Patterns of adaptation to cancer during psychological care
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CHAPTER 7

General Discussion
Chapter 7

The overall aim of the current thesis was to expand the existing knowledge on psychological adaptation to cancer. Specifically, we examined subgroups of cancer patients with different patterns of adaptation while receiving psychological care. In the current thesis, psychological adaptation was conceptualised by (1) outcomes of adaptation: negative outcomes (i.e., symptoms of depression, anxiety, and fatigue) and positive outcomes (i.e., benefit finding) and (2) predictors of adaptation: personal resources that may enhance adaptation (i.e., personal control and goal adjustment). The present discussion chapter starts with a brief summary of the major findings, followed by several methodological considerations of the present research. Moreover, several clinical implications of our findings and suggestions for future research are discussed, and this chapter ends with a concluding remark.

Major Findings

Part 1. Outcomes of adaptation to cancer: negative and positive outcomes

Symptoms of depression, anxiety, and fatigue are highly prevalent in cancer patients and are found to be closely correlated with each other (Brown & Kroenke, 2009; Cheung, Le, & Zimmermann, 2009; Chow et al., 2008; So et al., 2009). There have been numerous randomised controlled trials (RCTs) examining the efficacy of psychological care in reducing symptoms of depression, anxiety, and fatigue in cancer patients. Although there have been several RCTs that included symptoms of depression, anxiety, and fatigue simultaneously, most studies only examined separate changes in these symptoms (Andersen et al., 2004; Armes, Chalder, Addington-Hall, Richardson, & Hotopf, 2007; Dolbeault et al., 2009; Savard et al., 2006). Therefore, it remains unclear whether subgroups of cancer patients with different comorbidity patterns of symptoms of depression, anxiety, and fatigue can be distinguished during psychological care. Our findings in Chapter 2 showed that when cancer patients presented themselves for psychological care, three subgroups with distinct comorbidity patterns could be identified, namely (1) ‘mood disturbances’, (2) ‘mood disturbances and fatigue’, and (3) ‘few symptoms’. Most patients with ‘few symptoms’ before the start of psychological care were able to maintain this level during psychological care. Approximately half of those with ‘mood disturbances’ reported improvements in their symptoms of depression and anxiety, whereas the other half remained in the same pattern over time. Only a quarter of those with ‘mood disturbances and fatigue’ improved with respect to all three symptoms, another quarter only improved on fatigue, and the remaining half reported all three symptoms during the nine months. These findings reveal that fatigue is important in
distinguishing cancer patients with distinct comorbidity patterns, and those patients with both psychological mood disturbances and fatigue are less likely to improve their symptoms during psychological care.

After the overall examination of the three symptoms, we focused on symptoms of depression in Chapter 3. Due to the increasing dissatisfaction with the broad definition of major depression, efforts have been made to overcome this problem by identifying distinct subtypes of depression (Baumeister & Parker, 2010; Harald & Gordon, 2012; Parker, 2005; Parker, 2006). However, previous research has primarily focused on the general population and people with major depressive disorder, and it remains unknown to what extent previous findings can be generalised to cancer patients. In Chapter 3, based on the 16-item version of the Centre for Epidemiologic Studies Depression Scale (CES-D) (Radloff, 1977), we selected 10 items that were in accordance with the DSM-5 diagnostic criteria for major depression (American Psychiatric Association, 2013). Using these 10 CES-D items, we selected those cancer patients with clinically elevated depression before the start of psychological care and found three distinct subtypes of depression. The three subtypes of depression differed on both levels (based on the scores of items) and patterns of depressive symptoms. Class 1 had an overall low level of depression (based on the scores of items), and reported cognitive and fatigue related problems. Class 2 had an overall moderate level of depression (based on the scores of items), and mainly reported cognitive and fatigue related problems, and some minor problems on depressed mood. Class 3 had an overall high level of depression (based on the scores of items), and mainly reported a depressed mood, and some minor cognitive and fatigue related problems. The symptom pattern in Class 3 (i.e., mainly depressed mood and additional cognitive and fatigue problems) was similar to the symptom pattern in Class 2. (i.e., mainly cognitive and fatigue problems and additional depressed mood). However, the main problem of Class 2 was cognitive and fatigue related problems, and the main problem of people in Class 3 was depressed mood. Patients with these three subtypes also reported different courses in their symptoms of depression during psychological care; people in Class 1 reported moderate improvements, people in Class 2 reported a large improvement, and those in Class 3 reported the largest improvements in symptoms of depression during psychological care. These findings suggest that those with the most severe depression have the largest ability to improve their symptoms during psychological care. These findings add to previous research in the general population and people with MDD (Carragher et al., 2009; Herman et al., 2007; Hybels et al., 2009; Hybels et al., 2013; Lamers et al., 2012; Lamers et al., 2010; Lee et al.,
2012; Rodgers et al., 2014) and demonstrated that distinct subtypes of depression exist in cancer patients. This finding warrants more research on the subtypes of depression in cancer patients.

