Life context and the experience of chronic illness: is the stress of life associated with illness perceptions and coping?

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Summary
Stress resulting from the broader life context (life stress) is involved in the development and progress of many diseases, as well as in the adjustment to chronic illness. It may also be associated with the specific ways patients perceive and respond to illness. In this respect, the purpose of this study was to examine the possible relationships between life stress, and illness-related perceptions and coping. A cross-sectional design was employed. Participants completed measures regarding life stress, illness perceptions, illness-related coping and restrictions imposed by the illness. One hundred and one chronically ill outpatients participated in the study. Their mean age was 51.10 years (SD = 12.88), and the mean time elapsed since initial diagnosis was 12.74 years (SD = 9.32). According to the results, life stress was associated with certain illness perceptions (i.e. personal control over illness, illness consequences) and illness-related coping strategies (i.e. palliative coping, emotional reactions), even after controlling for sociodemographic variables and illness-associated factors. Moreover, illness consequences mediated the effects of life stress on the two coping strategies. These results underline the significance of the broader life context regarding the experience of chronic illness. Copyright © 2009 John Wiley & Sons, Ltd.

Key Words
life stress; illness perceptions; coping; chronic illness

Introduction
Stress is a major side of human life that affects almost every aspect of functioning, including health and illness (Cruess, Schneiderman, Antoni, & Penedo, 2004). There is strong evidence suggesting that stressful conditions are involved in the development and progress of many chronic diseases (Irwin, 2002; Kiecolt-Glaser, McGuire, Robles, & Glaser, 2002; Kubzansky & Kawachi, 2000), as well as in the adjustment to chronic illnesses (Cruess et al., 2004; Luecken & Compas, 2002). However, to our knowledge, there is no research concerning the particular association
between the general stress resulting from the life context and the ways a patient experiences medical illness. The purpose of this study was to examine the relationship between life stress and two main aspects of the chronic illness experience: illness perceptions and coping.

Chronic illness can be a very aversive experience that may impact almost every aspect of the patient’s life (Stewart, Ross, & Hartley, 2004). At the same time, it is affected by a range of factors, including the past and current life conditions, personal characteristics, several contextual factors etc. (Martin & Leventhal, 2004; Sperry, 2006). One such factor might also be life stress.

Most stressful experiences are not isolated events (Monroe & Roberts, 1990). Almost every stressful condition takes place in the person’s life context and it is defined by it (Moos & Swindle, 1990). People evaluate and react to significant stressors based on their previous experience, and after considering the broader context of their life. Existing difficulties, available resources, ongoing responsibilities and activities, personal goals and characteristics are all involved in the effort to assess and deal with a problem (Lazarus & Folkman, 1984; Lazarus, 1999). In this respect, the experience of a chronic illness does not take place in a vacuum, but it is bursting in the patient’s life context. In the same vein, it is also possible that perceptions a person holds about illness and the specific ways he/she uses to deal with it are associated with the stress experienced in other domains of life, such as work or family. For example, a patient who experiences a great burden in his family life may perceive, feel and react to a health problem in a different way compared with another patient with no family difficulties.

The stress that results from the broader life context may impact the experience of illness through several pathways: by using up available coping resources (for instance, a family crisis may result in a significant reduction in available social support); by impinging on the health problem and overall well-being either directly (i.e. through physiological pathways) or indirectly (through changes in health behaviours) (Baum & Poslusnzy, 1999; Cruess et al., 2004); and by triggering negative emotions and dysfunctional thoughts (e.g. pessimistic evaluations), which in turn may impact cognitions and emotions about illness.

