

The development of a cancer genetic-specific measure of coping: the GRACE

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Abstract

Objective: Generic measures of coping fail to capture the process of undergoing specific health processes such as cancer genetic risk assessment. The Genetic Risk Assessment Coping Evaluation (GRACE) has been developed to provide greater specificity of measurement.

Method: Based upon previous research findings, the GRACE measures the degree of stress associated with 11 recognised sources of stress for individuals undergoing the early stages of cancer genetic risk assessment, and the use of up to eight coping strategies they may elicit. This paper reports preliminary data from the piloting of the GRACE within a randomised trial of a coping intervention.

Results: Of the 265 participants who completed and returned their baseline questionnaire (prior to being informed of their level of genetic risk), 257 completed the GRACE. The most highly endorsed sources of stress involved concerns relating to family members, endorsed by over 60% of respondents, and concerns about how the participants would cope if found to be at increased risk (59%). Participants made use of multiple coping strategies across different sources of stress. The most frequently reported coping strategies were emotion-focused, which may reflect the stage of the assessment process.

Conclusion: The completion rates for the matrix and specificity of responses provided suggest that the GRACE may be an acceptable measurement tool. Further data collection and validation is ongoing.

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Introduction

Although existing measures of coping have proven an effective means of examining the relationship between coping, mood, and health-related behaviour [1–4], they have a number of significant limitations. Many scales present a simple descriptor of the situation with which the individual is coping. This may be as broad as, ‘going through cancer genetic risk assessment’, ‘your risk level’, and so on. The person completing the scale is then asked to identify the extent to which they are using a large number of coping strategies to deal with the issue. Thus, the emphasis of standard coping measures is on the type of coping used rather than the nature of the stressor the individual is responding to. While this approach has a number of strengths, it may fail to capture the specific issues with which an individual is coping. Previous research with a similar cohort to the reported study

[5,6] has revealed that ‘Going through cancer genetic risk assessment’, for example, may include coping with anxiety concerning its outcome, distress caused by examining one’s family history, responding to other family members questions and concerns, and so on.

This lack of specificity makes it difficult to determine whether an individual is coping with all elements of the situation using the same or different coping strategies as well as the differential effectiveness of any coping efforts. In a study typical of this type, Bennett *et al.* [7] reported the coping data on women undergoing genetic risk assessment using the Medical Coping Modes Questionnaire [8], in which participants were asked to report their coping strategies ‘in relation to your cancer genetic risk assessment’. Their findings indicated that the participants used a variety of coping strategies, and a positive correlation between distress and the use of avoidant and acceptance–resignation coping.

However, it was not clear what coping strategies were used in relation to what elements of the 'cancer genetic risk assessment' process. The issue is further confounded in studies investigating individual differences in the processing of potentially threatening information in the form of monitoring versus blunting coping traits [9,10]. These studies asked the study participants to rate how they typically cope with stress—not the specific stress resulting from the situation they were coping with at a particular time. Such studies have generally found that individuals undergoing genetic counselling or testing who seek out information ('high monitors') appear to be more vulnerable to psychological distress than those who try to avoid such information ('low monitors', or 'blunters') [9,11,12]. This trait approach assumes that our coping responses are consistent both across situations and across time, with preferences for monitoring or blunting being resistant to change [13]. It is not clear that these assumptions are always correct.

Studies using qualitative methods may also fail to link elements of the stressful situation to specific coping strategies, providing solely descriptive data on specific strategies. Murphy [14], for example, described a range of problem-focused and emotion-focused coping strategies used by individuals to cope with 'living with the uncertainty of developing cancer'. Problem-focused coping efforts, designed to change the cause of distress, included the increased requests for screening, information searching and requests for genetic testing. Emotion-focused coping, designed to minimise the immediate experience of distress, included the fatalism and denial. Appleton *et al.* [15] explored the same issue, and reported the use of a number of coping strategies, including emotion-focused strategies (e.g. focusing on the present, avoiding potentially worrying breast cancer cues, positive reappraisal) and problem-focused strategies (e.g. information-seeking, adopting healthy behaviours, using alternative medicine), as well as the use of social and familial support. While the data they presented were rich and captured key coping strategies, their analysis did not consistently link specific coping strategies to specific issues related to living at risk.

