Sciences, Swansea University, Swansea, UK

²QoL Healthcare Ltd, London, UK

³Department of Psychology, Swansea University, Swansea, UK

Corresponding author:

Lisa A Osborne, Long-term and Chronic Conditions Centre, College of Human and Health Sciences, Swansea University, Singleton Park, Swansea, SA2 8PP, UK

Email: lisaanneosborne@yahoo.com

quality of life.^{3,4} Its assessment is now recommended as an integral part of any study of a treatment's outcome effectiveness.^{3,5} In the case of chronic conditions that have little probability of reversal or cure, improvements in this aspect of a person's life are, in fact, of paramount importance. Thus, accurate assessment of the impact of a condition on quality of life is critical.

The measurement of the impacts of a condition on quality of life presents a number of challenges. Divorcing the condition, itself, from its effects on a person's life is a major issue.^{6,7} Similarly, identifying the key areas in which particular conditions challenge individual's abilities to participate in activities, to the extent to which they wish to, is another measurement issue.^{1,8} This study focuses on a third issue, and one that has received less attention, that is, the potential changes in the key aspects of a person's quality of life over time.

It is entirely feasible that the important quality of life issues facing an individual with a chronic condition alter over time since diagnosis.^{9,10} This may be due to 'maturational' changes in the individual; what is important to a younger person may be less so to an older individual, and *vice versa*.¹¹ Additionally, there may be 'adaptational' changes in what an individual focuses on, as he/she learns to cope and manage his/her condition and its impacts.¹² Activities that are initially challenged by the condition may provoke negative responses to the items about those activities that are contained in quality of life tools on initial assessment. However, over time, these activities may be replaced by others, as the person comes to cope with the limitations of the condition, and so do not negatively feature in quality of life assessments after time. The impacts of such variables have previously been examined in terms of the importance attached to various aspects of a person's life (i.e. their values) depending on whether he/she have a

chronic condition and in terms of their age;¹³ thus, these factors seem important to examine in this context.

Irrespective of whether quality of life is measured using a generic tool, such as the Short Form 36 Health Scale¹⁴ or the General Health Questionnaire,¹⁵ or a condition-specific tool, such as the Multiple Sclerosis Impact Scale,¹⁶ such 'maturational' and 'adaptational' changes may be masked by the form of the questions in these questionnaires. Overall, quality of life scores may remain unaltered, but the individual elements contributing to this overall score may alter with time. Such changes may also negatively affect the psychometric properties of scales – certainly, it would damage the content validity of a scale, and it may damage the reliability of a scale across multiple readings. Hence, an initial aim of this study was to determine whether issues related to quality of life alter over time.

As noted above, if such changes did occur, they could be due to either 'maturational' or 'adaptational' alterations in quality of life assessments. A second aim of this study was to attempt to investigate the contribution of 'maturational' and 'adaptational' changes, by studying key quality of life issues for individuals with either a newly diagnosed condition, and for those who had lived with a condition for some length of time. Also, it was hoped to compare these two times since diagnosis across people in two different age groups, in order to tease apart the 'adaptational' from 'maturational' changes.

In order to investigate this issue, it was felt important not to tie the participants to a specific set of questions regarding quality of life, but, rather, ask them to say which issues were of key concern to them in response to an open question,^{17,18} and then qualitatively analyse their responses. Moreover, it was thought important to sample a wide range of chronic conditions to produce the greatest generality for the findings.

Method

Participants and recruitment

Seventy-one participants (14 male and 57 female) were sampled. These participants had responded to an electronic survey sent to people with a range of long-term and chronic conditions, identified by organisations and support groups that had informed their members about the survey (e.g. National Rheumatoid Arthritis Society, Diabetes UK, Parkinson's Disease Society, Asthma UK and National Osteoporosis Society).¹⁷ In total, 628 people responded to this survey, and the current sample was selected from those 628, on the basis of being: (1) diagnosed either within the last year, or between 10 and 19:11 years previously; and (2) aged either 31–40 or 41–50 years old. These inclusion criteria were employed, because they produced a large difference in the length of time that an individual had their diagnosis, and the age ranges that were selected, meant that there were likely to be similar numbers of individuals within each age group (younger or older groups may have produced too many participants in one or other of the time-since-diagnosis categories).