Our aim was to examine the association between stress experienced in several life domains and the illness perceptions and coping strategies of chronic patients, which are significant parts of the chronic illness experience. When confronted with a disease, patients create certain perceptions of their health condition, in order to make sense of and manage the problem (Leventhal, Meyer, & Nerenz, 1980). According to the well-known Common Sense Model of illness (Leventhal et al., 1980; Martin & Leventhal, 2004), there is a causal association between illness perceptions and illness-related coping strategies, as well as between perceptions and health outcomes and adjustment to illness (Leventhal et al., 1980). A significant body of research has demonstrated these relations (for a review, Hagger & Orbell, 2003). Also, numerous studies have demonstrated the close relationship between coping and health outcomes (e.g. Jim, Richardson, Golden-Kreutz, & Andersen, 2006; Shen, Myers, & McCreary, 2006).

With respect to this study, we assumed that greater life stress exacerbates the aversiveness of the illness experience and, consequently, impacts illness perceptions and coping strategies. Thus, our first hypothesis was that illness perceptions and coping strategies are associated with the stress experienced by patients in other domains of their life (referred to as life stress in the remainder). Moreover, we hypothesized that life stress is related to illness perceptions and coping, even after controlling for demographic variables and the restrictions imposed by ill-health, both of which have a significant impact on the experience of the illness (Endler, Parker, & Summerfeldt, 1993; Martin & Leventhal, 2004). Furthermore, if life stress is associated with illness perceptions, which are linked to coping strategies (Leventhal et al., 1980), then it is also possible that illness perceptions represent a pathway through which life stress affects illness-related coping. Thus, a second hypothesis was that illness perceptions act as a mediator in the relationship between life stress and coping strategies, even after removing the possible effects of demographic variables and the restrictions imposed by ill-health.

Method

Participants and procedure

Participants were medical patients who were suffering from a chronic disease and were visiting the facilities of a general hospital for a scheduled appointment. All visitors to these facilities during
the study period (5 days) were invited to participate in our study. Patients over 70 years of age, as well as those who were facing severe communication difficulties were excluded from the study. Almost 70 per cent of the outpatients agreed to participate and they completed the study questionnaires before entering the physician’s office. Those who refused to take part in the study stated that they were not interested. There were no significant differences concerning gender, age and type of disease between those who agreed to participate and those who refused. The final sample consisted of 101 outpatients, 38 males (37.6 per cent) and 63 females (62.4 per cent). Their mean age was 51.10 years (SD = 12.88). The majority was suffering from a cardiovascular problem (36.6 per cent), 12.9 per cent were suffering from chronic pain and 11.9 per cent were suffering from chronic respiratory problems. Also, 10.8 per cent were suffering from arthritis, 6.9 per cent reported hormonal problems, 5 per cent diabetes, while the remainder reported several other chronic problems. The mean time elapsed since first diagnosis for the entire sample was 12.74 years (SD = 9.32). Regarding marital status, 65.4 per cent were married and living with their families, 15.9 per cent were divorced or windowed and 18.7 per cent were singles. Also, 46.5 per cent had finished the mandatory education or some grades, 18.8 per cent had finished high school and 34.7 per cent were holders of a higher education degree. The study was approved by the Ethics Committee of the hospital, while all participants signed an informed consent form before completing the measures of the study.

Measures

Coping strategies. Although in many relevant studies, general measures of coping have been used (such as the COPE; Carver, Scheier, & Weintraub, 1989), these questionnaires were not constructed to measure illness-related coping strategies, but rather general strategies for various stressful situations. Therefore, we measured illness-related coping strategies with an instrument specifically designed for this purpose, the Coping with Health Injuries and Problems Scale (CHIP; Endler, Parker, & Summerfeldt, 1998), as adapted in Greek (Karademas, Zarogiannos, Stravodimos, Glyfopoulos, & Constadinides, in press). CHIP is a valid and reliable multidimensional scale (Endler et al., 1998). The Greek version of the questionnaire consists of five factors: instrumental coping, which is corresponding to problem solving coping and includes strategies, such as information seeking or looking for medical help (eight items; e.g. find out more information; Cronbach α = 0.68); adherence to medical advice (four items; e.g. comply with advice; Cronbach α = 0.69); palliative coping, which represents a rather soothing strategy aiming in reducing the unpleasantness of the health problem (four items; e.g. stay in bed, rest when tired; Cronbach α = 0.73); wishful thinking and daydreaming, which is an emotion-focused strategy (five items; e.g. wished it had not happened, fantasize about being healthy; Cronbach α = 0.71); and emotional reactions that refers to the emotional consequences of the illness (four items; e.g. feel angry, worry about my health; Cronbach α = 0.76). Participants were asked to respond in relation to their own health problem and with respect to the last few weeks by using a five-point frequency Likert-type scale ranging from 1 (not at all) to 5 (very much).