Together, these various studies tell us that individuals undergoing cancer genetic risk assessment engage in a range of cognitive and behavioural coping strategies, which are both problem- and emotion-focused. They do not tell us the degree of stress associated with different elements of the genetic risk assessment process nor the specific strategies used in attempts to ameliorate the emotional impact of these differing stressors. These are important deficits within the literature, as Lazarus and Folkman's Transactional Theory of Stress and Coping [16] and the associated

'goodness-of-fit hypothesis' [17–19] both indicate that individuals benefit from the use of different coping strategies in relation to different types of stressors. Individuals are most likely to benefit from using problem-focused coping to deal with changeable aspects of the assessment process (e.g. completion of the family history questionnaire) and emotion-focused coping to deal with the more uncertain/unchangeable aspects of the assessment process (e.g. waiting for genetic risk assessment results). This level of detailed analysis requires a different approach to that adopted by traditional measures of coping.

A number of methods can be used to explore these issues. In the wider coping literature, Folkman and Moskowitz [20] suggested the use of narratives while Tennen *et al.* [21] and Ferguson [22] recommended the use of daily diary recordings to capture these processes over a number of weeks. Such methods help researchers to gain a deep understanding of how specific worries or concerns may lead to specific coping strategies, and how these may influence subsequent decision-making. However, neither approach is appropriate for large-scale population studies.

The present paper reports the development of a relatively simple instrument, the Genetic Risk Assessment Coping Evaluation (GRACE), designed to: (i) identify the degree of distress associated with a number of specific elements within the cancer genetic risk assessment process, and (ii) identify the range of coping strategies used to ameliorate the distress associated with each element. Unlike traditional coping measures, the GRACE focused on linking the use of a relatively small number of coping strategies to specific, stressful, aspects of the cancer genetic risk assessment process. The questions we addressed at this stage were: (i) is the GRACE acceptable to study participants? (ii) is there a consistent ranking of the stress associated with different elements of the cancer genetic risk assessment process? and (iii) do participants utilise the same or different coping strategies to cope with different stressors within the risk assessment process?

Method

The GRACE formed one measure in the Cancer Genetic Risk Assessment and Distraction (CARIAD) Trial, a psychological trial evaluating the effectiveness of a self-help coping intervention in individuals undergoing assessment for their genetic risk of developing breast/ovarian or bowel cancer through the Cancer Genetics Service for Wales (CGSW). The CARIAD Trial was an MRC Phase III randomised controlled trial, providing a long-term evaluation of the effectiveness of an intervention previously reported through an exploratory

work and a pilot trial [5,23]. The GRACE was one of the measures used within the wider CARIAD Trial. Other outcome measures included the Impact of Event Scale [24], the Positive and Negative Affect Scale [25] and the Life Orientation Test [26] in addition to demographic information. Ethical approval for CARIAD was granted by the Multi-Centre Research Ethics Committee for Wales.

The genetic risk assessment coping evaluation (GRACE)

The GRACE (see Appendix) was developed to track participant concerns and coping responses during the early stages of cancer genetic risk assessment, that is, between referral into a clinical genetics service and notification of level of risk. It asks participants to rate the degree of worry associated with 11 possible sources of stress (e.g. 'asking family members about cancer in the family', 'how you would cope if found to be at increased risk') using a four-point scale (not at all/not applicable–very much so), and which of eight coping strategies (see Table 1) they had used to cope with each stressor, ticking the relevant box(es) to indicate which were used. The questionnaire allows participants to identify one 'other' (self-defined) relevant stressor and/or coping strategy. The sources of stress were derived from previous findings of our research group, involving both focus group and written comments on sources of worry and concern during genetic risk assessment [5–7]. The coping strategies selected were partly empirically driven (allowing examples of both problem-focused and emotion-focused coping), and partly based on the findings of, and terminology used by participants in these studies. Table 1 demonstrates how the coping strategies selected for GRACE relate to those recognised widely in the coping literature. Before use in the present study, a draft version of the GRACE was completed by volunteers who had previously undergone genetic risk assessment, who commented on its content and usability.