The diagnosis of cancer and its aftermath may not only cause negative outcomes but may also lead to positive outcomes, such as becoming a stronger person and more appreciation for life. Therefore, in *Chapter 4*, we focused on positive outcomes (e.g., becoming a stronger person, more appreciation of life) reported by cancer patients. This chapter used the term ‘benefit finding’ to capture positive outcomes reported by cancer patients. The theory of Tedeschi and Calhoun assumed that distinct trajectories of benefit finding may exist over time (Calhoun & Tedeschi, 2004). Yet, few empirical studies are available to support their assumption. In Chapter 4, we found five distinct trajectories of benefit finding in cancer patients during psychological care: (1) ‘high level-stable group’, (2) ‘very low level-small increase group’, (3) ‘low level-small increase group’, (4) ‘moderate level-small increase group’, and (5) ‘low level-large increase group’. Moreover, this chapter also examined to what extent these different trajectories of benefit finding could be related to negative outcomes (i.e., symptoms of depression and anxiety). We found that people with distinct benefit finding trajectories reported different courses of depressive symptoms, but no difference in anxiety symptoms was found. These findings add to previous intervention studies that found cancer patients could increase benefit finding while receiving psychological care (Antoni et al., 2006; Penedo et al., 2006) and further suggested that cancer patients may show different patterns of changes in benefit finding during psychological care. Only a small group of cancer patients experienced large increases in benefit finding over time. This group also reported the largest reductions in psychological symptoms over time.

**Part 2. Predictors of adaptation to cancer: personal resources promoting adaptation**

In addition to examining the patterns of outcomes of adaptation, it is also important to identify the possible different patterns of factors that may predict adaptation to cancer. It can help to understand the underlying mechanisms of adaptation to cancer and mechanisms underlying psychological interventions aimed to improve adaptation to cancer, which may identify methods to develop more effective psychological interventions for cancer patients. Therefore, the second part of this thesis focused on two personal resources that may enhance adaptation to cancer: personal control and goal adjustment.
As for personal control, several previous studies have confirmed that cancer patients were able to improve their personal control during psychological care (Cameron, Booth, Schlatter, Ziginskas, & Harman, 2007; Cohen & Fried, 2007). However, little is known regarding whether every patient could follow this improvement pattern. If not, are there different subgroups that show distinct trajectories of personal control? In Chapter 5, we found three subgroups of cancer patients with distinct personal control trajectories during psychological care: (1) ‘enduring control improvement’, (2) ‘temporary control improvement’, and (3) ‘control deterioration’. Patients in the enduring and temporary control improvement groups reported significant improvements in symptoms of depression and anxiety over time, whereas patients in the control deterioration group maintained rather high levels of depressive and anxiety symptoms during psychological care. These findings indicate that not every patient could improve personal control while receiving psychological care. Those patients who were having difficulties in improving personal control were more likely to remain depressed and anxious. Findings of this chapter add to previous literature on trajectories of outcomes of adaptation to cancer (e.g., distress) (Brant, Beck et al., 2011; Dunn et al., 2013; Helgeson, Snyder, & Seltman, 2004; Henselmans et al., 2010; Lam et al., 2013; Lam et al., 2010; Rose et al., 2009) by demonstrating the existence of distinct trajectories for factors that could promote adaptation to cancer. This evidence warrants more research on the identification of distinct growth trajectories on factors promoting cancer adaptation.

