



PAPER

The influence of coping strategies on subsequent well-being in older patients with cancer: A comparison with 2 control groups

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Abstract

Objective: To evaluate dispositional coping strategies as predictors for changes in well-being after 1 year in older patients with cancer (OCP) and 2 control groups.

Methods: OCP were compared with 2 control groups: middle-aged patients with cancer (MCP) (aging effect) and older patients without cancer (ONC) (cancer effect). Patients were interviewed shortly after a cancer diagnosis and 1 year later. Dispositional coping was measured with the Short Utrecht Coping List. For well-being, we considered psychological well-being (depression, loneliness, distress) and physical health (fatigue, ADL, IADL). Logistic regression analyses were performed to study baseline coping as predictor for subsequent well-being while controlling for important baseline covariates.

Results: A total of 1245 patients were included in the analysis at baseline: 263 OCP, 590 ONC, and 392 MCP. Overall, active tackling was employed most often. With the exception of palliative reacting, OCP utilized each coping strategy less frequently than MCP. At 1-year follow-up, 833 patients (66.9%) were interviewed. Active coping strategies (active tackling and seeking social support) predicted subsequent well-being only in MCP. Avoidance coping strategies did not predict well-being in any of the patient groups. Palliative reacting predicted distress in OCP; depression and dependency for ADL in MCP.

Conclusions: Coping strategies influence subsequent well-being in patients with cancer, but the impact is different in the age groups. Palliative reacting was the only coping strategy that predicted well-being (ie, distress) in OCP and is therefore, especially in this population, a target for coping skill interventions.

KEYWORDS

cancer, coping, older patients, oncology, well-being

1 | BACKGROUND

Knowledge of effective and maladaptive coping strategies in relation to a cancer diagnosis is important in the development of interventions. Many studies have focused on the association between coping and well-being in patients dealing with cancer. The large majority of these studies have a cross-sectional design using different measures of coping. Although findings are not entirely consistent, active coping (eg, active tackling, seeking social support) in contrast to passive coping (eg, avoidance, palliative reacting) is thought to have a beneficial effect on both psychological and physical outcomes.^{1,2} However, reciprocal

relationships between coping and well-being should be considered.^{3,4} A small number of longitudinal studies have evaluated coping following a cancer diagnosis as a predictor for subsequent well-being.^{2,5-10} The findings of these studies are difficult to summarize as they vary for example in study aim and design, in the classification of coping, in health-related outcomes, and in follow-up time. Nonetheless, they demonstrated an influence of coping on subsequent well-being. One study in patients with breast cancer even showed that avoidance coping used within 6 months after diagnosis predicted psychological well-being 3 years later.⁶

The current paper on coping and subsequent well-being is part of the larger “Klimop” study. The primary aims of this study are to assess

the impact of cancer and aging on subsequent well-being and to identify factors that predict well-being in older patients with cancer.¹¹ For this purpose, older patients with cancer (OCP) are compared with 2 control groups: middle-aged patients with cancer (MCP) and older primary care patients without cancer (ONC). From 2 previous analyses based on the Klimop study, we know that OCP cope differently than MCP shortly after a cancer diagnosis (baseline) and that increasing levels of psychosocial problems are observed 1 year later in both patient groups.^{12,13} These findings might suggest that if coping predicts subsequent well-being that this relationship will be different in OCP and MCP. Furthermore, the relationship between dispositional coping and subsequent well-being might be different between OCP and ONC considering changes in well-being related to the cancer.

A better understanding of coping strategies and a potential influence on subsequent health is important because interventions targeting coping skills might improve outcomes. The aim of the present paper is to investigate if baseline coping strategies predict changes in different dimensions of psychological well-being and physical health after 1 year in OCP while disentangling aging effects (OCP versus MCP) and cancer effects (OCP versus ONC). In addition, we compared the frequencies of baseline coping strategies in each patient group and compared coping and well-being between OCP and the 2 control groups at baseline.