Participants

During the CARIAD trial, all new referrals into CGSW (through regional centres at Cardiff, Swansea and North Wales) were randomised to receive either standard information alone or standard information plus a self-help coping leaflet. All referrals (male and female) were eligible for inclusion in the study unless fast-tracked or a rare cancer syndrome if known in advance. As typical of such Genetics Services, the vast majority of referrals were for breast and/or ovarian cancer, followed by bowel cancer. Postal questionnaires were sent to participants at three time-points (upon referral, one month later, and a month following the provision of risk information) to track key psychological responses to the assessment process. The data reported here are taken from the baseline questionnaire, which was completed prior to the receipt of the intervention and thus not confounded by the trial allocation.

Of the 265 participants who completed and returned their baseline CARIAD questionnaire at the time of the reported analysis, 257 completed the GRACE. Of these, 10 matrices were unable to be coded either due to missing data or being completed inaccurately, resulting in a final sample size of 247. Three participants provided valid 'other' responses for the sources of worry (concerns about insurance, fear of their own cancer returning and problems with immediate family being deceased). Seven participants provided valid 'other' responses for coping strategies (five responses indicating the seeking of medical advice, and two responses indicating behaviour change strategies such as stopping smoking, losing weight and increased exercise). Out of the 247 participants that completed the GRACE, 215 participants were female and 32 participants were male. Their mean age was 46.15 years (SD = 12.66).

Findings

The following results report the data from the 247 participants who completed the GRACE correctly.

Table 1. Coping strategies used in GRACE and how they link with widely recognised dimensions of coping

Higher-order category	Emotion-focused coping	Emotion-focused coping	Problem-focused coping	Emotion-focused coping	Emotion-focused coping	Social support	Emotion-focused coping	Problem-focused coping
Specific coping strategy	Distraction (avoidance)	Passive Acceptance	Information-seeking	Positive appraisal	Emotional expression	Social support (practical or emotional)	Positive role models	Planful problem-solving
GRACE description of coping strategy	I did things to take my mind off it	I accepted there was nothing I can do	I searched for more information about it	I focused on the positive aspects	I talked or wrote about how I felt	I sought support from family/friends	I thought of positive role models	I made a plan of action and followed it

Table 2. Proportion of participants reporting being 'quite a bit' or 'very much so' worried about each potential source of stress

	% indicating 'quite a bit/very much so' worried (N = 247)	
	%	n
The implications for family members if at increased risk	68	169
How family members would react if found to be at increased risk	65	161
How you would cope if found to be at increased risk	59	146
Possible decisions about surgery	47	118
Being able to get increased screening	46	114
Having to wait to find out your risk	45	110
The impact on your lifestyle if at increased risk	43	105
Asking family members about cancer in the family	38	93
Being eligible for genetic testing	35	87
Completing the Family History Questionnaire	34	84
Not understanding the risk assessment process	23	56

Table 2 reports the percentage of participants who reported that they were 'quite a bit' or 'very much so' worried about each potential stressor upon referral. These two response options were combined in order to provide an indication of those experiencing a considerable degree of worry about the relevant issues. Only three respondents indicated that they did not find any of the issues at all stressful.

As shown in Table 2, of note was that the most highly endorsed worries related to the implications of the risk assessment process for family members (over 60% of the sample). Participants reported less worry in relation to their own well-being, although between 43 and 59% of the sample reported personal worries about the implications of various aspects of being at risk. By contrast, the risk assessment process, whether it was completing the Family History Questionnaire used to determine initial level of risk, or concerns about understanding the risk assessment process, was the least endorsed stressor. Nevertheless, it still caused some degree of worry in over a fifth of those going through the risk assessment process.

Table 3 reports the coping strategies used by those participants who indicated that each stressor caused them 'quite a lot' or 'very much' worry. Together, these data confirm that these participants were making use of multiple coping strategies upon referral for cancer genetic risk assessment, and that the use of each coping strategy varied across the different sources of stress. Figure 1

summarises the relevant data, showing the mean number of participants (expressed as a percentage of the total reporting that stressor as causing 'quite a lot' or 'very much' worry) to use each strategy across the range of potential stressors.

