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Predictors of quality of life: A model based study

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Abstract

In this study, predictors of quality of life (QOL) in psychiatric outpatients (n = 410) were investigated using the psychological stress model developed by Taylor and Aspinwall (Psychosocial Stress. Perspective on Structures, Theory, Life-Course and Methods. San Diego, CA: Academic Press, 1996; pp. 71–110). External resources, personal resources, stressors, appraisal of stressors, social support, coping, and QOL were assessed with several questionnaires. The complete original Taylor and Aspinwall model was tested with SEM analyses. These analyses were not able to explain the data adequately. Therefore, initially a more exploratory data analytic strategy was followed using a series of multiple regression analyses. These analyses only partially supported the Taylor and Aspinwall model. In fact, QOL was not predicted by coping, while all other antecedents affected QOL directly, explaining considerable amounts of QOL variance. As a next step, taking the outcomes of the regression analyses as point of departure, new SEM analyses were carried out, testing a modified model. This model, without coping, had an excellent fit. Consequently, modifications of the model are recommended concerning psychiatric outpatients when QOL is the psychosocial outcome measure.

Key words: Predictors of quality of life, Psychiatric outpatients, Taylor and Aspinwall psychosocial stress model, WHOQOL-100

Introduction

Quality of life (QOL) has become a topic of growing interest in medical and psychiatric practice [1]. Recent studies have shown that psychiatric outpatients experience a substantially poorer QOL compared with members of the general population [2]. The body of knowledge about the complex relationship between the QOL of psychiatric outpatients and its determining factors is still growing. However, understanding this relationship remains difficult, due to the lack

of consensus regarding factors contributing to the QOL of these outpatients.

In the present study, the model developed by Taylor and Aspinwall [3] (see Figure 1) was tested in psychiatric outpatients, with QOL as the outcome variable. The study aim was to test whether or not this general framework is suitable for explaining the specific roles of the antecedents of QOL.

The Taylor and Aspinwall model [3] was based on empirical evidence and incorporates the transactional model of Lazarus and Folkman [4].

Figure 1. The Taylor and Aspinwall Model (1996, p. 98). L1 = level 1; L2 = level 2; L3 = level 3; L4 = level 4.

It provides a general framework that is suitable for studying the moderating and mediating factors that influence psychosocial outcomes. Moderators alter the direction or strength of the relationship between a predictor and an outcome variable [5, 6]. They address *when* or *for whom* a variable most strongly predicts a particular outcome. Stated otherwise, a moderator effect is an interaction whereby the effect of one variable depends on the level of another variable. In contrast, mediators explain the relation between a predictor and an outcome [5, 6]. They establish *how* or *why* one variable predicts a particular outcome. The Taylor and Aspinwall model [3] reflects a contextual, dynamic, process-centered approach that views stress as an outcome subject to the balance of power between situational demands, constraints and resources, and the ability of the individual to manage them, alone or with the help of others. The model features personal and environmental moderators that interact with cognitive appraisal and interpretation processes which, in turn, mediate between stressors and stress-related psychosocial outcomes. Appraisal processes activate either adequate coping responses that result in a decrease of stress or inadequate coping behavior that results in an additional experience of stress. As can be seen in Figure 1, the Taylor and Aspinwall model [3] includes external resources, personal resources, stressors, appraisal, social support, and coping. According to Taylor and Aspinwall [3], external resources (e.g., 'age') comprise those aspects of the individual's environment which influence the demands and affordances of the stream of situations people encounter in everyday life (e.g., adolescents are in general more concerned with

starting relationships, getting a job etc. compared with senior citizens). In the model, appraisal is defined as an evaluation of stress (i.e., the impact of stressors on the individual). As Figure 1 shows, external resources may determine the kinds of stressors to which one is exposed, but also appraisal and coping processes. Similarly, personal resources may affect exposure to and disengagement from situations, as well as appraisal and coping. In addition, personal resources may influence the availability, mobilization, and maintenance of social support. Social support, in turn, may affect coping indirectly through appraisal processes and directly through the provision of information and functional assistance. Finally, the model suggests that the effects of personal and external resources, stressor, appraisal, and social support on psychosocial outcomes are mediated by the way that persons cope with stress.