Illness-related perceptions. Illness-related perceptions were measured with the Brief Illness Perception Questionnaire (Brief IPQ) (Broadbent, Petrie, Main, & Weinman, 2006). The Brief IPQ is based on the Revised IPQ (Moss-Morris, Weinman, Petrie, Horne, & Cameron, 2002) and it aims to be a very short and simple measure of current illness perceptions. It uses a single-item approach to assess perceptions on a continuous scale ranging from 0 to 10. It consists of eight items assessing consequences (possible negative consequences of the health condition), time line (beliefs that illness will last a long time), personal control (an evaluation about the degree to which there is personal control over the illness), treatment control (an evaluation about the efficacy of the treatment to manage illness), identity (that is, the severity of illness symptoms), illness comprehensibility (the patient’s ability to make sense of the illness), concern and emotions (negative emotions resulted from the health problem). The two latter items, which refer to emotional reactions, were not used in this study to avoid confounding with the emotional reactions subscale of the CHIP Scale.

Life stress. To assess life stress, we needed a simple and brief measure that patients could effortlessly complete. Moreover, this measure should cover all major aspects of a person’s life.
Therefore, we created a life stress scale that was based on the Life Stressors and Social Resources Inventory (LISRES; Moos, Fenn, & Billings, 1988; Moos & Swindle, 1990), which is the result of a long theoretical and empirical work. We asked participants to rate the degree of stress they experienced during the past few weeks in seven life domains similar to those tapped in LISRES. We did not include personal physical health stressors in order to avoid confounding with the illness-related variables used in the study. To further decrease respondent burden, we used a single question to assess the overall stress experienced in each of the life domains (i.e. work/occupation, spouse/partner, family, close family members’ health, friends and social relationships, home and neighborhood, and financial issues). Participants replied by using a four-point Likert-type scale ranging from 1 (no stress at all) to 4 (very intensive stress). Replies in each domain were added up to form an overall life stress score (Cronbach $\alpha = 0.80$).

Illness-related restrictions. Illness-related restrictions were assessed with the EQ-5D measure of health-related quality of life (Szende & Williams, 2004). EQ-5D is a well-known instrument that measures quality of life on five dimensions (mobility, self-care, usual activities, pain/discomfort and anxiety/depression). Participants were asked to indicate whether they currently had no, some or many problems (levels 1–3) concerning the five areas described above. The data on the five dimensions is not continuous but ordinal. However, because the number of persons reporting severe problems is usually very small, the reported sum of levels 2 and 3 is frequently used (Szende & Williams, 2004). Dimension 5 (anxiety/depression) was not used in this study to avoid confounding with the emotional reactions subscale of the CHIP.

Results

Preliminary results

Regarding illness-related restrictions, 66 participants (65.3 per cent) reported no problems with mobility, whereas 35 (34.7 per cent) reported some or severe problems; 93 (92.1 per cent) reported no problem with self-care, while only eight (7.9 per cent) reported some problems; 68 (67.3 per cent) reported no problem with usual activities and 33 (32.7 per cent) reported some or severe problems; finally, 32 participants (31.7 per cent) reported no pain/discomfort, whereas 69 (68.3 per cent) reported some or severe pain/discomfort. Self-care was dropped from further analysis, as the vast majority of the participants reported no relevant problem. In the same way, the second item of the Brief IPQ (time line) was omitted from the analyses due to extreme skewness (almost 85 per cent of the participants reported values equal or higher to eight).