Figure 1 shows that the most frequently used strategies of focusing on the positive, and seeking support from family and friends were used widely in response to a number of different stressors. However, as shown in Table 3 there is a wide variation in the use of these strategies among those who indicated that they were 'quite a bit' or 'very much so' worried about these issues. Making use of support from family and friends was used by 60% of those who expressed concern about the implications for family, and by around a fifth of those who expressed quite a bit or very much worry in response to other issues more relevant to medical and service issues: 24% for getting genetic testing and 18 percent for increased screening, respectively. There was less variance in the use of seeking out the positive (range 24–48%). The least used coping strategy involved making a plan and following it (range 5–16%). Similarly, talking or writing about how they felt was a rarely used strategy at this stage (range 10–20%). Participants' use of other strategies, including distraction, and passive acceptance, varied considerably across the various stressors, and did so in a logical manner. Concerns about the future such as how they would cope if found to be at increased risk, for example (which was found to be a source of quite a lot or very much stress by 59% of the total GRACE sample), were responded to largely by emotion-focused coping: focusing on the positive aspects of the situation (48%), gaining support from family and friends (38%) and thinking about positive role models (24%). Nevertheless, a minority of these individuals also engaged in problem-focused coping by developing an action plan to follow after they were made aware of their risk (15%). By contrast, the stress of waiting for risk information (reported as causing quite a bit or very much worry by 45% of the total GRACE sample) was largely dealt with by passive acceptance (49%), positive appraisal (35%), support from family and friends (36%) and distraction (28%). Information seeking was a strategy most often used when thinking about future testing, potential surgery, and screening options (reported by 32, 27 and 22% of those reporting these issues as causing quite a bit or very much worry, respectively).

Discussion

This paper has reported preliminary descriptive data from the GRACE. We believe that the questionnaire provides useful data that can help researchers, counsellors and clinicians to better

Table 3. Number of participants reporting each stressor as causing quite a lot or very much worry, and a range of coping strategies used

	Number reporting as 'quite a lot' or 'very much so' stressful	n (%) of those finding each stressor 'quite a lot' or 'very much so' stressful to make use of each coping strategy									
		I did things to take my mind off it	I accepted there was nothing I can do	I searched for more information about it	I focused on the positive aspects	I talked or wrote about how I felt	I sought support from family/friends	I thought of positive models	I made a plan of action and followed it		
Not understanding the risk assessment process	56	9 (16.1%)	14 (25%)	17 (30.4%)	21 (37.5%)	11 (19.6%)	19 (33.9%)	12 (21.4%)	4 (7.1%)		
Having to wait to find out my risk	110	31 (28.2%)	54 (49.1%)	14 (12.7%)	38 (34.5%)	13 (11.8%)	39 (35.5%)	16 (14.5%)	5 (4.5%)		
Completing the Family History Questionnaire	84	10 (11.9%)	13 (15.5%)	19 (22.6%)	26 (31%)	9 (10.7%)	38 (45.2%)	10 (11.9%)	8 (9.5%)		
Asking family members about cancer in family	93	6 (6.5%)	19 (20.4%)	29 (31.2%)	22 (23.7%)	15 (16.1%)	55 (59.1%)	11 (11.8%)	7 (7.5%)		
How I would cope if found to be at increased risk	146	20 (13.7%)	34 (23.3%)	35 (24%)	70 (47.9%)	25 (17.1%)	56 (38.4%)	35 (24%)	22 (15.1%)		
How family members would react if found to be at increased risk	161	17 (10.6%)	23 (14.3%)	19 (11.8%)	59 (36.6%)	21 (13%)	47 (29.2%)	23 (14.3%)	13 (8.1%)		
Being eligible for genetic testing	87	13 (14.9%)	12 (13.8%)	28 (32.2%)	36 (41.4%)	9 (10.3%)	21 (24.1%)	12 (13.8%)	7 (8%)		
Possible decisions about surgery	118	21 (17.8%)	26 (22%)	32 (27.1%)	37 (31.4%)	18 (15.3%)	40 (33.9%)	23 (19.5%)	11 (9.3%)		
Being able to get in creased screening	114	6 (5.3%)	10 (8.8%)	25 (21.9%)	46 (40.4%)	12 (10.5%)	20 (17.5%)	10 (8.8%)	6 (5.3%)		
The impact on my lifestyle	105	18 (17.1%)	21 (20%)	11 (10.5%)	33 (31.4%)	17 (16.2%)	35 (33.3%)	20 (19%)	17 (16.2%)		
if found to be at increased risk											
The implications for family members if at increased risk	169	21 (12.4%)	23 (13.6%)	34 (20.1%)	51 (30.2%)	29 (17.2%)	61 (36.1%)	22 (13%)	14 (8.3%)		