The validity of the Taylor and Aspinwall model [3] has been tested in a working population in both a cross-sectional and a prospective study [7, 8]. Emotional exhaustion and fatigue were respectively used as psychosocial outcome variables. Support was found for several paths represented in the model. However, based on the results, it was advised to add a path from external resources to social support. Furthermore, the path from coping to emotional exhaustion and fatigue was absent.

In these earlier studies [7, 8], it was recommended to test the model in different populations, with different measures, and with different psychosocial outcomes to be more confident about modifications of the model. Therefore, the aim of the present study was to test the complete Taylor and Aspinwall model [3] in a population of

psychiatric outpatients, with QOL as the outcome variable, and a number of measures that differ from those considered by Michielsen [7] and used by Michielsen et al. [8] to assess the crucial factors of the Taylor and Aspinwall model.

Method

Patients

The present study, which constitutes a part of a larger QOL study, was conducted at GGZ-Midden Brabant, the community mental health center in Tilburg, the Netherlands, after approval by the local ethics committee. Participants were outpatients of Dutch ethnic origin (in order to prevent language and/or cultural bias), aged 21–50 years (this age criterion was set to match the criteria of one employed questionnaire), referred to the center during a 1-year period. Written informed consent was obtained. Exclusion criteria were inability to undergo the investigation protocol due to severe mental illness (e.g., severe psychotic disorder), illiteracy, dyslexia, mental retardation, problems with sight or hearing, and cerebral damage.

During the 1-year period in which data for the present study were collected, 3892 persons (40.4% male) were referred to the outpatient clinic of the center. Within this group, 1559 patients (42.2% male) were of Dutch ethnic origin and aged 21–50 years. From these 1559 patients, 438 were randomly selected to enter the study (male: 42.7%; mean age: 34.7 years, SD = 8.3; female: 57.3%; mean age: 32.8 years, SD = 8.2). This selection procedure was performed because of an *a priori* agreement upon time investment by the investigators. From these 438 patients, 20 were unable to undergo the research protocol, due to severe psychotic disorder ($n = 7$), major depressive episode ($n = 9$), dyslexia ($n = 2$), and mental retardation ($n = 2$). In addition, eight patients refused to participate (non-participants) of whom four were diagnosed with antisocial personality disorder and four with substance related disorder. Thus, from the total group of 438 patients, 410 fully completed the test booklet (93.6%; 41.2% male, mean age 34.8 years, SD = 8.4; 58.8% female, mean age 32.5 years, SD = 8.2).

Measures

Participants were asked to complete self-administered questionnaires for measuring external resources, personal resources, stress, appraisal, social support, coping, and psychosocial outcome. In addition, they underwent two semi-structured interviews (held in two separate sessions) for obtaining Axis-I and Axis-II diagnoses, according to DSM IV. This thorough diagnostic assessment of the participants, also necessary for other parts of the larger QOL study, was performed in order to provide insight into the psychopathology of the participants.

External resources

The Taylor and Aspinwall model [3] is based on an overview of a broad set of studies containing a wide variety of external resources. Taylor and Aspinwall intended the model to be applicable to a general population, and therefore included a large, somewhat arbitrary selection of external resources. Because factors like sex, age, and family situation, reflecting social roles and environmental demands, are claimed to influence the kind of stressor [9], appraisal of the event [10, 11], and preferred coping styles [12, 13], they were included as external resources. Because the present study focused on a population of working age (21–50 years), following Michielsen et al. [8], we added employment, sick leave and educational level as additional external resources. In conclusion, the following variables were taken as exogenous: *age*, *gender* (0 = male, 1 = female), *having children* (0 = no children, 1 = having children), *partner relationship* (0 = single, 1 = having a partner), *living condition* (0 = living alone, 1 = living together with at least one other person), *employment* (0 = no paid work, 1 = paid work), *sick leave* (0 = no work or not reported sick at work, 1 = reported sick at work), *no sick leave* (0 = no work or reported sick at work, 1 = not reported sick at work), and *educational level* (1 = 'low', i.e., no education completed at all, primary school, individual teaching (i.e., people needing individual attention from a teacher during education, due to more or less severe problems with learning), lower vocational training, 2 = 'middle', i.e., lower general secondary education, higher general secondary education, pre-university education,

