

行政院國家科學委員會專題研究計畫 期末報告

追蹤子宮頸癌病患的創傷後成長與生活品質關聯--結構方程模式

計畫類別：個別型
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計畫主持人：張啟昌
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公開資訊：本計畫涉及專利或其他智慧財產權，2年後可公開查詢

中華民國 102年10月31日

中文摘要：子宮頸癌是全球影響婦科癌症死亡的重要原因。主要治療的目標有：治癒惡性腫瘤或延長生存時間以及提高生活品質。子宮頸癌症的確診可以視為心理的創傷，過去研究僅集中在記錄壓力和功能障礙的成因，可能誤導癌症潛在可行的治療方法。最近的研究發現，在創傷壓力經驗後發生正面的生活變化的感知-創傷後成長。雖然文獻對於癌症病患創傷後成長的診斷已經獲得許多正面結果，但在方法論上仍有其限制：首先，以不具效度的工具進行樣本資料回收並評估其結果，缺乏科學的說服力。第二，相關研究的量化資訊，並無法顯示來是於何種明確變數的影響。第三，研究調查的變數缺乏有理論背景與根據。第四，缺乏對於樣本的長期追蹤，難以觀察創傷後成長的變化。

因此，原研究規劃二年的時程針對子宮頸癌確診病患進行6，12與18個月的三次觀察並追蹤其創傷後成長的變化。進一步以結構方程模式檢定三項假設：三次時間點之間呈現穩定狀態，6與12個月間之間發生成長變化，12與18個月間之間發生成長變化。由於第二年計畫經費未得補助，第一年的研究成果之學術與臨床價值為

(1)對子宮頸癌症病患進行檢定上述三項假設在12個月的變化：得知在6與12個月間之間發生成長變化，意即在高度與低度的創傷成長有較高的生活品質；相對地在中度的創傷成長組別顯示較低的生活品質水準。

(2)探討創傷後成長的預測因子(病患參與決策，信任，決策衝突，人格特質)在長短期間的差異：病患參與決策，信任，決策衝突三項觀察變項對於創傷後成長具有顯著的效果；人格特質對於創傷後成長不具有統計顯著性，但在生活品質具備有顯著的效果。

進一步的模式分析將在第三次收案完成後進行，在回饋與臨床參考與討論後，進一步發表至優良國際期刊與世界創傷後成長之研究接軌。

中文關鍵詞：子宮頸癌，創傷後成長，生活品質關聯，結構方程模式

英文摘要：In general, there are two main goals of cervical cancer treatment: the first is to cure the malignancy or lengthen survival time, and the second is to improve quality of life (QoL). To date, few studies have utilized quality of life as a primary endpoint. The diagnosis and treatment of cervical cancer can be

a traumatic experience with long-lasting psychological effects. Research focused solely on documenting distress and dysfunction, however, may paint an incomplete and potentially misleading picture of adjustment following malignant disease. Therefore, the proposal is planning to investigate into that patient latent changes in quality of life over an 18-month period after cervical cancer. Posttraumatic growths are then assessed at 6, 12, and 18 months, respectively. Using structural equation modeling and test 3 hypotheses of patient latent change: stability of PTG symptoms between 6, 12, and 18 months; change between 6 and 12 months; and change between 12 and 18 months. However, we did not have the funding of the second year. According to the result of the first year, there were:

(i) When change in PTG symptoms occurs at a patient level over a 12-month period by testing the different hypotheses of change, and the Cronbach's alpha coefficients suggest that the Patient's Trust (PTS), Decisional Conflict (DCS), and Shared Medical Decision Making (SDM) demonstrated acceptable internal consistency reliability.

(ii) These results suggest that, the respective predictive power of patients' involvement, trust, decisional conflict and personality for developing short and long-term PTG symptoms, and Factors contributing to adjustment and quality of life in women diagnosed with cervical cancer were PTS, DCS and SDM.

(iii) In the proposal model, the latent variables of PTS, DCS and SDM were confirmed with p values of the Satorra-Bentler scaled chi-square greater than .05. This indicates that the data fit the proposed model. However, the latent variable of TIPI could not be identified separately, as there was only one measurement variable.

In conclusion, despite a number of limitations, this prospective study contributes significantly to our understanding of PTG. The results indicate that individual changes in PTG and QOL occur during the first year after trauma exposure. It is important

that further studies be carried out to investigate other factors, especially those occurring after trauma exposure, which might have an impact on crystallization of PTG.

