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How do cancer patients manage unattainable personal goals and regulate their emotions?

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Objectives. This article addressed the role of goal adjustment (i.e. disengagement from unattainable goals and reengagement in alternative goals) and cognitive emotion-regulation strategies (i.e. rumination, catastrophizing, positive refocusing) in cancer patients' psychological well-being. We expected that patients who are better able to disengage from unattainable goals, identify alternative goals, and regulate their emotions by positive refocusing and not engaging in rumination and catastrophizing would experience less negative and more positive affect.

Design. In this cross-sectional study, data were collected using a self-report questionnaire.

Methods. Cancer patients ($N = 108$) were recruited on a psychoeducational meeting aimed to inform them about the illness and its consequences. To examine the relationships between goal adjustment, cognitive emotion-regulation strategies, and affect, Pearson correlations were calculated and regression analyses were performed.

Results. Regression analyses showed that reengaging in meaningful goals and focusing on pleasant issues were significantly associated with more positive affect. Focusing on pleasant issues was also significantly associated with less negative affect, whereas rumination and catastrophizing were significantly associated with more negative affect.

Conclusions. Goal reengagement as well as cognitive emotion-regulation strategies seems to play an important role in cancer patients' psychological well-being. Health care professionals may assist patients in paying more attention to positive experiences in their daily life and in finding new meaningful goals. Techniques based on mindfulness may be used to assist cancer patients in decreasing the repetitive negative thinking about causes, meanings, and consequences of the illness and helping them to focus attention on the present moment.

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Introduction

There is a large and growing population of cancer patients nowadays, which is confronted with the consequences of the illness upon their psychological well-being. Especially, in the first year following diagnosis, cancer patients may experience a negative or depressed mood and a lack of positive affect (Helgeson, Snyder, & Seltman, 2004; Stommel, Kurtz, Kurtz, Given, & Given, 2004). Over time, most cancer patients seem to adapt relatively well, but certain negative emotions such as uncertainty and a fear of cancer recurrence may persist in the long term (Kornblith *et al.*, 2003; Schroevers, Ranchor, & Sanderman, 2006). Given these adverse psychological effects, there is a need to examine how patients deal with such a highly stressful event and which factors are associated with their well-being.

Based on the stress-coping model of Lazarus and Folkman (1984), the most widely studied phenomenon that has been examined in relation to patients' well-being are their *coping strategies*, that is, their efforts to manage a stressful situation and the emotional responses to the event (Deimling *et al.*, 2006; Dunkel-Schetter, Feinstein, Taylor, & Falke, 1992). More recently, it has been suggested that the stress-coping model should be integrated into a more comprehensive framework of self-regulation (Lazarus, 1993; Maes, Leventhal, & De Ridder, 1996; De Ridder & De Wit, 2006). Self-regulation takes more explicitly into account the role of personal goals for the meaning of a stressful event and subsequent action. In the present study, we will apply this self-regulation perspective to examine patients' psychological well-being after a diagnosis of cancer. We believe that the inclusion of self-regulatory processes can increase our understanding of the process of psychological adjustment to such a life-threatening illness.

Self-regulation theory (Carver & Scheier, 1999, 2000) proposes that people strive for the attainment of personal goals and are constantly engaged in a process of comparing what is with what is desired. Goals give people a sense of identity and meaning in life and are therefore believed to be of great importance for psychological well-being (Emmons, 2003). Reduced well-being is believed to arise when people are confronted with obstacles in the attainment of their goals. It has been suggested that one way to restore well-being in such circumstances is to withdraw effort and commitment from unattainable goals and to reengage in alternative meaningful goals. Such goal adjustment has been associated with a better well-being, less depression, and a greater sense of purpose in life (Wrosch, Scheier, Miller, Schulz, & Carver, 2003).