2 | PATIENTS AND METHODS

2.1 | Study design and population

This analysis was performed on baseline and 1-year follow-up data from the Klimop study, which is an ongoing study in Belgium and the Netherlands on the impact of cancer, aging, and their interaction on well-being. Full methodological details have been described elsewhere.¹¹ In short, OCP (≥ 70 years) are longitudinally compared with MCP (50–69 years) and ONC (≥ 70 years) for different measures of well-being. ONC consisted of patients without known cancer, seen by their general practitioner. The group of patients with cancer consisted of patients with breast, gastro-intestinal, prostate, and lung cancer. Patients had to be recruited within 3 months after cancer diagnosis. All participants had to have an estimated life expectancy of more than 6 months and no formal diagnosis of dementia. Data have been collected through personal interviews at baseline, after 1 year, and subsequently every 2 years.

2.2 | Coping

Coping was assessed with the short version of the Utrecht Coping List (UCL).^{14,15} The UCL evaluates dispositional coping by asking participants about the frequency of coping strategies they use in response to problems or unpleasant situations in general. In this approach, coping strategies are viewed as relatively stable over the course of time and across different situations which allows greater comparison of coping strategies across different samples.

The short UCL consists of 15 items and covers 4 subscales. Each question was answered on a 4-point Likert scale. For each subscale, sum scores were divided by the number of questions. Total scores

for each subscale range from 1 to 4. A higher score indicates that a certain coping strategy is used more often.

2.2.1 | Active coping

Active tackling (5 questions): this refers to behavior directed at confronting or solving the problem or situation.

Seeking social support (5 questions): this refers to efforts to actively pursue informational, physical, and/or emotional support.

2.2.2 | Passive coping

Avoidance and awaiting (3 questions): this refers to behavior to avoid dealing with a situation like seeking distraction.

Palliative reacting (2 questions): this refers to behavior that involves giving up any effort to deal with the situation.

2.3 | Well-being

For well-being, we studied psychological well-being and physical health with tools that are widely used in the literature. A more in-depth description of the tools can also be found in previous publications from the Klimop study.^{12,13,16}

For psychological well-being, we considered depression, loneliness, and distress measured with the Geriatric Depression Scale (range: 0–15, cut-off ≥ 5),¹⁷ the loneliness scale of De Jong-Gierveld (range: 0–11, cut-off ≥ 3),¹⁸ and the distress barometer (range: 0–10, cut-off ≥ 4),¹⁹ respectively.

For physical health, we considered fatigue measured with the Visual Analogue Scale (range: 0–10, cut-off ≥ 4)^{20–22}; Activities of Daily Living (ADL) measured with the Katz index (range: 0–6)²³; and Instrumental ADL (IADL) measured with the Lawton IADL scale (range: 0–8 for woman, range: 0–5 for men).²⁴ Dependence in 1 or more domains of ADL and IADL was defined as having an impairment.

2.4 | Statistical analysis

We compared OCP with the 2 control groups for patient characteristics, comorbidity, cancer-related factors, and well-being with the chi-square test, and coping strategies with the Mann-Whitney U test. We used the Wilcoxon signed rank test to evaluate within-group differences in coping strategies. To study the predictive value of baseline coping strategies for changes in well-being, we used logistic regression and not linear regression considering advantages towards interpretability of results and relevance for clinicians. We first performed univariate logistic regression analyses with patient characteristics (age, gender, living situation, marital status, educational level), comorbidity (Charlson comorbidity index), and cancer-related factors (tumor type, stage, treatment) as predictors for every dimension of psychological well-being and physical health at 1-year follow-up. With the exception of age, all predictors were analyzed as categorized variables. Secondly, multiple logistic regression analyses were performed with baseline coping as predictor for well-being at 1-year follow-up adjusted for the studied baseline values of well-being as well as for covariates that were found significant in univariate analysis. Sample sizes varied somewhat for each measure of well-being due to missing data. To test the robustness of the analysis for presence of missing data, worst-case

best-case sensitivity analyses were performed. The significance threshold was set at 0.05 for every analysis. All analyses were performed using SPSS 23 software (Chicago, IL).

2.5 | Ethics

The study protocol was approved by the Ethical Review Board of KU Leuven and UZ Leuven (S52097-ML6279) (Belgium) and the Maastricht University Medical Centre (NI31414.068.10) (the Netherlands). All patients signed informed consent.