Life stress and illness-related variables

Table I presents the correlations between illness perceptions, coping strategies and life stress. Life stress was positively correlated to the ‘consequences’ item of the Brief IPQ, but negatively to personal control and treatment control. Correlations were low to average (Pearson coefficients were around 0.25). Regarding coping, life stress was significantly correlated to palliative strategies ($r = 0.33$, $p < 0.01$), as well as to emotional reactions ($r = 0.25$, $p < 0.05$).

To examine whether life stress is associated with illness perceptions, even after controlling for demographic and illness-related variables, a series of hierarchical regression analyses were performed, with each of the illness perceptions serving as the dependent variable, and gender, age, education, marital status (entered on step 1), time elapsed since initial diagnosis and illness-related restrictions (entered on step 2), and life stress (entered on step 3), as the independent variables. As shown in Table II, life stress accounted for a significant proportion of the variance in the cases of personal control and illness consequences. With respect to coping strategies, the same regression analyses were employed. According to the results (see Table II), life stress accounted for a significant proportion of the variance in palliative coping strategies, and in emotional reactions.

In order to determine whether illness perceptions mediated the effects of life stress on coping strategies, the linear hierarchical regression model proposed by Baron and Kenny (1986) was performed. According to this model, a mediation is established when (a) the predictor variable is correlated with the outcome variable; (b) the predictor variable is related to the mediator; and (c) the mediator affects the outcome variable, controlling for the predictor variable. A partial media-
Table I. Descriptive statistics and intercorrelations of illness perceptions, coping strategies and life stress (n = 101).

<table>
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<th>10</th>
<th>11</th>
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<tr>
<td>Consequences</td>
<td>1.00</td>
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<tr>
<td>Personal control</td>
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<td>1.00</td>
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<tr>
<td>Treatment control</td>
<td>-0.07</td>
<td>0.42**</td>
<td>1.00</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Illness identity</td>
<td>0.40**</td>
<td>-0.11</td>
<td>-0.12</td>
<td>1.00</td>
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<tr>
<td>Comprehensibility</td>
<td>-0.04</td>
<td>0.20*</td>
<td>0.04</td>
<td>0.26**</td>
<td>1.00</td>
<td></td>
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<tr>
<td>Instrumental coping</td>
<td>0.31*</td>
<td>0.12</td>
<td>0.07</td>
<td>0.33**</td>
<td>0.29*</td>
<td>1.00</td>
<td></td>
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<tr>
<td>Adherence</td>
<td>0.36**</td>
<td>0.02</td>
<td>0.06</td>
<td>0.26**</td>
<td>0.10</td>
<td>0.41**</td>
<td>1.00</td>
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<tr>
<td>Palliative coping</td>
<td>0.46**</td>
<td>-0.16</td>
<td>-0.15</td>
<td>0.55**</td>
<td>0.13</td>
<td>0.47**</td>
<td>0.39**</td>
<td>1.00</td>
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<tr>
<td>Wishful thinking</td>
<td>0.55**</td>
<td>-0.08</td>
<td>-0.04</td>
<td>0.34**</td>
<td>0.01</td>
<td>0.36**</td>
<td>0.24*</td>
<td>0.29**</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional reactions</td>
<td>0.52**</td>
<td>-0.16</td>
<td>-0.02</td>
<td>0.41**</td>
<td>0.06</td>
<td>0.37**</td>
<td>0.31**</td>
<td>0.48**</td>
<td>0.52**</td>
<td>1.00</td>
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<tr>
<td>Life stress</td>
<td>0.25*</td>
<td>-0.25*</td>
<td>-0.24*</td>
<td>0.14</td>
<td>-0.16</td>
<td>-0.02</td>
<td>0.11</td>
<td>0.33**</td>
<td>0.18</td>
<td>0.25</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Mean 6.41 5.92 7.13 6.46 7.75 3.33 3.70 2.64 3.43 3.08 13.59
SD 2.39 2.48 2.28 2.65 2.11 0.74 0.80 0.89 0.95 0.95 5.12

*p < 0.05; **p < 0.01.
SD: standard deviation.