Much of the research on goal adjustment has been performed among healthy adults facing short-term challenges or common age-related health stresses (Wrosch, Dunne, Scheier, & Schulz, 2006; Wrosch, Schulz, & Heckhausen, 2002). Less is known about the extent to which goal adjustment is also adaptive when being confronted with more chronic limitations, such as in the case of a chronic illness. Studies have shown that a chronic illness may strongly interfere with the attainment of goals, especially goals related to being healthy, having a sense of self-confidence and competence, being able to carry out daily activities, and feeling connected to others (Boersma, Maes, & Joeke, 2005; Lampic, Thurfjell, Bergh, Carlsson, & Sjoeden, 2002; Nordin, Wasteson, Hoffman, Glimelius, & Sjoeden, 2001; Van der Veek, Kraaij, Van Koppen, Garnefski, & Joeke, 2007). It can be imagined that precisely under these circumstances, it may be beneficial for patients to stop pursuing unattainable goals and to invest time and effort in meaningful goals that are attainable. In the present study, we will examine whether patients' ability to disengage from unattainable goals due to cancer and to identify and reengage in alternative goals is related to their psychological well-being.

Besides the processes around goal striving and goal adjustment, self-regulation is concerned with the monitoring of affect and the strategies that people use to regulate their emotions (Carver & Scheier, 1999). As the management of stress has traditionally been studied from a stress-coping perspective, relatively little is known about how people deal with emotional distress during goal pursuit and whether emotion-regulation strategies are related to goal adjustment (De Ridder & De Wit, 2006). Integrating coping or emotion regulation in the framework of self-regulation may be helpful in better understanding how effective emotion regulation might enhance successful self-regulation. As the process of emotion regulation is very complex and broad, we will focus on the *cognitive* components of emotion regulation. This has also been called cognitive coping. Previous research suggests that cognitive strategies characterized by rumination and positive distraction play an important role in the self-regulatory process (Lavalley & Campbell, 1995; Nolen-Hoeksema, 1998). *Rumination* can be described as a continuously, repetitive thinking about one's feelings and thoughts, including dwelling on the negative aspects (i.e. *catastrophizing*; Lavalley & Campbell, 1995; Nolen-Hoeksema, 1998). People may use rumination as a way to better understand their thoughts and feelings, so they can subsequently make appropriate actions to regulate their emotions. Research, however, has shown that people who ruminate experience more negative affect actually (Porter *et al.*, 2006). In contrast, *positive distraction* by means of focusing on pleasant issues has been associated with a better mood (Nolen-Hoeksema, 1998). In the present study, we will examine whether these cognitive emotion-regulation strategies are associated with cancer patients' psychological well-being. Moreover, we will explore the relationships between these cognitive emotion-regulation strategies and goal adjustment. Earlier research suggests that the experience of goal threat and not being able to adjust one's goals are associated with more rumination and a continuous dwelling on the discrepancy between what is and what is desired (Lavalley & Campbell, 1995).

In conclusion, more research is needed which integrates self-regulatory processes in the process of psychological adjustment to a chronic illness. The present study was conducted among a sample of cancer patients. Given the life-threatening nature of a diagnosis of cancer and its often disabling treatment, we believe that especially in this context, it is important to study goal-adjustment processes and patients' abilities to regulate emotions. Specifically, we examined the relationships between goal adjustment, cognitive emotion-regulation strategies, and patients' well-being in terms of negative and positive affects. We focus on both the negative and positive affect as research has indicated that these affective states are relatively independent of each other, with the presence of one not indicating the absence of the other (Schroevers, Sanderman, Van Sonderen, & Ranchor, 2000; Watson & Clark, 1997).

We expected that patients who are better able to disengage from unattainable goals, identify alternative attainable goals, and regulate their emotions by positive refocusing and not engaging in rumination and catastrophizing would experience a better well-being. Regarding the relationships between goal adjustment and the cognitive emotion-regulation strategies, we expected less goal disengagement and reengagement to be associated with more rumination and catastrophizing.

Method

Sample and procedure

Participants were recruited with the assistance from the Comprehensive Cancer Centre West Netherlands (IKW) and the Dutch patient association for lymphoma