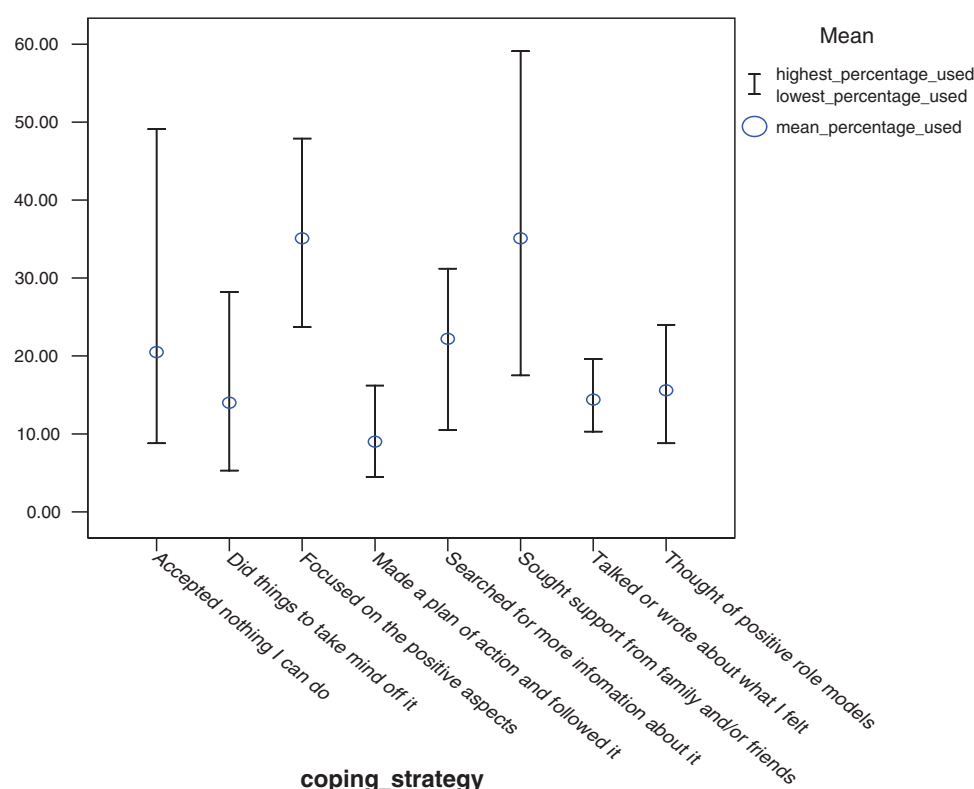


Figure 1. Range and mean percentage of the various coping strategies used in response to differing sources of worry

understand what factors contribute to the stress arising from the process of cancer genetic risk assessment, and the ways in which individuals cope with them. It also allows the possibility of identifying individuals who use what may be appropriate or inappropriate coping strategies.

Overall, the data provide two new insights into the stress and coping processes associated with undergoing cancer genetic risk assessment. First, the data revealed a clear hierarchy of stressors associated with the risk assessment process, the most important of which involved concerns about the implications of risk for other family members, and how they would cope if the individual was found to be at increased risk of developing cancer. Ranked slightly below this were concerns about how the individuals would themselves cope if found to be at increased risk. The least reported worry, although still endorsed by over a fifth of the respondents, was not understanding the risk assessment process. Second, the data show that participants coped with different elements of the risk assessment process in different ways. Although the most consistently reported coping strategies involved emotion-focused strategies and gaining support from family and friends, participants did vary their use of coping strategies according to the specific demands stemming from differing aspects of the risk assessment process. Coping with

concerns about the future involved, for example, focusing on the positive aspects of the situation, thinking about positive role models, and gaining support from family and friends. The stress of waiting for risk information was largely dealt with by distraction, passive acceptance, positive appraisal and support from family and friends. The least frequently endorsed coping strategy involved 'planful problem solving'. This may be indicative of the early stage of the risk assessment process currently the focus of the GRACE. As such, the data suggest that for much of the time, the coping efforts made by participants matched the specific coping demands of the risk assessment process. These findings lend support to the goodness-of-fit hypothesis and the value of coping effectiveness training [17–19]. These data offer a new depth of understanding of the precise nature of how individuals cope with specific issues relating to genetic assessment, and a level of description not previously possible in other studies using existing coping measures. Future analysis will permit an assessment of whether those individuals who engage in unmatched coping (i.e. problem-focused coping in response to issues that cannot be resolved in this way) experience more distress than those individuals whose coping efforts are better matched to the demands of the situation.