Regarding goal adjustment capacities (i.e., goal disengagement and goal reengagement), there is a lack of knowledge on the stability/changeability of goal adjustment, as most previous research examining the role of goal adjustment in adaptation to cancer has used a cross-sectional design. Therefore, in Chapter 6, we examined whether and to what extent cancer patients changed in their goal adjustment capacities at the group level as well as at the individual level and how these changes were related to changes in symptoms of depression, anxiety, and fatigue during psychological care. At the group level, cancer patients reported only small improvements in goal disengagement capacities, but no significant change in goal reengagement capacities was found. At the individual level, we found that a quarter of patients were able to increase their goal disengagement and/or goal reengagement capacities during psychological care. Only increases in goal reengagement were associated with improvements in symptoms of depression and anxiety (but not to fatigue). These findings add to the ongoing debate regarding whether goal adjustment is stable as well as the differential role of goal disengagement and reengagement in psychological well-being (Dunne, Wrosch,
& Miller, 2011; Thompson, Woodward, & Stanton, 2011; Wrosch & Miller, 2009). This chapter clearly suggests that both goal disengagement and reengagement may change over time, with goal reengagement being beneficial for cancer patients’ psychological well-being.

Based on findings of the current thesis, different patterns exist in the process of psychological adaptation in cancer patients during psychological care.

**Methodological Considerations**

This section discusses several methodological considerations about the present research including the study design, the sample, and the analysis.

*The study design: a naturalistic study*

In the present research, we did not intend to test the effectiveness of psychological care in promoting psychological adaptation to cancer. Instead, we aimed to reach a better insight into how people differed from each other in their patterns of adaptation to cancer during psychological care. Therefore, this research applied a longitudinal naturalistic design in a clinical setting, as this design was more suitable for the research aims. We focused on cancer patients who sought standard psychological care at one of the seven specialised psychosomatic oncology institutions in the Netherlands. Those cancer patients were followed up at three points in time during a nine-month period: before the start of psychological care (T1), after three months (T2), and after nine months (T3). This naturalistic design is different than randomised controlled trials (RCTs), which are often regarded as the ‘gold standard’ of psychological intervention research (Leichsenring, 2004).

The overall purpose of RCTs is to ensure high internal validity. In RCTs, participants are randomised to an intervention group (i.e., receiving specific study intervention) or a control group (e.g., a waiting list group or a placebo group) so that the systematic bias between the groups can be reduced. However, concerns regarding the external validity of RCTs have been raised (Cuijpers, van Straten, Bohlmeijer, Hollon, & Andersson, 2010; Shadish, Cook, & Campbell, 2002). That is, the findings of RCTs may not be representative of real clinical practice. RCTs select participants based on strict inclusion and exclusion criteria, which raises concerns to what extent participants differ from non-participants. Moreover, RCTs often focus on one specific type of psychological intervention and offer this intervention to all participants with fixed terms of content, intensity, and number of sessions.
This method is different from real clinical practice, in which the intensity and length of interventions are more flexible, and the content of intervention also depends on patient preferences and clinical needs.

In naturalistic studies, participants are neither randomised to different groups nor given one specific intervention. Instead, the most suitable interventions are offered according to patients’ clinical problems and their personal needs. Each patient may receive different psychological interventions. Therefore, naturalistic studies have a high clinical representativeness, which increases the external validity of findings (Barth et al., 2013; Cuijpers et al., 2010; Leichsenring, 2004; Seligman, 1995; Shadish, Cook, & Campbell, 2002). However, this major strength of naturalistic studies can also be perceived as a weakness. Because of the lack of a control group and lack of randomisation, naturalistic studies are often challenged by a low internal validity. No causal conclusions can be drawn regarding the effectiveness of psychological care in participants’ outcomes.

According to the above comparisons, the major strength of the study design in this research is the strong representativeness for clinical practice. Therefore, the conclusions drawn from the present research are clinically relevant and informative. By examining how individuals differ from each other with regard to adaptation to cancer in such a naturalistic setting, this research adds to existing literature and clearly suggests that people with cancer may respond in a different way to psychological care they received. However, due to the lack of a control group, the major limitation of this research is that it remains unknown whether and to what extent the changes in outcomes and personal resources over time were due to psychological care or other factors such as natural adaptation. Future naturalistic studies could include a control group with cancer patients who do not seek and receive psychological care, matched on socio-demographic variables such as age and gender. With an added control group, results of the intervention group can be compared with results of the control group, and it would be possible to indicate whether and to what extent the adaptation patterns are unique for the psychological care setting.