patients. The main researcher and two research assistants were present on two psychoeducational meetings in spring 2006, which were attended by 200 and 75 cancer patients. The goal of these meetings was to inform patients about the illness and its consequences. During the meetings, patients were informed about the study and its purpose (i.e. to obtain more insight into the factors associated with psychological well-being in cancer patients). Those who wanted to participate filled in an informed consent and received a written questionnaire and return envelope. In total, 140 patients signed the informed consent. A total of 108 patients (77%) returned a complete questionnaire (39 male, 69 female). The mean age was 53 years ($SD = 11.9$), ranging from 23 to 77 years. A large group was married or living with a partner (68%). Other patients were divorced (12%), widow (8%), or single (12%). A relatively high percentage had a higher vocational or university education (51%). Other patients finished primary education (4%), lower vocational or secondary education (17%), or middle vocational or secondary education (28%). Most patients were diagnosed with lymphoma (67%), followed by breast cancer (12%), leukaemia (5%), colorectal cancer (3%), lung cancer (3%), and prostate cancer (3%). The mean time since diagnosis was 7.3 years, with 25% being less than 2 years after diagnosis, 24% between 2 and 5 years after diagnosis, and 51% being 5 or more years after diagnosis (see Schag, Ganz, Wing, Sim, & Lee (1994) for classification). Compared to other studies, relatively many patients were diagnosed with stage III (20%) and stage IV (31%). Other patients had a better prognosis, as indicated by stage I (16%) or stage II (22%). Some patients (11%) did not know their stage. Most patients had surgery (46%). Radiotherapy (55%) and chemotherapy (67%) were also frequently mentioned. About one-fifth of the patients (22%) reported a cancer recurrence in the years following diagnosis.

Instruments

Goal adjustment

Goal disengagement and goal reengagement were measured by the goal disengagement and goal reengagement scale (Wrosch *et al.*, 2003). Previous research has demonstrated the reliability of this measure (Wrosch *et al.*, 2003). In the present study, the scale was used in a specific format: patients were asked about goal disengagement and reengagement in relation to the most important goal that they could not attain anymore due to the cancer. The scale consists of 10 items. The four items of the goal disengagement scale assess the ease with which patients were able to reduce effort and commitment towards the unattainable goal (e.g. 'When I could no longer pursue this goal, it was easy for me to reduce effort towards the goal'). The six items of the goal reengagement scale assess the extent to which patients reengaged in other new goals when they faced the unattainable goal (e.g. 'When I could no longer pursue this goal, I put effort towards other meaningful goals'). Each of the items has a 5-point Likert scale, ranging from 1 (almost never true) to 5 (almost always true). Scale scores can be obtained by adding up the items. Cronbach's alphas of .84 and .86 have been reported in earlier studies by Wrosch *et al.* In the present study, we found α -coefficients of .79 for goal disengagement and .86 for goal reengagement.

Cognitive emotion-regulation strategies

The cognitive emotion-regulation questionnaire (CERQ) was used to measure rumination, catastrophizing, and positive refocusing (Garnefski, Kraaij, & Spinhoven, 2001). We used the following subscales: (1) *rumination* (referring to continuously thinking about the feelings and thoughts associated with the cancer experience); (2) *catastrophizing*

(referring to thoughts of explicitly emphasizing the negative aspects of the cancer experience); and (3) *positive refocusing* (referring to thinking about joyful and pleasant issues instead of thinking about the cancer experience). Each of the three cognitive strategies was measured by four items on a 5-point Likert scale, ranging from 1 (almost never) to 5 (almost always). Individual subscale scores can be obtained by summing up the four scores belonging to the particular subscale. Research has indicated that the reliability and validity of the scale are good (Garnefski, Kraaij, & Spinhoven, 2002). Also in the present study, the subscales had good internal consistencies, with α -coefficients of .77 for rumination, .77 for catastrophizing, and .81 for positive refocusing.

Psychological well-being

The positive and negative affect schedule (PANAS) was used to measure positive and negative affect (Watson, Clark, & Tellegen, 1988). Positive affect reflects the extent to which a person feels enthusiastic, active, and alert. In contrast, negative affect is a general dimension of subjective distress and reflects a variety of negative mood states, including anger, sadness, guilt, fear, and nervousness. The two scales have shown to be largely uncorrelated. Both scales consist of 10 items. Patients were asked to rate the extent to which they had experienced each mood during the past 2 weeks. Items were scored on a 5-point Likert scale, ranging from 1 (not at all) to 5 (very much).

Scale scores can be obtained by adding up the 10 items, with higher scores reflecting higher positive or negative affect. The scales have been found to be internally consistent and to have good validity. In the present study, we found α -coefficients of .87 for positive affect and .86 for negative affect.