The selection criteria produced 10 participants (1 male, 9 female) aged between 31 and 40 years old who were diagnosed within the last year, and 25 participants (6 male, 19 female) aged between 41 and 50 years old who were diagnosed within the last year. There were 17 participants (3 male, 14 female) aged between 31 and 40 years old who were diagnosed 10 to 19:11 years ago, and 19 participants (4 male, 15 female) aged between 41 and 50 who were diagnosed 10 to 19:11 years ago. These 71 participants had a range of conditions: 33 (46.5%) had arthritis; 9 (12.7%) had diabetes; 5 (7.0%) had Parkinson's disease; 2 (2.8%) had osteoporosis; 4 (5.6%) had epilepsy; 5 (7.0%) had cancer; 5 (7.0%) had asthma; 6 (8.5%) had multiple sclerosis; 1 (1.4%) had spina bifida;

and 1 (1.4%) had myalgic encephalopathy. With the exceptions of Parkinson's disease and asthma, these chronic conditions tend to occur more frequently in females than in males, hence, the gender imbalance in the survey sample.

Materials and data collection procedure

In order to elicit responses regarding the opinions of participants concerning what quality of life meant to them, along with background demographic information, an electronic survey was sent to the participants (using the Survey Monkey tool; see www.surveymonkey.com). The survey asked a range of questions, including: 'What is the condition/illness that you have been diagnosed with?'; 'Please tell us whether you are male or female.'; 'What is your age at time of completing this questionnaire?'; 'How long have you been diagnosed with the condition/illness?'; and 'In no more than 30 words please describe what 'quality of life' means to you.'

The content analysis

The statements to the question, 'In no more than 30 words please describe what 'quality of life' means to you', were subjected to a content analysis in order to generate categories that would characterise these statements. The content analysis was conducted in line with the recommendations¹⁹ and use.^{20–22} Thus, the methodology has been widely employed, and it is accepted as appropriate for the purpose of examining written responses from surveys.²⁰ Additionally, it allows the generation of quantitative data from the qualitative themes that emerge through the content analysis, which facilitates comparisons between the different groups.²²

For this content analysis, the following analytic procedures were conducted (Table 1). All the participants' responses

were read and re-read a number of times until the initial key themes emerged, which were recorded. The participants' comments were then broken down, or unitised, into the smallest 'units of information' that could bear interpretation, and which could stand on their own in order to provide a meaningful and informative comment, but that could still be understood within the original context and sense of the full comment being made by a participant. That is, those comments that initially contained more than one such 'unit of information', as in the case of long comments that made a number of points, were further divided into several separate 'units'. From the detailed readings of the unitised comments, the derived sets of themes, or category headings, were then further refined and honed, so that all the 'units of information' could be categorised according to those themes. As part of this process, 'memoing' of the information units was employed, thereby enriching, extending, developing, refining, expanding and clarifying the meanings of the various initial categories, leading to a richer understanding

of those thematic data sets, and the 'units of information' that they contained.

This content analytic procedure was conducted by two experienced raters of qualitative data and content analysis. Any discrepancies were fully discussed, and a final set of categories was determined and agreed to ensure consensus about the reliability of the coding between the two raters.