Table II. Summary of hierarchical regression analyses for variables predicting illness perceptions and coping strategies (n = 101).

<table>
<thead>
<tr>
<th></th>
<th>Step 1—demographics</th>
<th>Step 2—illness-related variables (time since diagnosis, restrictions)</th>
<th>Step 3—life stress</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( \Delta R^2 )</td>
<td>( F_{\text{change}} (df) )</td>
<td>( \Delta R^2 )</td>
</tr>
<tr>
<td>Perceptions</td>
<td></td>
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</tr>
<tr>
<td>Consequences</td>
<td>0.04</td>
<td>1.07 (4, 95)</td>
<td>0.04</td>
</tr>
<tr>
<td>Personal control</td>
<td>0.07</td>
<td>1.83 (4, 95)</td>
<td>0.02</td>
</tr>
<tr>
<td>Treatment control</td>
<td>0.09</td>
<td>2.23 (4, 95)</td>
<td>0.09</td>
</tr>
<tr>
<td>Illness identity</td>
<td>0.02</td>
<td>0.44 (4, 95)</td>
<td>0.26</td>
</tr>
<tr>
<td>Comprehensibility</td>
<td>0.08</td>
<td>1.94 (4, 95)</td>
<td>0.07</td>
</tr>
<tr>
<td>Coping strategies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instrumental</td>
<td>0.01</td>
<td>0.20 (4, 95)</td>
<td>0.13</td>
</tr>
<tr>
<td>Adherence</td>
<td>0.06</td>
<td>1.55 (4, 95)</td>
<td>0.02</td>
</tr>
<tr>
<td>Palliative coping</td>
<td>0.02</td>
<td>0.48 (4, 95)</td>
<td>0.13</td>
</tr>
<tr>
<td>Wishful thinking</td>
<td>0.10</td>
<td>2.75* (4, 95)</td>
<td>0.12</td>
</tr>
<tr>
<td>Emotional reactions</td>
<td>0.09</td>
<td>2.32 (4, 95)</td>
<td>0.09</td>
</tr>
</tbody>
</table>

In step 1 (demographics), gender, age, marital status and educational level were entered; marital status coding: 1 = living with family, 2 = living alone; educational level coding: 1 = high school or lower, 2 = higher education. In step 2 (illness-related variables), illness-related restrictions were coded as follows: 1 = no problems, 2 = some or severe problems.

* p < 0.05; ** p < 0.01.
df: degrees of freedom.
mediated the effects of life stress on palliative coping, as well as emotional reactions.

Discussion

The purpose of this study was to examine the association between life stress and the experience of a chronic illness. Stress is an inevitable aspect of life and its impact on functioning and well-being is undoubted (Cruess et al., 2004). Thus, a strong relationship between the stress of life and the ways medically ill patients experience their health condition is possible as well. In this study, we focused on two important components of the chronic illness experience: illness perceptions and illness-related coping. Our basic assumption was that life stress intensifies the aversiveness of the illness experience and, thus, is related to illness perceptions and coping strategies. The findings provided support to our hypotheses. Life stress was indeed found to be associated with certain illness perceptions and coping strategies. Furthermore, an illness perception (i.e. consequences) completely mediated the relation of life stress to coping strategies.

Regarding illness perceptions, life stress was positively related to consequences, and negatively to personal and treatment control. Higher levels of life stress were associated with perceptions of worst consequences and less control over the illness. Life conditions possibly put a greater burden on patients and, as a result, they evaluate the impact of the illness as more severe, and control over it as less feasible. Although the strength of these relations was quite modest (Pearson’s coefficients were smaller than 0.30), life stress was associated with personal control and consequences, even after controlling for sociodemographic variables and restrictions imposed by ill-health.