3 | RESULTS

3.1 | Participants

A total of 1490 patients were included at baseline. For 245 patients (16.4%), there was no or incomplete information on coping, resulting in 1245 patients (83.6%) eligible for analyses: 263 OCP, 590 MCP, and 392 ONC. From these patients, 833 (66.9%) could be interviewed at 1-year follow-up. Missing follow-up data were due to death ($n = 59$, 14.3%) or to loss of follow-up/refusal ($n = 353$, 85.7%). Patient characteristics of OCP and the 2 control groups at baseline

TABLE 1 Patient characteristics of the 3 patient groups at baseline

	ONC		<i>P</i> -value ^a	OCP		<i>P</i> -value ^b	MCP	
	<i>n</i>	%		<i>n</i>	%		<i>n</i>	%
Total N° pts	392	100.0		263	100.0		590	100.0
Age								
Mean (SD)	78.2 (5.31)			76.2 (4.54)			60.48 (5.46)	
Gender			0.30			0.001		
Female	235	59.9		147	55.9		402	68.1
Male	157	40.1		116	44.1		188	31.9
Living situation	<i>n</i> = 388		0.92			<0.001	<i>n</i> = 587	
Alone	112	28.9		75	28.5		92	15.7
Not alone	276	71.1		188	71.5		495	84.3
Marital status	<i>n</i> = 388		0.88			<0.001	<i>n</i> = 587	
Married/living together	253	65.2		170	64.6		466	79.4
Unmarried/widow/divorced	135	34.8		93	35.4		121	20.6
Educational level	<i>n</i> = 383		0.17	<i>n</i> = 254		<0.001		
≤14 years	113	29.5		60	23.6		63	11.0
15–19 years	175	45.7		134	52.8		279	48.5
≥19 years	95	24.8		60	23.6		233	40.5
Comorbidity	<i>n</i> = 334		0.01	<i>n</i> = 241		<0.001	<i>n</i> = 566	
CCI 0–1	229	68.6		189	78.4		504	89.0
CCI ≥ 2	105	31.4		52	21.6		62	11.0
Tumor type				<i>n</i> = 229		0.15	<i>n</i> = 541	
Breast				112	48.9		312	57.7
Gastrointestinal				70	30.6		137	25.3
Lung				28	12.2		50	9.2
Prostate				19	8.3		42	7.8
Stage				<i>n</i> = 233		0.08	<i>n</i> = 552	
I–II				137	58.8		361	65.4
III–IV				96	41.2		191	34.6
Treatment *								
Surgery**				184	75.1	0.001	485	84.5
Chemotherapy**				94	38.7	<0.001	314	54.7
Radiotherapy**				115	47.5	<0.001	370	64.5
Hormonal**				91	37.4	0.12	248	43.4

OCP were compared with the 2 control groups with the chi-square test.

^aOCP versus ONC.

^bOCP versus MCP.

CCI, Charlson comorbidity index.

*More than 1 possibility.

**Percentages were calculated on valid cases.

are shown in Table 1. The most frequent types of cancer were breast and gastrointestinal cancer. Advanced cancer (stage III–IV) was present in 41.2% of OCP and in 34.6% of MCP. Comparative analyses showed that OCP had a lower comorbidity index than ONC, and several differences were observed between OCP and MCP. For example, less OCP were female, and they received less intensive cancer treatment than MCP (Table 1).

3.2 | Well-being and coping at baseline

Considering baseline psychological well-being, OCP were more often depressed and distressed but less often lonely than ONC. Compared with MCP, they had more often feelings of loneliness. OCP were more often dependent for ADL and IADL than MCP. There was no difference in physical health compared with ONC (Table 2).

Within-group analyses showed that in each patient group, patients utilized active tackling more frequently than the other 3 coping strategies ($p < 0.05$). The comparison between OCP and the

2 control groups for coping strategies is shown in Table 2. The frequency of every coping strategy was different between OCP and MCP. OCP used less active tackling, seeking social support, and avoidance coping than MCP, while palliative reacting was more frequent in OCP. No differences were observed between OCP and ONC

3.3 | The relation between baseline coping and changes after 1 year in well-being

The predictive value of baseline coping for well-being after 1 year is shown in Table 3. Active tackling predicted only less often distress in MCP. Social support seeking predicted only less often loneliness in MCP. Avoidance coping did not predict any of the measures of well-being in the 3 patient groups. Palliative reacting predicted distress in OCP, and depression and dependency for ADL in MCP.