**The sample**

The current research applied a consecutive sampling approach to recruit participants. When cancer patients sought psychological care at one of the seven specialised psycho-oncology institution in the Netherlands, they were provided the information regarding this research. The prerequisites for receiving psychological care were the same across the seven participated
psycho-oncology institutions. Based on each patient’s clinical problems and personal need, various types of psychological care (i.e., individual therapy, group therapy, and other therapy) were offered. We did not screen for distress or any other psychological problems as prerequisites for inclusion in this research. A total of 611 cancer patients were informed about the current research, of whom 384 people completed the baseline assessment, and 227 people dropped out. Between the 384 people and the 227 drop-outs, there were no significant differences in age or gender. Of the 384 people, 72% (278 of 384) completed the second assessment, and 63% (241 of 384) completed the third assessment. The main reason for study withdrawal was being too ill. Of the 241 sample, around half of them received only individual therapy. At T2, 22.4% of the 241 sample had completed psychological care, and 46.5% had finished care at T3. The response rate (63%: 241 of 384) and the drop-out rate (37%: 143 of 384) were comparable to previous naturalistic studies in cancer patients receiving psychological interventions (Barth et al., 2013; Shapiro, McCue, Heyman, Dey, & Haller, 2010). The 384 baseline sample did not differ significantly from the 241 follow-up sample on either socio-demographic or clinical variables. This finding suggests that the follow-up 241 sample was representative of the baseline 384 sample.

Most chapters (Chapters 2, 4, 5 & 6) in the present thesis focused on the 241 cancer patients who completed the third measurement. As a result of the naturalistic design of this research, the sample consisted of heterogeneous populations: 80% were female, 68% were middle aged, and 46% were diagnosed with breast cancer. On the one hand, given that people with different types of cancer may report different psychological and physical problems, with the use of a heterogeneous sample, it is possible that several specific processes within specific types of cancer may get ignored. However, on the other hand, the current sample with a large proportion of middle aged women with breast cancer was representative for those cancer patients seeking and receiving psychological care. Previous studies have found that most cancer patients seeking psychological care were women, being diagnosed with breast cancer and/or with an average age of 52 years (Nekolaichuk,Cumming, Turner, Yushchyshyn, & Sela, 2011). The fact that all seven specialised psycho-oncology institutions in the Netherlands (the IPSO institutions) were involved in the present research further enables the conclusions of the present research specifically generalisable to Dutch cancer patients who seek psychological care.

We also compared the follow-up sample in the present research with the general Dutch cancer population. According to the 5-year prevalence report of the Dutch cancer population
in 2012, 51% of Dutch cancer patients were female, 32% were middle aged, and 20% were diagnosed with breast cancer (Netherlands Cancer Registry, 2012). Therefore, the study sample of this research was not very representative of the general Dutch cancer population, and conclusions of the current research may not be generalised to the broader cancer population.

**The analyses**

In the present research, a variable-centred approach and a person-centred approach were applied to examine the research questions. A variable-centred approach (e.g., correlation, regression analysis) is a traditional way to analyse longitudinal changes over time and has been commonly used in previous research. This approach aims to describe the inter-relationships amongst multiple variables and is helpful to examine changes in these variables of the entire group, in which heterogeneity amongst individuals is ignored (Laursen & Hoff, 2006; Muthén & Muthén, 2000). In contrast to the variable-centred approach, a novel person-centred approach (e.g., latent class modelling) considers the unobserved heterogeneity and can be used to classify individuals with similar patterns into groups.

In this thesis, several different types of latent class modelling were used to examine the research questions. Specifically, a latent transition analysis (LTA) and a latent class analysis (LCA) were performed in Chapter 2 and Chapter 3, respectively. A latent class growth analysis (LCGA) was applied in Chapters 4 and 5. LCA can be used to classify people into subgroups with similar patterns/profiles at a fixed time point. LTA is a special type of LCA, with the additional value of estimating the longitudinal transitions between the cross-sectional latent classes. LCGA can be used to capture the unobserved heterogeneity in the growth or development of an outcome over time. In LCGA, participants were classified into distinct subgroups based on distinct growth trajectories over time. The main advantage of these person-centred approaches concerns the considerations of unobserved individual differences that may exist in the sample. Therefore, these approaches are specifically useful in longitudinal research to identify heterogeneous subgroups of individuals with different patterns of change over time (Muthén & Muthén, 2000).