intermediate vocational education, 3 = 'high', i.e., higher vocational education, university).

Personal resources

Personal resources were assessed with the NEO-PI-R. The goal of the NEO-PI-R [14], Dutch version [15], is to assess the five major domains (i.e., Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness) of the five-factor model of personality as well as the 30 facets of these five broad domains. The NEO-PI-R is a 240-item self-administered questionnaire that yields continuous scores for each domain and the six facets in each domain. Each item has a 5-point response scale (1 = strongly disagree to 5 = strongly agree). The psychometric properties of the Dutch version of the NEO-PI-R are generally qualified as good [15]. In this study, only the domain scores of the NEO-PI-R were used in the statistical analyses.

Stressor

This component of the model was assessed with the Dutch Everyday Problem Checklist (EPCL) [16], a validated version of the Daily Hassles Scale [17]. The EPCL consists of 114 items concerning daily hassles experienced in the last 2 months. The total number of hassles experienced was used to assess the stressor variable.

Appraisal

The EPCL also measures the intensity of each hassle on a scale from zero to three. Appraisal was assessed with the mean intensity score of the EPCL (total intensity of the experienced hassles divided by the total number of experienced hassles) [16].

Social support

The total score of the 12-item version of the Perceived Social Support Scale (PSSS) [18, 19] was used to assess general perception of social support. The item's rating scale varies from 1, very strongly disagree, to 7, very strongly agree. The PSSS has good reliability and validity [18].

Coping

Coping styles were measured using the Coping Inventory for Stressful Situations (CISS) [20], Dutch version [21]. The CISS is a 48-item inven-

tory assessing ways in which people react to various difficult, stressful, or upsetting situations. Responses are scored on a five-point scale ranging from 'not at all' to 'very much'. Three basic coping styles are evaluated (each by 16 items): task-oriented, emotion-oriented and avoidance-oriented. Avoidance-oriented coping can be subdivided in Social diversion (5 items) and Distraction (8 items). Task-oriented coping refers to strategies used to solve a problem, cognitively reconceptualize it, or minimize its effects. Emotion-oriented coping refers to strategies including emotional responses, self-preoccupation, and fantasizing reactions. Avoidance-oriented coping refers to strategies that include escape from a problem by seeking out other people (social diversion) or by engaging in a substitute task (distraction). The Dutch version of the CISS has demonstrated good psychometric properties [21].

Psychosocial outcome

The WHOQOL-100 [22], Dutch version [23] was used. This 100-item instrument is a generic multidimensional measure for subjective assessment of QOL designed for use in a wide spectrum of psychological and physical disorders. We used the same four-factor structure of the WHOQOL-100, which was described in earlier studies [24–26]: physical health, psychological health, social relationships, and environment. The items are rated on a 5-point Likert scale. High scores indicate good QOL, except for the facets of pain and discomfort, negative feelings, and dependence on medication or treatments, which are negatively framed. The time of reference is the previous two weeks. The WHOQOL-100 has good to excellent psychometric properties in patients with somatic diseases [27] as well as in patients with psychiatric disorders [24, 28]. In this study, the facet overall QOL and general health and the domain scores were used.