Statistical analyses

Means, standard deviations, and range of scores will be presented. Examination of the missing data revealed no missings on the three cognitive strategies, only three missing values on both affect measures, but 11 missing values on goal disengagement and goal reengagement. As this number of cases with missing data exceeds 5% and Little's MCAR test showed that missing values were not randomly distributed across all observations, we used EM algorithm to impute values to replace missing values.

To examine the associations of goal adjustment and the cognitive emotion-regulation strategies with negative and positive affect, we used Pearson correlations and regression analyses. Pearson correlations were also used to explore the relationships between the goal adjustment and the cognitive emotion-regulation strategies. As previous research has shown that demographic and medical characteristics might affect the report of positive and negative affect, we first tested these relationships in our sample of cancer patients. Using *t* test and ANOVA, we found no significant associations of gender, education, marital status, cancer site, treatment, disease stage, and cancer recurrence with positive and negative affects ($p > .05$). We only found a significant negative relationship between age and negative affect ($r = -.22, p < .05$) and a significant positive relationship between time since diagnosis and positive affect ($r = .21, p < .05$). Age also appeared to be significantly related to rumination ($r = -.22, p < .05$) and catastrophizing ($r = -.18, p < .05$) and time since diagnosis to goal reengagement ($r = .24, p < .01$), rumination ($r = -.18, p < .05$), and catastrophizing ($r = -.21, p < .05$). Therefore, age and time since diagnosis were used as control variables and entered in the first step of the hierarchical regression analyses (method: enter). In step 2, we entered goal disengagement, goal reengagement, rumination, catastrophizing, and positive refocusing (method: enter).

Results

Descriptives and correlations among study variables

Table 1 presents the means, standard deviations, and ranges of the study variables. In Table 2, the relationships between goal adjustment, cognitive emotion-regulation strategies, and affect are shown.

Table 1. Descriptives of the study variables ($N = 108$)

	<i>M (SD)</i>	Scale range
Goal adjustment		
Goal disengagement	10.03 (3.23)	4–20
Goal reengagement	20.06 (4.73)	6–30
Cognitive emotion-regulation strategies		
Rumination	10.06 (3.30)	4–20
Catastrophizing	6.53 (2.70)	4–20
Positive refocusing	12.57 (3.26)	4–20
Affect		
Positive affect	29.50 (7.02)	10–50
Negative affect	16.71 (5.29)	10–50

Regarding our research questions, the results showed that less goal disengagement and goal reengagement were significantly associated with more rumination and catastrophizing. Less goal reengagement was also significantly associated with less positive refocusing. Thus, being less able to let go of unattainable goals and to pursue alternative goals was associated with more rumination, more catastrophizing, and less positive refocusing.

Second, we examined the associations of goal adjustment and the cognitive emotion-regulation strategies with positive and negative affect. Positive and negative affect appeared to be significantly, but only moderately related to each other. More goal disengagement and goal reengagement were significantly related to more positive and less negative affect. Thus, patients who were better able to let go of unattainable goals and to put effort into alternative goals reported a better psychological well-being than patients who stayed committed to unattainable goals and those who did not reengage in new meaningful goals. We also found that more rumination and catastrophizing were significantly related to more negative and less positive affect. In contrast, more positive refocusing was significantly related to less negative and more positive affect.

Multivariate relationships between goal adjustment, cognitive emotion-regulation strategies, and affect

Two separate hierarchical regression analyses were performed (Table 3)¹. In these analyses, we controlled for the association of age and time since diagnosis with affect, by entering these variables in the first step of the model.

The results showed that more goal reengagement and more positive refocusing were significantly associated with more positive affect. In contrast, goal disengagement, rumination, and catastrophizing were not significantly associated with the report of positive affect. The full model explained 30% of the variance ($F(7, 100) = 6.07; p < .001$).

¹ The analyses with imputed values and missing values listwise deleted showed similar results.