Results

All 71 participants made a comment regarding quality of life, and these comments resulted in a total of 234 'units of information'. The content analysis of these comments produced six themes that encompassed all the 'units of information'. *Independence and Normality* included comments regarding a participant's ability to conduct everyday, or normal, activities without assistance, their freedom to do the things that they wanted to when they wanted to do them and their ability to cope with everyday activities, and their families, for themselves (e.g. 'being able to do what I want when I want.', 'The ability to choose and do what I want ...', 'BEING ABLE TO DO WHAT I WANT TO DO WHEN I WANT TO DO IT ...', 'coping with family and domestic arrangements [sic]...', 'The degree to which I am able to carry out my life the way I choose to, independently ...', '*Living a relatively normal life...*'). *Involvement* referred to an individual's active participation in activities that interested, stimulated, or excited them (e.g. hobbies, sport), and to them being able to live life to the full and meaningfully (e.g. 'Being able to participate in life ...', 'The ability to enjoy the day ...', 'carpe diem ...', '... to take part and not be a passenger or a spectator.', '... an active set of interests is vital.'). *Social and emotional wellbeing* referred to a participant's mood and their social support, including their levels of contentment, enjoyment and pleasure in their

Table 1. Stages in the content analysis (after Vaughn et al.¹⁹)

1. Identification of key themes or 'big ideas' within the data, following reading and re-reading of each set of comments.
2. Identification and highlighting of 'units of information' (phrases and/or sentences) relevant to the research purposes.
3. Selection of category headings to sort and group these 'units of information'.
4. 'Units of information' are coded according to category headings, to enable the units to be placed within a category.
5. Negotiation between researchers to agree the category headings that most economically accommodate the 'units of information'.
6. Categories generated in the first phase of data analysis are reviewed and revised.

lives, and the levels of understanding that they received from others (e.g. '...having a family is critical for me', '...have a good social life...', '...stable happy relationships with family and friends...', 'To Feel supported and understood by friends.'). *Psychological Wellbeing* referred to issues, such as freedom from depression, and the ability to remain optimistic (e.g. 'being happy...', 'The knowledge that tomorrow is a new day that can be looked forward to.', 'STATE OF MIND...'). *Physical wellbeing* involved issues, such as being pain-free and fatigue-free (e.g. '...NO PAIN', 'a good quality of life for me is being pain free with no tiredness or aching...', '...free of pain...', '...not have to stop prematurely do [sic] to exhaustion...'), and the final category was *Financial security* (e.g. '...no financial [sic] worries.' '...financially secure...' and '...not short of money').

Table 2 shows the themes, and the numbers of 'units of information' (and the numbers of participants making comments) within each theme, for each of the four groups. The percentages shown are those for the numbers of units in each theme, calculated for each group, separately, in order to

enable comparison across the groups, which contained different numbers of units from one another. These data were organised in this manner in order to determine whether the key, or most commonly occurring, themes concerning quality of life altered across time, along with the participants' ages (i.e. 'maturational' change) and/or the time since their diagnosis (i.e. 'adaptational' change). Hence, if changes in the key quality of life themes were mainly 'maturational', then the younger and older age groups should differ from one another, but if the changes were 'adaptational', then the groups differing in time since diagnosis should vary from one another.

Inspection of the overall numbers of units shows that the most mentioned theme was that of *Independence and normality*; the other themes were mentioned about the same number of times as one another, with the exception of *financial security*, which was not a consideration for many of the participants. However, these overall data mask differences between the four groups. Although all the groups had higher numbers of units in the *involvement and normality* theme, the second most commented upon

Table 2. Themes and numbers of 'units of information' (and the numbers of participants making comments) within each theme, for each of the four groups. The percentages shown are those for the numbers of units in each theme, calculated for each group. The figures in bold are the most mentioned and second most mentioned themes for each group

	Independence/ normality	Involvement	Social and emotional wellbeing	Psychological wellbeing	Physical wellbeing	Financial security
Diagnosed <1 year	27.3%	27.3%	11.4%	13.6%	18.2%	2.2%
31-40 years	12 (7)	12 (6)	5 (3)	6 (3)	8 (5)	1 (1)
Diagnosed <1 year	43.0%	11.4%	21.5%	8.9%	13.9%	1.3%
41-50 years	34 (18)	9 (7)	17 (13)	7 (6)	11 (9)	1 (1)
Diagnosed 10-19 years	44.9%	10.2%	14.3%	16.3%	14.3%	0%
31-40 years	22 (12)	5 (4)	7 (5)	8 (8)	7 (5)	0 (0)
Diagnosed 10-19 years	38.7%	16.1%	9.7%	14.5%	19.4%	1.6%
41-50 years	24 (13)	10 (8)	6 (5)	9 (7)	12 (10)	1 (1)
Total	39.3%	15.4%	15.0%	12.8%	16.2%	1.3%
	92 (50)	36 (25)	35 (26)	30 (24)	38 (29)	3 (3)