In using these approaches to analyse our data, the main issue we encountered was the lack of a ‘gold standard’ for model selection. In examining latent models, we normally examined several models with different classes (e.g., models ranging from 1 class to 5 classes). Based on these various models, we needed to select the model that was best
Chapter 7

representative of the data. It has been suggested to use both statistical and non-statistical criteria to select the best model (Jung & Wickrama, 2008). Regarding statistical criteria, entropy, Bayesian Information Criterion (BIC), Akaike Information Criterion (AIC), Bootstrapped Likelihood Ratio Test (BLRT) and Vuong-Lo-Mendell-Rubin Likelihood Ratio Test (VLMR) are very commonly used in previous research (Jung & Wickrama, 2008; Nylund, Asparouhov, & Muthén, 2007). The problem here is that the five different criteria do not necessarily lead to the same model. Therefore, we had to rely on which model was supported by the most criteria. However, it is also possible that two similar models were equally satisfactory based on the statistical criteria. For example, a three-class model and a four-class model were both supported by four of the five statistical criteria. In this case, we need to turn to the non-statistical criteria to select the best model. Between the two similar models, we need to consider which model has a better interpretability: whether the identified classes represented conceptually meaningful patterns and whether these patterns were obviously different from each other. Therefore, the non-statistical selection process is a bit subjective and partly dependent on how researchers would interpret the models. It might be possible that different models would be selected from different researchers, and there might not be an ‘absolute’ best model. Overall, the model selection needs to consider both statistical and non-statistical criteria, which balances all the various criteria.

Additionally, in examining our findings of distinct patterns of psychological adaptation, we observed a phenomenon that both the absolute levels and patterns of adaptation play an important role in distinguishing subgroups of cancer patients. For example, the three trajectories of personal control (see Chapter 5) could be differentiated by levels (i.e., low, moderate, and high) and patterns (i.e., stable low, temporary improvement, and enduring improvement) of personal control. A similar phenomenon could also be observed in other latent class modelling studies. For example, Rose et al. (2010) identified three different trajectories of psychological adaptation (in which adaptation was conceptualised into depression, anxiety, and spiritual well-being) in people with advanced cancer in natural adaptation (Rose et al., 2009). Similarly, their trajectories also differed in levels (i.e., low, moderate, and high) and patterns (i.e., low-worsening, moderate-improving, and high-stable) of psychological adaptation. Given these observed similar phenomenon, the next question is: to what extent does the analytic technique play a role in this adaptation? Unfortunately, we did not have an answer to this question. From the technical perspective, the subgroups of people derived from latent class modelling can differ qualitatively (e.g., distinct patterns of
adaptation) and/or quantitatively (e.g., different levels or severity) (Lubke & Muthén, 2005). The observed phenomenon might be (partly) caused by the analytic technique itself. Another possibility is that the patterns of findings in this thesis and also in other studies might merely reflect the characteristics of cancer patients.

Despite these issues, the combination of the variable-centred and person-centred approaches enabled us to provide more detailed information regarding individual differences in changes in psychological adaptation while receiving psychological care. Moreover, the current research highlights the utility of a person-centred approach (e.g., latent class modelling) in elucidating the heterogeneity in psychological adaptation to cancer.

**Clinical Implications**

It was shown that there were subgroups of cancer patients reporting distinct adaptation patterns of change in negative (i.e., symptoms of depression, anxiety, and fatigue) and positive outcomes (i.e., benefit finding), as well as in personal resources (i.e., personal control and goal adjustment) while receiving psychological care. Overall, most cancer patients followed one of the two following patterns: (1) those with a good psychological adaptation before psychological care and were able to maintain this during psychological care, and (2) those who were able to improve adaptation (differing in the extent of improvement) during psychological care. However, we also found that there was a small vulnerable group of cancer patients who were having difficulties in improving psychological adaptation (e.g., remaining chronically elevated depressive and anxiety symptoms) while receiving psychological care. This finding is consistent with previous studies, in which a similar vulnerable group of cancer patients (e.g., maintaining elevated chronic distress over time) was found in a natural adaptation process (Dunn et al., 2011; Henselmans et al., 2010; Lam et al., 2010). The problems of this vulnerable group of cancer patients (i.e., elevated distress and/or decreased personal resources) may be the result of cancer, but also possible the result of general vulnerability. Either way, this vulnerable group needs to be identified as early as possible and offered support (Dunn et al., 2011; Lam et al., 2010).