DSM-IV, Axis-I diagnosis

For the Axis-I diagnosis, the Schedules for the Clinical Assessment in Neuropsychiatry (SCAN 2.1), were used [29, 30]. The SCAN is a comprehensive semi-structured diagnostic interview, developed under the auspices of the WHO, for the assessment and classification of psychiatric disorders in adults [29–31]. The SCAN has

adequate psychometric properties [32]. For some diagnostic categories of DSM-IV, the data provided through the SCAN 2.1 are not sufficient (e.g., Pervasive Developmental Disorders). When participants reported problems, seeming to belong to such a category, diagnostic criteria according to DSM-IV classification were followed.

DSM-IV, Axis-II diagnosis

For the Axis-II diagnosis, the Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II) [33], 2.0 [34], Dutch version [35], was used. The SCID-II, 2.0 is a semi-structured interview covering the personality disorders included in DSM-IV Axis II. The SCID-II has shown to have good interrater reliability and internal consistency [36].

Statistical analyses

The analyses, reported in this paper, were aimed at testing the Taylor and Aspinwall model [3], which is represented in Figure 1 as a recursive path model [37].

According to this conceptual model, at the first level, stressor variables may be influenced by external resources as well as by personal resources. However, social support, also at the first level, is only influenced by personal resources. At the second level, there is appraisal, which is assumed to be influenced by all variables of the first level. The third level features the coping variables which, according to the path model, are all directly influenced by the variables in external and personal resources, appraisal, and social support, but not by the stressor. Finally, the Taylor and Aspinwall model [3] makes strong assumptions about the possible causes of psychosocial outcome at the fourth level. According to the model, only the coping variables have a direct effect on it, while all other variables have only indirect effects.

In order to test the complete hypothesized Taylor and Aspinwall model [3], structural equation modeling (SEM) analyses were carried out using AMOS. The original model was tested for all possible combinations of the three core coping dimensions, Task orientation, Emotion orientation and Avoidance, and all outcome measures reflect-

ing the overall rating of QOL and the subjective evaluations of domain-specific elements of life. None of these analyses was able to explain the data adequately. Unacceptable fit was found with χ^2 (good models get a non-significant χ^2 ; $p > 0.05$), the comparative fit index (CFI; good models > 0.95) and the root mean square error of approximation index (RMSEA; good models < 0.06). Values of the χ^2 test statistics were all significant and varied from 244.36 to 403.07 with 26 degrees of freedom (all p 's < 0.001). The range of CFI coefficients was 0.80 to 0.88, never reaching the 0.95 level that is indicative of a good model fit [38]. Moreover, RMSEA coefficients, ranging from 0.14 to 0.19, also pointed at a poor fit.

Therefore, we followed initially a more exploratory data analytic strategy by performing a series of multiple regression analyses, using SPSS 13.0, in which each observed dependent variable was subsequently regressed on all lower priority levels. Only domain (e.g., neuroticism, extraversion, emotion-oriented coping) or total scores (e.g., PSSS) of the different questionnaires, used to assess the different factors of the Taylor and Aspinwall model [3], were entered in the regression analyses. All factors belonging to external and personal resources were entered simultaneously as independent variables (method enter) in a regression analysis in which stress was entered as the dependent variable. Social support was regressed on external resources, personal resources and stress simultaneously. Appraisal was regressed on level 1 (all factors belonging to level 1 were entered simultaneously as independent variables). The different coping styles (level 3) were first regressed on level 2 (appraisal) and subsequently on level 1. The QOL domains and the Overall QOL and General Health facet (level 4) were regressed on level 3 (all coping styles were entered simultaneously as independent variables), subsequently on level 2 (appraisal), and finally on level 1 (all factors belonging to social support, stress, external and personal resources were simultaneously entered as independent variables).

Results

For all participants Axis I and Axis II diagnoses according to DSM IV were determined. The results

are presented in Table 1. As can be seen in Table 1, the study population is heterogeneous in terms of DSM-IV classification. Explanations for this finding could be the facts that the study population consisted of *outpatients* who were *newly referred* to the community mental health center and who were *randomly selected* to enter the study.