Methodological considerations

The data reported here were taken in the context of a randomised controlled trial of a self-help intervention. It is important to reiterate here that at the time baseline data were collected, participants had not received either arm of the intervention and thus their responses could not be confounded by the intervention.

The completion rates and specificity of responses suggests that the GRACE is an acceptable measurement tool. Only eight participants of the 265 returning our CARIAD questionnaires failed to attempt to complete the GRACE, and of those who did attempt to complete it, data from only 10 questionnaires were not entered into the analysis due to incorrect or incomplete responses. This suggests that the GRACE may have reasonable face and content validity among individuals facing the genetic risk assessment process.

Implications for clinical practice

We believe that in addition to the GRACE being a useful research instrument, it is also a potentially useful tool for cancer genetic clinicians and counsellors. By identifying which specific elements of the cancer genetic risk assessment process cause the most distress, improvements in service delivery or areas needing increased psychological support can be identified and the impact of any resultant changes measured. The GRACE could therefore potentially be used as an individual screening tool, to help Genetic Counsellors know how, where and when to target information and support for specific

individuals, as well as an outcome measure to identify whether and how people change their coping as a response to counselling or other types of psychological intervention.

Conclusions

While mainly descriptive, the data reported here provide sound support for the potential clinical and research utility of the GRACE. It affords the possibility of breaking down an ongoing stressful event into its component parts, and identifying the ways in which individuals choose to cope with these demands. Future analyses will explore the association with psychological distress and wider emotional responses. There is no reason why the GRACE cannot be adapted and utilised for different aspects of familial cancer/genetic conditions such as coping with predictive genetic testing or awaiting surgery.

Appendix

C. Your coping methods

We are interested in finding out about the various ways in which you may try and cope with undergoing cancer genetic risk assessment. Please indicate **to what extent, if any**, you have worried about the following issues, and if so, what you have **done or thought** to deal with these worries.

A. Since your referral, have you had any worries about the following:		B. For each worry you have had, please select from the options below to indicate the most frequent things you have done or thought to try and deal with it. Please tick all that apply.								
For each item below, please circle the appropriate number in the adjacent box		I did things to take my mind off it	I accepted there was nothing I can do	I searched for more information about it	I focused on the positive aspects	I talked or wrote about how I felt	I sought support from family and/or friends	I thought of positive role models	I made a plan of action and followed it	Other (please describe)
0= not at all/not applicable 1 = a little 2 = quite a bit 3= very much so										
EXAMPLE: implications for family	0 1 2 3			✓	✓				✓	
Not understanding the risk assessment process	0 1 2 3									
Having to wait to find out your risk	0 1 2 3									
Completing the Family History Questionnaire	0 1 2 3									
Asking family members about cancer in the family	0 1 2 3									
How you would cope if found to be at increased risk	0 1 2 3									
How family members would react if found to be at increased risk	0 1 2 3									
Being eligible for genetic testing	0 1 2 3									
Possible decisions about surgery	0 1 2 3									
Being able to get increased screening	0 1 2 3									
The impact on your lifestyle if at increased risk.	0 1 2 3									
The implications for family members if at increased risk	0 1 2 3									
Other (please describe)	0 1 2 3									