Clinicians and psychologists should pay special attention to cancer patients who are at risk of sustaining elevated psychological symptoms and/or sustained low levels of personal resources. Findings of this research have revealed several risk factors (i.e., poor physical health) and markers (i.e., low educational level and longer time after diagnosis) that might
impede people improving adaptation to cancer during psychological care. Regarding psychological factors, previous research found that those vulnerable cancer patients were characterised by less mastery and optimism and high scores on neuroticism (Henselmans et al., 2010; Lam et al., 2010). Moreover, if possible, efforts can be made to reduce the burden of these factors. Obviously, some factors are difficult to change, such as educational level and time after diagnosis, and other factors were relatively stable, such as optimism and neuroticism. Nevertheless, clinicians and psychologists could at least help those patients with severe physical symptoms (e.g., lack of appetite, nausea, headache, diarrhoea) to alleviate these symptoms.

Additionally, findings of the present research suggest that the first three months of receiving psychological care might be a key period, as most improvements in psychological adaptation were observed to happen during the first three months compared to the following six months. We also noticed that if cancer patients could not benefit during the first three months of psychological care, these patients were at risk of not benefiting during the following six months as well. In our research, 77.6% of our sample was still receiving psychological care after three months, and 53.5% were still in psychological care after nine months. Therefore, whether patients have completed psychological care is not a possible reason for this phenomenon. For those patients who did not profit from psychological care after the first three months of psychological care, psychologists should consider terminating treatment or search for other ways to help patients.

Suggestions for Future Research
Using a naturalistic design to investigate psychological care, we were able to characterise how people differed from each other with respect to the changes in psychological adaptation to cancer. It was the first study to identify distinct patterns of adaptation to cancer during psychological care. To reach a more thorough understanding of the different changes in adaptation to cancer during psychological care, more naturalistic studies are needed. In the current research, follow-up measurements were completed at fixed time points (i.e., three months and nine months after the start of psychological care). Therefore, we were not able to know the exact time point at which cancer patients had completed their psychological care. Future naturalistic studies could consider using flexible assessment points (e.g., before the start of psychological care and after the completion of psychological care) so that only changes within psychological care could be examined. Moreover, future naturalistic studies
should recruit a larger sample of cancer patients. This factor may help better understand the
general cancer population, which could increase the generalisability of findings.

Second, future research should examine whether the distinct adaptation patterns are due
to psychological care or other factors such as natural adaptation. By clarifying this issue, more
specific and concrete suggestions can be offered to clinicians and psychologists to help people
adjust to cancer. RCTs will be important to further examine this issue as well. Future RCTs
should examine whether different adaptation patterns can be found between the intervention
group and the control group. By comparing the patterns between the two groups, conclusions
can be drawn on which adaptation patterns are caused by psychological care and which are
not. Insight into the different adaptation patterns between the two groups may help tailor
psychological interventions.

Third, the present research suggests that not all cancer patients could benefit from
psychological care, which warrants more research on investigating the underlying reasons. An
examination on the possible predictors that could distinguish patients with distinct patterns of
adaptation would help clarify this point. In the current thesis, we mainly examined whether
cancer patients’ socio-demographic and clinical characteristics could distinguish patients with
distinct patterns of change during psychological care. Future research should examine the
predictive value of patients’ psychosocial characteristics. A recent systematic review
including 3340 heterogeneous cancer patients identified several psychosocial moderators of
the effectiveness of psychological care on cancer patients’ psychological well-being
(Tamagawa, Garland, Vaska, & Carlson, 2012). They found that cancer patients with poorer
quality of life, poorer interpersonal relationships, low levels of optimism and neuroticism, and
high emotional expressiveness were more likely to benefit from various types of
psychological care (e.g., cognitive behavioural management, expressive writing, psychosocial
group intervention). Future research should be conducted to further examine whether these
psychosocial characteristics could distinguish cancer patients with distinct patterns during
psychological care.

Concluding Remarks
The current thesis indicated that there were subgroups of cancer patients who showed distinct
patterns of psychological adaptation while receiving psychological care. These findings add to
existing literature by providing a detailed examination on different dynamic changes in
outcomes of psychological adaptation as well as personal resources that may promote
adaptation in cancer patients during psychological care. Particularly, this research suggests that a small vulnerable group of cancer patients experienced difficulties in coping with cancer. More research is needed to further clarify how to help these vulnerable patients to adapt to cancer.