Table 2 summarizes the results of the regression analyses. The results in this Table should be compared with the premises of the Taylor and Aspinwall model [3] in Figure 1. The stressor variable is predicted by some external as well as some personal resources. The highest amount of variance of the stressor variable was explained by NEO domain neuroticism. Social support is not only predicted by personal resources, but by external resources as well. Especially being extravert and being agreeable (personal resources), and being younger (external resource), predicted the perception of more social support. Stressor, external and personal resources predicted appraisal, while social support did not play a role. Being neurotic and experiencing a high stress frequency were the main predictors of appraisal. External and personal resources, in various combinations, are important predictors for most coping styles. The NEO domain conscientiousness explained a considerable amount of the variance of

task-oriented coping, whereas emotion-oriented coping mainly was predicted by the NEO domain neuroticism. Social support was a significant predictor of avoidance-oriented coping and its subscale social diversion, while appraisal only predicted emotion-oriented coping. Unexpectedly, the stressor affected task-oriented coping. Contrary to expectations, none of the QOL domains, nor the overall QOL and general health facet were predicted by any of the coping styles. Physical health was predicted by appraisal and several external and personal resources. In particular sick leave had a strong negative relation with physical health. The variance of the QOL domain psychological health was explained by social support, the Big Five factors (mainly neuroticism) and sick leave. External resources, stressor, and especially social support affected the QOL domain social relationships. The variance of the QOL domain environment and the overall QOL and general health facet were explained by a combination of all independent variables, except coping styles.

The percentage of explained variance was especially high in the models predicting the QOL domains social relationships (57%), psychological health (51%), and physical health (48%), and in the model predicting emotion-oriented coping (48%). The percentage of explained variance was

Table 1. Axis I en Axis II diagnosis according to DSM-IV classification for the total outpatient sample (n = 410)

Axis I diagnosis	N ^b	Axis II diagnosis	N ^b
Pervasive Developmental disorder	4	Paranoid personality disorder	4
ADDB disorder	5	Schizoid personality disorder	6
Substance related disorder	27	Schizotypal personality disorder	2
Psychotic disorder	4	Antisocial personality disorder	23
Mood disorder	113	Borderline personality disorder	49
Anxiety disorder	73	Histrionic personality disorder	6
Somatoform disorder	9	Narcissistic personality disorder	18
Sexual disorder/Gender Identity disorder	9	Avoidant personality disorder	47
Eating disorder	15	Dependent personality disorder	24
Impulse-Control disorder	5	Obsessive-compulsive personality disorder	21
Adjustment disorder	36	Personality disorder not otherwise specified	59
Other disorder	9	Postponed diagnosis	12
Other Conditions ^a	53	No Axis-II diagnosis	196
No Axis-I diagnosis	89		

ADDB disorder, Attention-Deficit and Disruptive Behaviour disorder; The figures represent frequencies of recorded diagnoses. Due to co-morbidity (i.e., the classification of more than one diagnosis on Axis I or Axis II) the totals of recorded diagnoses per Axis exceed the total number of participants.

^aOther Conditions, Other conditions that may be a focus of clinical attention (mostly V-codes).

^bThe figures represent amounts of recorded diagnoses. Due to the phenomenon of comorbidity (i.e., the classification of more than one diagnosis on Axis I or Axis II) the totals of recorded diagnoses per Axis exceed the total number of participants.

Table 2. Multiple Regression Analyses (method enter)