英文關鍵詞： Cervical Cancer, Post-traumatic growth (PTG), Quality of life (QOL), Structural Equation Modeling (SEM)

行政院國家科學委員會補助專題研究計畫 成果報告
 期中進度報告

追蹤子宮頸癌病患的創傷後成長與生活品質關聯--結構方程模式

Longitudinal dynamic analyse of PTG and QoL regarding cervical cancer treatment --
A Structural Equation Modeling Study

計畫類別： 個別型計畫 整合型計畫

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計畫主持人：張啟昌

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中 華 民 國 102 年 10 月 31 日

1 Background and Motivations

Cervical cancer remains one of the leading causes of cancer-related death among women globally. The morbidity rates of cervical cancer are the second leading type of all female cancers. Incidence and mortality rates vary across geographical region and a wide array of physical, psychological and sexual sequelae often accompany diagnosis and treatment (International Agency for Research on Cancer, 2010). In general, there are two main goals of cervical cancer treatment: the first is to cure the malignancy or lengthen survival time, and the second is to improve quality of life (QoL) (Ashing-Giwa et al., 2010; Davidson, 2011). Recently, treatment for cervical cancer has focused almost exclusively on prolongation of life, and few research studies have adequately addressed issues related to quality of life (Seibaek and Petersen, 2007; Zeng et al., 2010; Zeng et al., 2011).

Measurement of quality of life in cervical cancer patients is important for many reasons. First, cervical cancer is the sixth most common neoplasm in women and thus affects a high proportion of the female population in Taiwan. Second, cervical cancer treatment is multimodal, and quality of life may be an additional factor which makes it possible to choose a better mode of treatment. Another fact which supports QoL studies in cervical cancer patients is the growing number of long-term survivors. This is a result of the high curability of this neoplasm. According to the authors of previous NSC project, our findings make it possible to incorporate quality of life outcomes into the clinical decision-making process and to assist both the patient and her physician in selecting the most appropriate treatment and thus it may be to some extent a prognostic factor (Ashing- Giwa et al., 2010). To date, few studies have utilized quality of life as a primary endpoint.

There is growing recognition that the experience of cervical cancer can have a positive as well as a negative psychological impact. To improve patients' quality of life, examination of benefit finding is important. The diagnosis and treatment of cervical cancer can be a traumatic experience with long-lasting psychological effects. Research focused solely on documenting distress and dysfunction, however, may paint an incomplete and potentially misleading picture of adjustment following malignant disease (Andrykowski et al., 2008). In contrast to the view of cancer as a trauma with uniformly negative effects, evidence supports the view of cancer as a psychosocial transition that can potentially elicit growth as well as distress (Morasso et al, 2010).

Recently the importance of posttraumatic growth (PTG), a phenomenon of positive psychological growth beyond baseline values, has been discovered in the field of oncology. PTG refers to positive psychological changes and growth beyond previous levels of functioning and thereby implies both an outcome as well as a process of struggle after a traumatic event. Although progress has been made in understanding positive outcomes following cancer diagnosis and treatment, the literature has been characterized by several methodological limitations.

First, research in this area has generally relied on unstandardized interview methods to assess positive outcomes. Few studies have used standardized measures of known reliability and validity designed to yield quantitative information about positive outcomes. Despite evidence of cancer as a psychosocial transition, the literature has limitations. Most accounts of cancer-related personal growth have been derived from thematic coding of interviews (Collins et al., 1990; Fromm et al., 1996). These results are hard to quantify and to interpret given a lack of psychometric data. Use of a standardized measure of posttraumatic growth would advance the literature and would enable cross-study comparisons.

Second, those studies presenting quantitative information consist largely of descriptions of the relative frequency of different types of positive outcomes. Previous studies of QoL in cervical cancer patients' growth suffered from some shortcomings which preclude definitive conclusions, for example, samples were not homogenous, most of the past studies were cross-sectional with different time elapsed from the start of

treatment, and different time frames (Vistad et al., 2011). Studies were carried out in different clinical stages of cervical cancer and different treatment modalities (Taechaboonsermsak et al., 2005; Vaz et al., 2011). Even in some studies the subject group included not only cervical cancer patients, but also those with endometrial cancer (Vaz et al., 2011).

Third, the few studies that have examined variables associated with individual differences in positive outcomes have generally not been guided by theory-driven hypotheses. The relationship between cancer-related personal growth and QoL is unclear. Some researchers have found a significant, positive association between perceived benefits of cancer and adjustment, whereas other researchers have not (Andrykowski et al., 2008). Research on predictors of cancer-related personal growth is sparse and often atheoretical. Theory-driven study of predictors of growth after cancer would improve understanding of the QoL and suggest targets of clinical intervention.

Fourth, longitudinal prospective studies over varying periods of the survivorship are postulated in many reports (Ashing- Giwa et al., 2008; Taechaboonsermsak et al., 2005). Vaz *et al.* (2011) suggest that longitudinal quality of life examination starting at a time before the start of the cervical cancer treatment. According to Ashing- Giwa *et al.* (2008), prospective evaluation will provide knowledge as to whether the pre-treatment factors that influence PGT will remain related to QoL in the long-term. In addition, the current study sought to explore whether posttraumatic growth was differentially related to actual versus perceived changes in psychological distress over time.

Therefore, this study aimed to identify factors that influence women's experience of diagnosis and treatment of cervical cancer and factors that facilitate positive adjustment. Set within a PTG framework, the purpose of this investigation was to examine the predictors of PTG among cervical cancer survivors, as well as how these relationships are affected by levels of QoL.