TABLE 2 Well-being and coping at baseline: comparison between OCP and control groups

	ONC		P-value ^a	OCP		P-value ^b	MCP	
	n	%		n	%		n	%
	392	100.0		263	100.0		590	100.0
Psychological well-being								
Depression			0.03			0.52		
Normal	353	90.1		222	84.4		508	86.1
Impaired	39	9.9		41	15.6		82	13.9
Loneliness	n = 391		0.02			0.01	n = 587	
Normal	240	61.4		184	70.0		457	77.9
Impaired	151	38.6		79	30.0		130	22.1
Distress	n = 381		0.002	n = 251		0.27	n = 558	
Normal	302	79.3		171	68.1		358	64.2
Impaired	79	20.7		80	31.9		200	35.8
Physical health								
Fatigue			0.09	n = 255		0.47	n = 576	
No fatigue	174	44.4		96	37.6		232	40.3
Fatigue	218	55.6		159	62.4		344	59.7
ADL			0.40			0.001		
Independent	244	62.2		155	58.9		414	70.2
Dependent	148	37.8		108	41.1		176	29.8
IADL	n = 391		0.27	n = 261		0.001	n = 574	
Independent	249	63.7		155	59.4		407	70.9
Dependent	142	36.3		106	40.6		167	29.1
Coping								
Coping strategy	Mean (SD)			Mean (SD)			Mean (SD)	
Active tackling	2.69 (0.58)		0.38	2.66 (0.55)		<0.001	2.87 (0.51)	
Social support	2.08 (0.57)		0.63	2.06 (0.61)		<0.001	2.23 (0.62)	
Avoidance	2.05 (0.55)		0.31	2.10 (0.55)		0.004	2.19 (0.52)	
Palliative reacting	2.17 (0.69)		0.07	2.06 (0.66)		0.003	1.92 (0.65)	

Well-being in OCP were compared with the 2 control groups with the chi-square test.

Coping strategies in OCP were compared with the control groups by using the Mann-Whitney test.

Values with $p < 0.05$ are in bold.

^aOCP versus ONC.

^bOCP versus MCP.

TABLE 3 Adjusted analyses of baseline coping as predictor for subsequent well-being

Coping at Baseline	Psychological Well-Being after 1 Year			Physical Health after 1 Year		
	Depression	Loneliness	Distress	Fatigue	ADL	IADL
OCF						
	n = 153/263 (58.2%)	n = 150/263 (57.0%)	n = 142/263 (54.0%)	n = 131/263 (49.8%)	n = 172/263 (65.4%)	n = 139/263 (52.9%)
Active tackling	1.15 (0.45–2.96)	1.19 (0.56–2.51)	0.50 (0.19–1.33)	0.63 (0.28–1.44)	0.93 (0.48–1.78)	1.00 (0.48–2.08)
Social support	0.77 (0.32–1.87)	0.55 (0.25–1.19)	1.74 (0.74–4.07)	0.69 (0.33–1.45)	1.30 (0.70–2.44)	1.28 (0.64–2.57)
Avoidance	0.97 (0.36–2.63)	1.00 (0.43–2.32)	0.93 (0.37–2.34)	2.34 (0.91–5.97)	1.53 (0.75–3.12)	0.83 (0.37–1.86)
Palliative reacting	1.86 (0.87–3.99)	1.31 (0.70–2.48)	2.61 (1.24–5.51)	0.99 (0.52–1.85)	0.89 (0.52–1.51)	1.76 (0.94–3.29)
MCP						
	n = 367/590 (62.2%)	n = 367/590 (62.2%)	n = 292/590 (49.5%)	n = 323/590 (54.7%)	n = 354/590 (60.0%)	n = 305/590 (51.7%)
Active tackling	0.71 (0.37–1.36)	0.93 (0.57–1.54)	0.50 (0.27–0.96)	1.10 (0.67–1.79)	1.12 (0.67–1.89)	1.02 (0.55–1.90)
Social support	0.81 (0.49–1.34)	0.64 (0.41–0.98)	1.15 (0.71–1.87)	0.71 (0.48–1.07)	0.77 (0.51–1.17)	0.60 (0.35–1.01)
Avoidance	1.28 (0.64–2.54)	1.52 (0.87–2.65)	0.99 (0.52–1.89)	0.95 (0.56–1.60)	0.97 (0.57–1.63)	1.19 (0.63–2.28)
Palliative reacting	2.29 (1.31–3.99)	1.35 (0.87–2.11)	1.07 (0.62–1.84)	1.54 (0.99–2.39)	1.81 (1.16–2.83)	1.22 (0.71–2.11)
ONC						
	n = 204/392 (52.0%)	n = 246/392 (62.8%)	n = 187/392 (47.7%)	n = 202/392 (51.5%)	n = 252/392 (64.3%)	n = 198/392 (50.5%)
Active tackling	0.64 (0.27–1.47)	1.26 (0.72–2.21)	1.62 (0.76–3.46)	0.69 (0.38–1.25)	0.83 (0.46–1.49)	0.98 (0.48–2.02)
Social support	1.12 (0.50–2.48)	0.76 (0.44–1.31)	1.40 (0.71–2.74)	0.82 (0.46–1.46)	1.53 (0.86–2.73)	1.02 (0.48–2.19)
Avoidance	0.74 (0.29–1.89)	0.90 (0.51–1.60)	1.14 (0.54–2.39)	0.91 (0.48–1.69)	1.01 (0.54–1.86)	1.18 (0.52–2.64)
Palliative reacting	1.41 (0.72–2.76)	1.51 (0.96–2.37)	1.38 (0.74–2.55)	1.24 (0.75–2.06)	1.50 (0.93–2.42)	1.12 (0.60–2.09)