theme differed. The younger newly diagnosed group made more mention of *involvement* than the other three groups, and these other groups all mentioned different forms of wellbeing as the second most important theme. The older newly diagnosed group mentioned *social and emotional wellbeing* second most often, whereas, the younger longer diagnosed group mentioned *psychological wellbeing* as second most often, and the older longer diagnosed group mentioned *physical wellbeing* as the second most common theme. Thus, there appeared to be contributions to the alteration of quality of life themes mentioned by the participants from both 'maturational' and 'adaptational' sources.

Discussion

This study aimed to examine whether the key areas that people with long-term and chronic conditions considered, when thinking about their quality of life, altered as a function of 'maturational' and 'adaptational' changes. To this end, individuals from two age groups, who had been diagnosed for different lengths of time, were asked to say what quality of life meant to them, and the results were qualitatively analysed. The main findings to emerge were that the key theme in determining quality of life across the whole sample was independence and normality in the participants' lives, but that the other key themes differed across the groups, suggesting that both 'maturation' and 'adaptation' play a role in determining key areas, when people consider their quality of life. Taken together, these findings have implications for the assessment of quality of life.

That the key theme to emerge across the sample was independence and normality is worth consideration in terms of the standard generic tools which are employed to assess quality of life. The most commonly used instruments in this regard, such as the SF-36,¹⁴ GHQ¹⁵ and EQ-5D,²³ do not

directly assess this factor. Rather, most factor-analytic solutions to these questionnaires suggest two main factors – psychological and physical issues. These latter factors were also revealed as important in this study, and there are some individual questions on independence in these generic quality of life scales, but the present findings suggest that this issue should feature much more prominently in the assessment of quality of life. It could be noted that there are generic quality of life tools that do measure independence (e.g. the Functional Independence Measure.²⁴ However, these tools do not also assess the various areas of wellbeing mentioned above, and it is unclear whether the forms of independence (mainly physical) match precisely those considered as important by the current sample. Additionally, the concept of being able to be actively involved in their own lives (expressed as 'carpe diem', by one participant) is not often considered in generic quality of life tools. This is clearly a difficult concept to precisely determine in a few questions, but it is one that emerges as a key theme, overall. An area of relative insignificance in this context is financial security. Thus, the overall results suggest that some rethinking, in terms of the measurement of quality of life, is needed in order to reflect the concerns generated by individuals with long-term and chronic conditions.

The second issue that the current findings raise for the measurement of quality of life is that the key areas alter over time for groups that differ in terms of their time since diagnosis and their age. For example, younger individuals who have been diagnosed within the last year believe that involvement in everyday activities is as important as independence, and more important than the various forms of wellbeing measured. However, as individuals get older, and as a longer amount of time elapses from the point of diagnosis, involvement becomes less of an issue, and aspects of wellbeing

(social-emotional, psychological and physical) become more important. While it may be premature to discuss the precise nature of the changes in the key areas concerning quality of life, documented here, due to relatively small numbers of participants (further work will be needed to explore this issue), the aspect of importance in this finding is that these concerns do alter with both 'maturation' and 'adaptation'. It should be noted that many generic tools for quality of life,^{14,15} as well as condition-specific tools,¹⁶ do cover these areas of wellbeing, but what they do not do is to take into account such changes in the degree to which individuals will express concerns in these various areas. Of course, such variables as 'maturation' and 'adaptation' could be regarded as 'predictor' variables of quality of life, rather than being integral variables to the perception of quality of life. However, at the very least, this suggests that interpretation of quality of life scores would be facilitated by the production of different norms for these tools, based on age and time since diagnosis. This is not a radical suggestion, as many psychometric assessments do offer such age-normed scores, especially in areas such as childhood development and behaviour (e.g. Strengths and Difficulties Questionnaire,²⁵ and this would not be too onerous a task to perform. Obviously, the nature of these changes would depend on the specific tool being examined, as each tool focuses on slightly different aspects of quality of life. The general issue is that these scores will alter over time, as quality of life is a complex and multi-faceted concept, and both it and the people for whom it is measured may alter in many ways, thus, potentially reducing the reliability of a tool, especially for longitudinal studies.