Table 2. Pearson correlations between goal adjustment, cognitive emotion-regulation strategies, and affect (N = 108)

	Goal adjustment		Cognitive emotion-regulation strategies				Affect	
	Goal disengagement	Goal reengagement	Rumination	Catastrophizing	Positive refocusing	Positive affect	Negative affect	
Goal adjustment								
Goal disengagement	—							
Goal reengagement	.34***	—						
Cognitive emotion-regulation strategies								
Rumination	-.21*	-.16*	—					
Catastrophizing	-.33***	-.27**	.51***	—				
Positive refocusing	.09	.18*	-.10	-.17*	—			
Affect								
Positive affect	.20*	.38***	-.17*	-.23**	.42***	—		
Negative affect	-.24**	-.24**	.37***	.40***	-.29**	-.36***	—	

Note. *p < .05; **p < .01; ***p < .001.

Table 3. Hierarchical regression analyses of positive and negative affect

	Positive affect		Negative affect	
	β	ΔR^2	β	ΔR^2
Step 1		.05		.05
Age	-0.05		-0.22*	
Time since diagnosis	0.21*		-0.07	
Step 2		.25***		.23***
Age	-0.11		-0.11	
Time since diagnosis	0.07		0.07	
Goal adjustment				
Goal disengagement	0.05		-0.07	
Goal reengagement	0.26**		-0.11	
Cognitive emotion-regulation strategies				
Rumination	-0.07		0.20*	
Catastrophizing	-0.05		0.21*	
Positive refocusing	0.35***		-0.21*	

Note. * $p < .05$; ** $p < .01$; *** $p < .001$.

Less positive refocusing and more rumination and catastrophizing were significantly related to more negative affect. Neither goal disengagement nor goal reengagement was significantly related to negative affect. The full model explained 28% of the variance ($F(7, 100) = 5.58$; $p < .001$).

As positive and negative affect was significantly correlated, we performed additional regression analyses, with negative affect entered in the third step of the model explaining positive affect and with positive affect entered in the third step of the model explaining negative affect. Although negative affect explained an additional 3% of the variance of positive affect ($\beta = -0.21$, $p < .05$), the results were similar as above, with both goal reengagement and positive refocusing significantly associated with positive affect. When controlling for the effect of positive affect ($\beta = -0.22$, $p < .05$), only rumination and catastrophizing were associated with negative affect ($p = .06$). Positive refocusing was no longer significantly associated with negative affect.

Discussion

In the present study, we made an attempt to investigate how goal adjustment strategies (i.e. goal disengagement and goal reengagement) and cognitive emotion-regulation strategies (i.e. rumination, catastrophizing, and positive refocusing) are related to psychological well-being. These processes were studied in a heterogeneous sample of 108 cancer patients.

Correlation analyses confirmed our hypotheses that less goal disengagement and goal reengagement were significantly associated with more rumination and catastrophizing. Less goal reengagement also appeared to be significantly associated with less positive refocusing. It seems that as long as cancer patients find it difficult to let go of unattainable goals and to put effort into alternative goals, they are caught up in a process of continuously thinking about the cancer, explicitly emphasizing the negative aspects, and overlooking pleasant experiences. The use of these cognitive strategies

may indicate that the person is still dwelling on the discrepancy between what is and what is desired and searching for ways to reduce this discrepancy. An alternative explanation may be that a negative ruminative way of thinking makes it more difficult for the patient to let go, move forward, and think about alternative meaningful goals (Lavalley & Campbell, 1995). Why do people engage then in such a way of thinking? It has been suggested that, by rumination, people are trying to understand the cause of their feelings and solve their problems and discrepancies between the current situation and a desired state or standard (Nolen-Hoeksema, 1998). However, the constant and repetitive focus on what has happened seems to prolong or exacerbate negative affect and prevent adequate problem solving and self-regulation.

Regarding the associations of goal adjustment and cognitive emotion-regulation strategies with affect, correlation analyses confirmed our hypotheses that more goal disengagement and more goal reengagement were significantly related to more positive and less negative affect. We also found that less rumination and catastrophizing, and more positive refocusing were significantly related to more positive and less negative affect. Regression analyses including both goal adjustment and cognitive emotion regulation showed that more positive refocusing and more goal reengagement were significantly associated with more positive affect. Regarding negative affect, we found that more rumination and catastrophizing and less positive refocusing were significantly associated with more negative affect. These findings are intriguing for several reasons.