OR (95%CI) are shown. Values with $P < 0.05$ are in bold.

Abbreviations: MCP, middle-aged patients with cancer; OCF, older patients without cancer.

Logistic regression analyses were adjusted for covariates significant in univariate analyses and for baseline well-being status.

Depression was adjusted in MCP for age; in ONC for age and comorbidity.

Loneliness was adjusted in MCP for living situation and marital status; in MCP for living situation; in ONC for gender and educational level.

Distress was adjusted in MCP for marital status, tumor type, and radiotherapy; in MCP for educational level and comorbidity.

Fatigue was adjusted in OCF for age, gender, and tumor type; in MCP for comorbidity, tumor type, chemotherapy, and radiotherapy; in ONC for educational level and comorbidity.

ADL was adjusted in OCF for gender; in MCP for educational level, tumor type, and comorbidity; in ONC for age, gender, marital status, and educational level.

IADL was adjusted in OCF for age and educational level; in MCP for tumor type, stage, surgery, chemotherapy, and radiotherapy; in ONC for age, educational level, and comorbidity.

4 | DISCUSSION

4.1 | Main findings

The results of our main analysis showed that some baseline coping strategies influenced psychological well-being and physical health 1 year later in patients with cancer, even after controlling for important covariates including cancer-related factors. This relation between coping and well-being differs between OCP and the 2 control groups. However, there were few significant associations overall, no associations were observed in ONC, and most associations were observed in MCP.

The analysis of the individual coping strategies showed that active tackling and seeking social support did not predict well-being in OCP and ONC. Avoidance coping did not predict any of the outcomes in the 3 patient groups. Three out of a total of 5 significant associations were observed for palliative reacting. It was the only coping strategy that predicted physical health, although only in MCP. Furthermore, palliative reacting was the only coping strategy that predicted any of the outcomes (ie, distress) in OCP.

Our additional analyses at baseline described differences in well-being and showed that active tackling was used most often in the 3 patient groups. Furthermore, coping strategies did not differ between older patients with and without cancer. On the other hand, coping patterns differed between the age groups in patients with cancer.

4.2 | Comparison with literature and discussion

Older patients with cancer often experience less psychological morbidity compared with younger patients.^{5,25} One possible explanation for this difference in well-being suggests that older people are more skilled at matching coping strategies to situational demands (coping flexibility) compared with their younger counterparts.²⁶ However, in this study, we did not study younger patients (often <50 years in studies) but MCP (50–70 years) which might explain why we did not find a difference in distress or depression between OCP and MCP at baseline.