Whether or not established tools, such as the SF-36, provide an accurate measurement of quality of life continues to be hotly debated.⁵ One potential reason for this debate is that, as noted above, such tools

have not explicitly recognised the personal nature of quality of life. However, some recent developments within the measurement of quality of life have attempted to address this issue. For example, the Lifepsychol¹⁷ is a system that allows people to define the quality of life issues that are most important to them, at any given time in their life, and also it recognises the value of encouraging people to regularly monitor how quality of life can change over the course of living with a long-term, chronic condition. If this tool proves to have suitable psychometric properties, its dynamic nature may serve quality of life measurement well, and would help to address concerns, such as those raised in this study.

Of course, in addition to considering the implications of 'maturation' and 'adaptation' factors, there could be other elements that impact on the assessment of quality of life issues, such as the clinical course of the chronic condition itself. For example, if a treatment programme reduces the severity of the symptoms of a long-term, chronic condition (e.g. as could be the case when anti-epileptic medications are administered for epilepsy), then such intervention could contribute to improved quality of life, regardless of any 'maturation' or 'adaptation' processes. Similarly, issues such as the environment of the individual, and the level of support received, may also impact on their perceptions of quality of life. Hence, it is more than possible that there will be other factors involved that will require further exploration in order to develop a much fuller understanding of the measurement of quality of life.

As with all such studies, there are a number of limitations that need to be mentioned. Obviously, the sample was limited in terms of its size, although it was relatively large for a qualitative study. Also, it was limited in terms of the age groups, and the lengths of time since diagnosis, which were studied. There were reasons behind choosing these limited samples, concerned with

approximately equating the numbers of participants in each group, but further, more extensive, study could attempt to extend and replicate these intriguing findings. The sample was also biased towards female participants, and it is unclear what impact this would have on the results if more males could be recruited. Of course, the present gender imbalance reflects the higher prevalences of these conditions in females relative to males, and also it may be that females are more likely to volunteer to participate in such health-related research studies than males, a gender imbalance that appears to be reflected in most forms of volunteering.²⁶ Moreover, it attempted to sample a range of conditions (the one that predominated the sample was Arthritis), and, again, it is unclear whether the results would vary for different conditions, and further work would be needed in this regard. Of course, when considering generic quality of life tools, this is not a major issue, as they are designed to operate across all conditions. As the participants in this research were volunteers, their representativeness, in general, may be an issue that limits the generality of the conclusions that may be drawn from these data. Finally, as with any analysis of such comments, the number of comments should be considered as a measure of the strength of feeling about particular issues, and they should not be regarded as an indication of their frequency in the general population.

In summary, the current report adds to the literature concerning the issues in measuring quality of life, and suggests that there are aspects connected with independence and normality of functioning and everyday life that many generic, and condition-specific, quality of life tools do not assess well. Moreover, there appears to be a need to be more sensitive to changes in the quality of life issues regarded as important as a function of 'maturation', and 'adaptation' to the condition, which need to be given greater consideration in such quality of life research.

Acknowledgements

The authors of this article gratefully thank the participants who kindly gave their time and effort to this research.