First of all, these results suggest that goal reengagement is somewhat more important for cancer patients' well-being than goal disengagement. As others have also noted, goal disengagement and goal reengagement are relatively independent processes (Carver & Scheier, 1999; Wrosch *et al.*, 2003). A person may disengage from an unattainable goal first, before pursuing a new goal, or alternatively, a person may seek and reengage in new goals, without disengaging from an unattainable goal first. Whether or not a person lets go of unattainable goals, the pursuit of other meaning goals is believed to be of crucial importance for well-being. These findings suggest that health care professionals working with cancer patients may help patients by assisting them in identifying and engaging in new meaningful and attainable goals. A personal goal assessment may pinpoint valued goals that have been threatened or become unattainable due to the illness. Helping the patient to seek new meaningful goals would enable the patient to experience a better well-being and more meaning in life.

Another explanation for the relatively weak relationship between goal disengagement and well-being may be that the adaptive aspects of goal disengagement are more complex to study. For instance, we did not examine which goals cancer patients had to give up. It can be hypothesized that disengaging from more important higher-order goals, such as maintaining a sense of autonomy or competence, is more troublesome than disengaging from more concrete lower-level goals, such as going to cycle every week. Moreover, we could also not distinguish between patients who rightfully let go of unattainable goals and those who withdraw effort too quickly from goals that might have been attainable. Giving up every time when things get difficult is probably not an adaptive self-regulation.

A second important conclusion that can be drawn from the results of the regression analyses is that the cognitive strategies that patients used to regulate their emotions are important for their well-being. Cancer patients who were more able to think about pleasant issues (instead of about the cancer experience) and those who did not continuously ruminate about their feelings and thoughts associated with the

cancer experience reported a greater well-being. Our findings are in line with those of others, suggesting that positive refocusing is an effective strategy to decrease negative affect and to stimulate the experience of positive affect (Nolen-Hoeksema, 1998). The detrimental effect of rumination and catastrophizing appeared to play an important role in patients' adjustment to cancer as well. Recently, it has been suggested by others that especially the part of rumination characterized by an *analytical evaluative* self-focus (i.e. thinking about the causes, meanings, and consequences of an event) is associated with negative affect (Rimes & Watkins, 2005). An *experiential* form of self-focus, characterized by the direct experience of one's thoughts and feelings in the present moment, seems to be a more adaptive form of self-focused attention. There is evidence, also among cancer patients, that stimulating such an experiential form of self-focus using mindfulness-based therapy may improve patients' mood and quality of life (Carlson & Garland, 2005; Kabat-Zinn, 2003; Teasdale *et al.*, 2000). Overall, our findings and those of others suggest that health care professionals' working may assist cancer patients in paying more attention to positive experiences in their daily life and to focus attention on the actual experiences in the here and now, with openness and acceptance.

When interpreting the results from the present study, there are several limitations that need to be taken into account. First of all, due to the cross-sectional design, the question about causality cannot be answered. For instance, goal disengagement and reengagement may lead to increased well-being, but it can also be reasoned that an increased well-being may lead to a greater report of goal disengagement and reengagement. There is evidence that goal adjustment leads to a better well-being, rather than *vice versa* (Emmons, 2003). We can also not draw firm conclusions about the causality regarding the relationship between the cognitive emotion-regulation strategies and goal adjustment. More longitudinal studies are needed to clarify the directions of these associations. A second concern is the recruitment of patients from a patient organization. This may affect the generalizability of the study results to other patient groups. In our sample, there was a relatively large group of patients with a higher stage of disease, more extensive treatment, and greater occurrence of cancer recurrence. A third concern is that goal adjustment, cognitive emotion-regulation strategies, and affect were all assessed by self-report instruments, which may have caused some bias. Future studies should also use other forms of data collection like interviews. Finally, it should be noted that goal adjustment and cognitive emotion-regulation strategies explained only about a quarter of the variance of positive and negative affect. This suggests that other factors are involved, such as patients' personal resources (e.g. optimism, self-efficacy, self-esteem) and social resources (e.g. the support from significant others). Future studies should try to incorporate these other factors as well.

Despite these shortcomings, goal reengagement and cognitive emotion-regulation strategies seem to play an important role in patients' psychological well-being after the diagnosis of cancer. If these findings can be confirmed in other patient groups, they could contribute to the focus and content of intervention programmes aimed to help patients to manage the cancer and experience a satisfactory well-being and meaning in life.

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