While we did not see an aging-related effect for psychological well-being (except for loneliness) in cancer patients, we did observe such an effect for dispositional coping at baseline. Available evidence suggests that in later life there is a decline in the use of most coping strategies in the general population.²⁷ We also observed this decline in the current study when comparing OCP with MCP, with the exception of palliative reacting. Different explanations can be given for the age difference in coping patterns.^{27–29} One general interpretation suggests that older patients are more likely to devote less energy to coping when faced with stressful situations due to psychological and social changes that often accompany aging.

The main goal of the current paper was to assess the predictive value of baseline coping for subsequent well-being after 1 year in OCP while disentangling aging and diagnosis effects. We found no diagnosis effect (OCP versus ONC) on dispositional coping at baseline, and, not considering palliative reacting, there was also no diagnosis effect in the relationship between coping and well-being, perhaps also not entirely unexpected because we did not specifically measure coping in response to cancer. Still, a cancer diagnosis in patients who generally utilize palliative reacting more often predicted distress in OCP after 1 year while such

an association was not observed in ONC. This might reflect the difficulty of these patients to return to normal life a year after a cancer diagnosis.

The differential relationship that we observed for coping and subsequent well-being between OCP and MCP is not unexpected given the aging effect on dispositional coping described earlier. Our findings indicate that the association between palliative reacting and negative outcomes seems to persist with aging (both present in MCP and OCP) while the association between active coping (active tackling, seeking social support) and positive outcomes does not (only present in MCP). The lack of any association with avoidance coping in this study is unexpected because it is linked to decreased psychological well-being in previous cross-sectional and prospective research.^{6,30} With 4 observed associations in MCP and only one in OCP, it seems that the aging effect attenuates the association between coping shortly after a cancer diagnosis and well-being after 1 year. One possible interpretation of these results suggests that older patients are more likely to trivialize a cancer diagnosis, hence the lower utilization of active coping and avoidance coping in OCP compared with MCP, which could mute the impact of the diagnosis on well-being.²⁹ Our results are an illustration of the inappropriateness of the extrapolation of evidence obtained from younger patients to the older population. Similarly to decisions related to the medical treatment of OCP, different aspects of aging should be taken into account in the psychosocial care of OCP. Our observation that age does not seem to affect the association between palliative reacting and decreased psychological well-being 1 year after a cancer diagnosis is important for clinical purposes and is discussed below.

4.3 | Strengths and limitations

Major strengths of this study include the relatively large study population, the possibility for longitudinal analyses, and the availability of 2 control groups for OCP which allowed us to distinguish between age-linked effects and cancer (-diagnosis) effects. Furthermore, we were able to study simultaneously multiple dimensions of well-being. A shortcoming of this study is the high percentage of patients that were lost to follow-up after 1 year. However, many associations were confirmed in sensitivity analyses (Appendix S1). Additional analyses showed that lost to follow-up patients were not fundamentally different in terms of baseline coping compared with patients that were included in the analysis. The former utilized active tackling less frequently while no differences were observed for the other coping strategies (data not shown). Another point to consider is that although we focused on 4 key coping strategies in this study, other strategies that are not covered by the short UCL might provide additional information on the association with well-being.

4.4 | Clinical implications and future research

A comprehensive geriatric assessment is recommended in OCP to guide treatment decision-making considering the variability of health status in the older population.³¹ This entails the assessment of multiple geriatric domains like functional status but also psychological status prior to cancer treatment. This is also a good moment to identify early on OCP with inadequate coping tendencies and offers the opportunity for prevention programs. It is already well established that distress should be assessed routinely in patients with cancer. Particularly in

OCP, future intervention studies should focus on cognitive behavioral therapy aimed at palliative reacting and its impact on distress on the short term and long term given that psychosocial interventions might only have short-term effects.³² Future research should also focus on the validity and reliability of the short version of the UCL.

5 | CONCLUSIONS

Coping strategies influence subsequent well-being in patients with cancer, but the impact is different in the age groups. Palliative reacting was the only coping strategy that predicted well-being (ie, distress) in OCP and is therefore, especially in this population, a target for coping skills interventions.

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SUPPORTING INFORMATION

Additional Supporting Information may be found online in the supporting information tab for this article.

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