The ways a person perceives a stressful situation are emerging from a composite process of interaction between personal factors, environmental conditions and the specific characteristics of the situation (Lazarus, 1999). In other words, perceptions about a particular stressor and personal life context are inextricable and, consequently, perceptions vary as the broader life frame changes. This seems to be also the case for the illness experience. Our results point to the possibility that when patients develop illness perceptions, they take into consideration their broader life context. Nevertheless, the relation of life context to illness perceptions is probably more ‘distant’ than the relation of other ‘closer’ factors (such as disease characteristics) and, therefore, weaker. That might be the reason for the modest correlation between life stress and illness perceptions.

With respect to the illness-related coping strategies, we found that life stress was related to palliative coping and emotional reactions, even after controlling for demographic variables and restrictions imposed by the illness. Higher stress levels were associated with more use of soothing strategies aiming in reducing the discomfort stemming from the illness (e.g. stay in bed). A possible explanation for this finding might be that higher stress levels cause patients additional troubles, which seriously tax personal resources. In such cases, patients may choose a strategy that seems suitable to help them restore or preserve their strength and energy.

Besides palliative coping, higher life stress was associated with the expression of more negative emotions, including fear and worry about the illness. This finding is indicative of the negative effect that life stress has on the ways a patient experiences illness. Furthermore, results demonstrate the possible role of life stress in adjustment to illness and health outcomes, given that emotional reactions are a critical factor for both (e.g. Compas & Luecken, 2002).

It is a question, however, why life stress was not associated with other similarly important coping strategies, such as instrumental (problem-focused) coping and adherence to medical advice.
Life stress and illness experience

These strategies refer to specific actions that the patient may undertake in order to deal with health problems. Hence, it is possible that they are more strongly associated with perceptions, emotions or beliefs about the illness, than with the more ‘distant’ life stress. Indeed, according to the results, instrumental coping and adherence were significantly related to certain illness perceptions (i.e. illness consequences, identity and illness comprehensibility).

An interesting finding of this study was that illness consequences completely mediated the association between life stress, and palliative coping and emotional reactions. In other words, stress resulting from everyday life was not directly associated with illness-related coping, but through illness perceptions. As illness consequences were the only mediator, findings suggest that higher levels of stress are linked to a perception of a more life-aggravating illness, which in turn is related to more worry about health, as well as more use of palliative strategies in order to deal with this negative experience.

In summary, the results of the present study provided a groundwork support to our assumptions that patients perceive and cope with their health problems while considering their broader life context. Despite the fact that this study examined only a one-direction relationship, we have to underline that the association between life stress and the experience of illness is clearly a bidirectional one. It is pretty much possible that the problems stemming from ill-health also impact the ways persons evaluate the stressfulness of their life. Moreover, our findings should be considered in relation to some significant limitations: Firstly, the size of our sample was modest and it consisted only of patients long suffering from a chronic disease. Secondly, patients were dealing with a variety of chronic diseases. Thirdly, only self-reported measures were used. Moreover, the cross-sectional nature of the study cannot lead to any conclusions regarding the direction of the associations. Finally, the scale we used to assess life stress was a brief and generic one. Thus, it did not cover the entire diversity of the stressors that participants might have experienced, although we believe it provided an adequate description of the overall life stress.

Nevertheless, we believe that our results are interesting as they call for further study on the relationship between life stress and the illness experience. Future studies need to employ a longitudinal perspective in order to depict the exact associations between life stress and the illness experience, as well as emphasize the reciprocally interactive nature of these associations. Also, a more precise assessment of life stressors is needed (see for example, Monroe, 2008) in order to achieve a better look into the personal life context. Additionally, future research should examine further aspects of the illness experience (e.g. the degree of acceptance of illness, health-related optimism and self-efficacy, health behaviours, specific physiological indices etc.). Finally, it would be interesting to examine the role of life stress in diverse health conditions, as well as in relation to the progress of the disease. We believe that the examination of the relation between life stress, the experience of illness and health outcomes is a promising area of research and future studies will provide significant findings.

References