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

References

1. Hamming JF and De Vries J. Measuring quality of life. *Br J Surg* 2007; 94: 923–924.
2. Testa MA and Simonson DC. Assessment of quality of life outcomes. *Curr Concepts* 1996; 334: 835–840.
3. Medical Research Council. Mission Statement, <http://www.mrc.ac.uk/Utilities/Documentrecord/index.htm?d=MRC002423> (2011, downloaded 16 November 2011).
4. Department of Health. National Health Service: Outcomes Framework, http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_122944. (2010, downloaded 16 November 2011).
5. Carr AJ and Higginson IJ. Are quality of life measures patient centred? *Br Med J* 2001; 322: 1357–1360.
6. Breek JC, de Vries J, van Heck GL, et al. Assessment of disease impact in patients with intermittent claudication: discrepancy between health status and quality of life. *J Vasc Surg* 2005; 41: 443–450.
7. Smith KW, Avis NE and Assmann SF. Distinguishing between quality of life and health status in quality of life research: a meta-analysis. *Qual Life Res* 1999; 8: 447–459.
8. Claes C, Van Hove G, van Loon J, et al. Quality of life measurement in the field of intellectual disabilities: eight principles for assessing quality of life-related personal outcomes. *Soc Indic Res* 2010; 98: 61–72.
9. Carr AJ, Gibson BA and Robinson PG. Is quality of life determined by expectations or experience? *Br Med J* 2001; 322: 1240–1243.
10. Hickey AM, Bury G, O'Boyle CA, et al. A new short form individual quality of life measure (SEIQOLDW): application in a cohort of individuals with HIV/AIDS. *Br Med J* 1996; 313: 29–33.
11. Mercier C, Peladeau N and Tempier T. Age, gender and quality of life. *Commun Mental Health J* 1998; 34: 487–500.

12. Grey M, Boland EA, Davidson M, et al. Coping skills training for youth with diabetes mellitus has long-lasting effects on metabolic control and quality of life. *J Pediatr* 2000; 137: 107–113.
13. Bowling A. What things are important in people's lives: a survey of the public's judgements to inform scales of health related quality of life. *Soc Sci Med* 1995; 10: 1447–1462.
14. Stewart AL, Hays RD and Ware JE. The MOS Short-form General Health Survey: reliability and validity in a patient population. *Med Care* 1988; 26: 724–735.
15. Goldberg DP and Williams P. *The user's guide to the general health questionnaire*. Windsor: NFER—Nelson, 1988.
16. Hobart J, Lamping D, Fitzpatrick R, et al. The Multiple Sclerosis Impact Scale (MSIS-29): a new patient-based outcome measure. *Brain* 2001; 124: 962–973.
17. Bindemann N. The meaning of quality of life: A Lifepsychol survey. *Pract Nurs* 2010; 21: 1–3.
18. Santelli B, Singer GHS, DiVenere N, et al. Participatory action research: reflections on critical incidents in a PAR project. *J Assoc Pers Sev Handicaps* 1998; 23: 211–222.
19. Vaughn S, Schumm JS and Sinagub J. *Focus group interviews in education and psychology*. Thousand Oaks, CA: SAGE, 1996.
20. Frederickson N, Osborne LA and Reed P. Judgments of successful inclusion by education service personnel. *Educ Psychol* 2004; 24: 263–290.
21. Browning J, Osborne LA and Reed P. A qualitative comparison of stress in adolescents with and without autistic spectrum disorders as they approach leaving school. *Br J Spec Educ* 2009; 36: 36–43.
22. Osborne LA and Reed P. Parents' perceptions of communication with professionals during the diagnosis of autism. *Autism* 2008; 12: 259–274.
23. Gusi N, Olivares PR and Rajendram R. The EQ-5D quality of life questionnaire. In: Preedy V (ed.) *Handbook of disease burdens and quality of life measures*. London: Springer, 2010, pp.88–99.
24. Keith RA, Granger CV, Hamilton BB, et al. The functional independence measure: a new tool for rehabilitation. In: Eisenberg M, Grzesiak R (eds) *Advances in clinical rehabilitation*. New York: Springer Verlag, 1987, pp.6–18.
25. Goodman R. The Strengths and Difficulties Questionnaire: a research note. *J Child Psychol Psych* 1997; 38: 581–586.
26. Taniguchi H. Men's and women's volunteering: gender differences in the effects of employment and family characteristics. *Nonprof Volunt Sec Q* 2006; 35: 83–101.