Dependent variable	<i>F</i>	<i>p</i>	<i>R</i> ² total	Independent variable ^a	β (standardized)
Stress	8.48	< 0.001	0.22	Gender	− 0.14
				No sick leave	− 0.11
				Neuroticism	0.33
				Openness	0.15
Social support	11.39	< 0.001	0.29	Agreeableness	− 0.10
				Age	− 0.21
				Having children	0.11
				Partner relationship	0.15
				Living condition	0.12
				No sick leave	0.12
				Extraversion	0.22
				Agreeableness	0.18
Appraisal	9.13	< 0.001	0.26	Stress	0.20
				Sick leave	0.18
				Neuroticism	0.31
Task-oriented coping	11.08	< 0.001	0.31	Stress	0.12
				Gender	0.12
				Neuroticism	− 0.14
				Openness	0.14
Emotion-oriented coping	22.18	< 0.001	0.48	Conscientiousness	0.42
				Appraisal	0.18
				Neuroticism	0.63
Avoidance-oriented coping	7.21	< 0.001	0.23	Extraversion	0.10
				Social support	0.23
				Educational level	− 0.10
Social diversion	9.18	< 0.001	0.27	Extraversion	0.25
				Social support	0.32
				Extraversion	0.28
Distraction	3.12	< 0.001	0.11	Agreeableness	0.12
Physical health	16.84	< 0.001	0.48	Age	− 0.12
				Appraisal	− 0.10
				Partner relationship	0.10
				Employment	0.21
				Educational level	0.14
				Sick leave	− 0.40
				Extraversion	0.20
				Openness	− 0.19
				Conscientiousness	0.13
				Social support	0.12
Psychological health	19.33	< 0.001	0.51	Sick leave	− 0.16
				Neuroticism	− 0.38
				Extraversion	0.17
				Conscientiousness	0.11
				Social support	0.56
Social relationships	24.93	< 0.001	0.57	Stress	− 0.12
				Partner relationship	0.18
				Educational level	− 0.08
				Appraisal	− 0.13
Environment	14.07	< 0.001	0.43	Social support	0.24
				Stress	− 0.16
				Partner relationship	0.12
				Employment	0.13
				Educational level	0.16
				Sick leave	− 0.11
				Conscientiousness	0.18

Table 2. Continued

Dependent variable	<i>F</i>	<i>p</i>	<i>R</i> ² total	Independent variable ^a	β (standardized)
Overall QOL and general health	12.14	< 0.001	0.40	Appraisal	-0.12
				Social support	0.23
				Stress	-0.10
				Having children	-0.13
				Employment	0.10
				Sick leave	-0.17
				Neuroticism	-0.17
				Extraversion	0.14
				Openness	-0.14

^aOnly independent variables with significant ($p < 0.05$) β values are reported.

below 20% for the model predicting the coping style distraction.

Inspection of the series of regression analyses points at a model that is distinct from the original Taylor and Aspinwall model [3] in some crucial ways. Most striking is the removal of coping strategies. Based on the outcomes of all regression analyses, the path diagram specified in Figure 2 seems to be a well fitting model that takes into account the causal relationships as suggested by the regression analyses. The path diagram (Figure 2) differs from the initial model that we developed based on the outcomes of the regression analyses in two ways. It turned out that exclusion of a path leading from age to social support (as initially suggested by the regression analyses), and

inclusion of a path from sick leave to stressor (later on suggested by the SEM-program as an additional path) improved the fit substantially. In an attempt to specify a parsimonious model, a restricted number of personal and external resources was included. In doing this, it was decided to include the same variables, i.e., neuroticism, extraversion and sick leave, for each of the separate psychosocial outcomes. Attempts to increase the relevant fit indices by, for instance, substituting conscientiousness for neuroticism in the case of predicting physical health (see Table 2) did not result in a better fit. On the contrary, the fit after this exchange was slightly worse. In order to test the model in Figure 2, structural equation modelling (SEM) analyses were carried out using

Figure 2. The revised model. L1 = level 1; L2 = level 2; L3 = level 3. The double headed arrow indicating an association between neuroticism and extraversion does not point at attribution of causation.

AMOS. Good fit was found with χ^2 (good models get a non-significant χ^2 ; $p > 0.05$), a very good fit was obtained with the comparative fit index (CFI; good models > 0.95), and also a good fit in case of the root mean square error of approximation index (RMSEA; good models < 0.06). Values of the χ^2 test statistics were all non-significant: 10.957 with 7 degrees of freedom (all p 's > 0.09). The CFI coefficients were all 0.99, i.e., higher than the 0.95 level that is indicative of a good model fit [36]. Moreover, the RMSEA coefficients of 0.045 pointed at a good fit.