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References

1. Beasley M, Thompson T, Davidson J. Resilience in response to life stress: the effects of coping style and cognitive hardiness. *Pers Individ Differences* 2003;**34**: 77–95.
2. De Ridder D, Schreurs K. Developing interventions for chronically ill patients: is coping a helpful concept? *Clin Psychol Rev* 2001;**21**:205–240.
3. Lazarus RS. *Psychological Stress and the Coping Process*. New York: McGraw-Hill, 1966.
4. Baider L, Andritsch E, Uziely B *et al.* Effects of age on coping and psychological distress in women diagnosed with breast cancer: review of literature and analysis of two different geographical settings. *Crit Rev Oncol Hematol* 2003;**46**:5–16.
5. Phelps C, Bennett P, Iredale R, Anstey S, Gray J. The development of a distraction-based coping intervention for women waiting for genetic risk information: a phase 1 qualitative study. *Psycho-Oncology* 2006;**15**(2): 169–173.
6. Phelps C, Wood F, Bennett P, Brain K, Gray J. Knowledge and expectations of women undergoing cancer genetic risk assessment: a qualitative analysis of free-text questionnaire comments. *J Genet Couns* 2007;**16**(4):505–514.
7. Bennett P, Wilkinson C, Turner J *et al.* Psychological factors associated with emotional responses to receiving genetic risk information. *J Genet Couns* 2008;**17**:234–241.
8. Feifel H, Strack S, Nagy VT. Coping strategies and associated features of medically ill patients. *Psychosom Med* 1987;**49**:616–625.
9. Tercyak KP, Lerman C, Peshkin BN *et al.* Effects of coping style and BRCA1 and BRCA2 test results on anxiety among women participating in genetic counseling and testing for breast and ovarian cancer risk. *Health Psychol* 2001;**20**(3):217–222.
10. Miller SM. To see or not to see: cognitive information styles in the coping process. In *Learned Resourcefulness on Coping Skills, Self Control and Adaptive Behaviour*, Rosenbaum M (ed.). Springer: New York, 1990.
11. Nordin K, Liden A, Hansson M, Rosenquist R, Berglund G. Coping style, psychological distress, risk perception, and satisfaction in subjects attending genetic counselling for hereditary cancer. *J Med Genet* 2002;**39**:689–694.
12. Schwartz M, Lerman C, Miller S, Daly M, Masny A. Coping disposition, perceived risk, and psychological distress among women at increased risk for ovarian cancer. *Health Psychol* 1995;**14**(3):232–235.
13. Lerman C, Schwartz M, Miller S, Daly M, Sands C, Rimer B. A randomized trial of breast cancer risk counseling: interacting effects of counseling, educational level, and coping style. *Health Psychol* 1996;**15**(2):75–83.
14. Murphy AE. Dealing with the uncertainty of getting cancer. *Eur J Cancer Care* 1999;**8**:233–237.
15. Appleton S, Fry A, Rees G, Rush R, Cull A. Psychosocial effects of living with an increased risk of breast cancer: an exploratory study using telephone focus groups. *Psycho-Oncology* 2000;**9**:511–521.
16. Lazarus RS, Folkman S. *Stress, Appraisal and Coping*. Springer: New York, 1984.
17. Forsythe C, Compas B. Interaction of cognitive appraisals of stressful events and coping: testing the goodness of fit hypothesis. *Cogn Ther Res* 1987;**11**:473–485.
18. Chesney M, Chambers D, Taylor J, Johnson L, Folkman S. Coping effectiveness training for men living with HIV: results from a randomized clinical trial testing a group-based intervention. *Psychosom Med* 2003;**65**:1038–1046.
19. Kennedy P, Duff M, Evans M, Beedie A. Coping effectiveness training reduces depression and anxiety following traumatic spinal cord injuries. *Br J Clin Psychol* 2003;**42**(1):41–52.
20. Folkman S, Moskowitz J. Coping: pitfalls and promise. *Annu Rev Psychol* 2004;**55**:745–774.
21. Tennen H, Affleck G, Armeli S, Carney MS. A daily process approach to coping: linking theory, research and practice. *Am Psychol* 2000;**55**:626–639.
22. Ferguson E. The use of diary methods in clinical and health psychology. In *A Handbook of Research Methods in Clinical and Health Psychology*, Mills J, Gilbert P (eds). Oxford University Press: Oxford, 2005; 111–124.
23. Bennett P, Phelps C, Brain K, Hood K, Gray J. A randomised controlled trial of a brief self-help coping intervention designed to reduce distress when awaiting genetic risk information. *J Psychosom Res* 2007;**63**(1):59–64.
24. Horowitz M, Wilner N, Alvarez W. Impact of event scale: a measure of subjective stress. *Psychosom Med* 1979;**41**:209–218.
25. Watson D, Clark LA, Tellegen A. Development and validation of brief measures of positive and negative affect: the PANAS scales. *J Pers Soc Psychol* 1988;**54**:1063–1070.
26. Scheier MF, Carver CS. Effects of optimism on psychological and physical well-being: theoretical overview and empirical update. *Cogn Ther Res* 1992;**16**:201–228.