Discussion

The aim of the present study was to investigate the predictors of quality of life (QOL) in psychiatric outpatients using the psychological stress model developed by Taylor and Aspinwall [3]. Our study was based mainly on other instruments than those used in previous studies [8]. Only social support, coping, and most of the demographics were assessed in the same way as Michielsen et al. [8] did.

The complete Taylor and Aspinwall [3] model was tested with SEM analyses. These analyses were not able to explain the data adequately. Therefore, a more exploratory data analytic strategy was followed using multiple regression analyses. Regarding the results of these analyses, in general, the conceptual model was empirically confirmed. Exceptions were that in addition to personal resources, some external resources played a role in predicting social support, while the latter failed to predict appraisal. In addition, social support and appraisal were only important for some coping strategies. Furthermore, almost all independent variables, in varying combinations, explained a sizeable amount of QOL variance. Most striking, however, was the fact that QOL was not predicted by any of the coping styles! The extent to which the regression results presented in Table 2 are robust has been tested by using as a diagnostic technique new regression analyses in which not all the hypothesized independent variables were entered that initially were thought to be associated with changes in the dependent variables but only those explanatory variables that actually reached statistical significance in the analyses presented in Table 2. The exclusion of those

variables that made no or little difference resulted in only minor changes in the overall R -squared coefficients. The outcomes for R^2 total were: 0.21 (dependent variable = Stress), 0.27 (Social Support), 0.21 (Appraisal), 0.30 (Task-oriented Coping), 0.45 (Emotion-oriented Coping), 0.18 (Avoidance-oriented Coping), 0.25 (Social Diversion), 0.04 (Distraction), 0.44 (Physical Health), 0.49 (Psychological Health), 0.52 (Social Relationships), 0.41 (Environment), and 0.37 (Overall QOL and General Health). With the possible exception of the outcome of the prediction of Distraction, in which case a sizeable drop in the percentage of explained variance was obtained, all other analyses provided support for the robustness of the regression outcomes.

The finding that none of the coping variables predicted QOL is the most fascinating outcome of the present study. To date, research concerning the relationship between coping and QOL in mental health care has not focused on a general population of psychiatric outpatients, and has not tested the Taylor and Aspinwall model [3]. For example, Ritsner et al. [39] evaluated the relationship among psychopathological symptoms, psychological distress, coping styles, and the QOL of schizophrenia inpatients. They estimated the contribution of different coping styles to the prediction of QOL, and examined the mediating role of coping styles in the relationships among these mentioned parameters. As in the present study, coping styles were assessed using the CISS. QOL was assessed with a different measure, the Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q). Task and avoidance-oriented coping styles correlated positively, and emotion-oriented coping slightly negatively with QOL. Coping styles accounted for 25% of the variance in QOL scores. When, in the statistical analyses of the present study, only the different coping styles were entered as independent variables (not described in this paper), they explained amounts of the variance of the various QOL aspects ranging from 14.2 to 29.6%. This corresponds with results of Ritsner et al. [39]. However, when variables of the previous levels were added as independent variables in the regression analyses, none of the coping styles predicted QOL. Thus, the discordant results between both studies could be explained by the fact that Ritsner et al. [39] did not take into account

the predictive value of external and personal resources. Michielsen [7] explicitly tested the Taylor and Aspinwall model [3] in a working population, using emotional exhaustion as the outcome variable. In this cross-sectional study, in which also the CISS was used to assess coping, none of the coping styles predicted emotional exhaustion. In an additional (prospective) study, Michielsen et al. [8] confirmed the absence of the path from coping to psychosocial outcome (emotional exhaustion and fatigue). These results are in accordance with those of the present study.

The finding that, apart from coping, all independent variables predicted QOL is, in general, in accordance with earlier findings.

Trompenaars et al. [40] investigated the relationship between demographic characteristics and QOL in a general population of psychiatric outpatients. Although, in general, only a relatively small part of the variance of subjective experienced QOL was explained by demographic variables, statistically significant relationships were found between partner relationship, living condition, employment, sick leave, educational level and QOL. These findings were confirmed by the additional path found in the present study between external resources and QOL.

Personal resources seem to play a substantial role with respect to QOL or related concepts, such as life satisfaction and well-being [41]. Several studies have demonstrated that extraversion and neuroticism contributed greatly to well-being [42, 43]. Mental health care research concerning the relationship between personal resources and QOL mainly focussed on patients with specific psychiatric disorders. Kentros et al. [44] and Hansson et al. [45] found that personality factors affected the subjectively experienced QOL of individuals with schizophrenia or schizoaffective disorder. Ritsner et al. [46] reported that temperamental factors explained 6–16% of the variability in QOL domain scores among patients with schizophrenia. In the present study, personal resources affected subjectively experienced QOL in a direct way. This corresponds with the results of Kentros et al. [44], Hansson et al. [45], and Ritsner et al. [46].

Reviews of the literature [47, 48] suggest that social support has positive effects on a variety of physical and mental health outcomes. For

instance, Cohen and Wills [47] direct the attention to the beneficial effects of social support on health through social (e.g., stress buffering), psychological (e.g., affective state), and behavioral (e.g., health promoting) mechanisms. There is empirical evidence to support this perspective [48]. In line with these findings, in the present study social support explained some amount of the QOL variance.

Limitations of the present study are its cross-sectional design, the predominant use of subjective measures, and the neglect of psychiatric diagnosis as a potential predictor of QOL. An additional limitation is the use of the same measure to assess coping (CISS) as in comparative research [7, 8]. Although this similarity enhances the comparison of results, at the same time, it remains unclear whether the use of another coping measure would have produced the same results.

In conclusion, the empirical findings of the present study only partially supported the Taylor and Aspinwall model [3]. None of the coping styles predicted QOL, while a considerable amount of QOL variance was explained by combinations of external resources, personal resources, stress, appraisal, and social support. These findings are almost entirely in accordance with those of Michielsen [7] and Michielsen et al. [8], who investigated the Taylor and Aspinwall model [3] in a different population, with mostly different measures and with different psychosocial outcomes. Therefore, it is recommended that some modifications on the outline of the Taylor and Aspinwall model [3] should be made. It is advised to remove coping from the model. Crucial in the application of the Taylor and Aspinwall model [3] to quality of life research is the view that people evaluate their well-being through cognitive appraisal. Also prominent in the model is the view that individual preferences for particular coping strategies have differential adaptive value. When planning the current research, the Taylor and Aspinwall model [3] was conceived of as a very appropriate model due to the fact that it takes into account the personal, social and environmental resources people have at their disposal when trying to manage the demands of stressful situations. Seen from a general psychological theory perspective, the fact that the model allows for much variability across people and situations, instead of featuring a one-size-fits-all strain response, added, in our view,

considerably to its plausibility. One question, however, that arises, when evaluating the outcomes of the present study is whether the construct of coping has incremental validity when compared to the basic personality traits neuroticism and extraversion. At first glance, the message of the present study is that the coping construct does not add anything to our understanding of individual quality of life beyond that which is explained by cardinal personality traits. Our outcomes will not contribute to increasing the popularity of coping measures in QOL research in psychiatric contexts. However, it should be kept in mind that the coping construct is not only characterized by pitfalls, but also by promises [49]. One of the major challenges for coping researchers is to develop alternative models of coping assessment that surmount the many limitations of traditional coping questionnaires, such as unreliability of recall and confounding of items with their outcomes. We strongly feel that QOL research would benefit from the development and validation of momentary coping assessments, instead of retrospective accounts, and narrative approaches of coping. Future research, using these 'next generation' coping assessment techniques, should clarify whether the original Taylor and Aspinwall model [3], including coping, is superior to the revised model we propose in the present study.

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