2. The Purpose of this Study

Until recently, PTG has been increasingly studied in cancer populations during the past decade, yet it has been unexplored in the research field of cervical cancer. The studies referred to above are from advanced countries, and relatively few studies of PTG have been performed in Taiwan. There were differences in attitude toward cancer; patients in advanced countries tended to confront with illness or fight against illness, however, those in Taiwan tended to live together with the illness.

Therefore, the proposal is planning to investigate into that patient latent changes in quality of life over an 18-month period after cervical cancer. Posttraumatic growths are then assessed at 6, 12, and 18 months, respectively. Using structural equation modeling and test 3 hypotheses of patient latent change: stability of PTG symptoms between 6, 12, and 18 months; change between 6 and 12 months; and change between 12 and 18 months. More specifically, this proposal has three objectives:

- (i) to examine when change in PTG symptoms occurs at a patient level over a 18-month period by testing three different hypotheses of change, and
- (ii) to determine the respective predictive power of patients' involvement, trust, decisional conflict and personality for developing short and long-term PTG symptoms, and
- (iii) explore the association between posttraumatic growth and quality of life.

3. Literatures Survey

In recent years the necessity of including quality of life measurement in cancer research has been stressed. The concept quality of life was introduced into the debate on the goals of medical treatment at a later stage.

It is still used to draw attention to the fact that not only the cure and the survival of patients but also their well-being must be considered important in medical care. This argument is relevant to the field of rehabilitation and especially important in oncology.

3.1 Post-Traumatic Stress Disorder

The diagnosis of cancer has a great impact on the patient. Because of treatments are invasive. Patients with cancer experience physical problems (such as pain, fatigue, and nausea) and psychological problems (such as anxiety, depression, distress, and spiritual pain). Patients are often bewildered and overwhelmed, both physically and emotionally. In general, psychological trauma refers to the experience of an uncontrollable event which is perceived to threaten a person's sense of integrity or survival (Hodgkinson et al., 2007). In defining a traumatic event as a criterion for post-traumatic stress disorder (PTSD), DSM-IV (American Psychiatric Association, 2000) adopts a narrower definition to include events involving direct threat of death, severe bodily harm, or psychological injury, which the person at the time finds intensely distressing or fearful. Cancer patients are likely to have significant problems and these may persist after completion of treatment. Being directly confronted with the suffering of patients, they have advocated paying more attention to supportive care. The concept has been widely used in the debate on the objectives of cancer care: the quality vs the quantity of survival.

Although adjustment to cancer is an ongoing process, few studies have assessed the quality of life of cervical cancer patients over an extended period. Previous studies in cancer patients have mostly been retrospective, cross-sectional studies. Recently, some longitudinal studies have examined this issue. However, only a few have focused on female cancer patients (Hodgkinson et al., 2007), and of these, most involved patients with breast cancer (Bower et al., 2005; Butler et al., 1999). In all these studies, mean values of parameters in quality of life questionnaires were compared at different time intervals and between different groups instead of using the individual patient as her own control. The pattern of change may be obscured when the scores are being averaged. As the course and outcome of quality of life are shaped substantially by the individual patient's capacity to cope with stress and life events, patients could have quite different variations around the average values. The patterns of individual variability and quality of life over time should best be studied longitudinally using individual patients as their own controls.

3.2 Post-Traumatic Growth

With relatively few people experiencing post-traumatic stress disorder following trauma (Tedeschi et al., 1998), Post-Traumatic Growth (PTG) offers an alternative perspective on post-trauma adaptation and functioning. A growing body of literature suggests that individuals coping with trauma seek to make sense of their experience and that some individuals derive benefits of personal growth from the experience. PTG is defined as "positive psychological change experienced as a result of the struggle with highly challenging life circumstances," (Tedeschi et al., 1996). PTG is also conceptualized as more than a return to pretrauma levels of functioning following a traumatic event, but is instead related to achieving an enhanced level of functioning.

PTG is not an automatic post-trauma outcome and a number of factors influence whether positive life changes are perceived (Layne et al., 2007; Hobfoll et al., 2009).

Although investigations into the negative consequences of trauma are important to ameliorate the significant suffering that some experience following a traumatic event, preoccupation with disorder may obfuscate important information about the potential for a positive legacy that trauma may leave in its wake (Linley and Joseph, 2004). However, studies investigating post-trauma outcomes have shown that in addition to post-traumatic stress symptoms, the occurrence of positive outcomes is also prevalent [1]. The greater the life threat posed by the stressor, the greater the opportunity for growth. The greater the opportunity to contemplate stressor-related thoughts and feelings - which may be afforded by social support (Lepore & Helgeson, 1998), talking about the experience (Lepore, 2001), and passage of time since the trauma - the

greater the opportunity for posttraumatic growth.

3.3 Predict Factors of PTG and Quality of Life

Many studies show that some of patients with cancer find benefits after posttraumatic experiences, and benefit finding relate with QoL. To improve patients' QoL, examination of benefit finding is important. As for details of benefit findings, posttraumatic growth after cancer revealed that growth was related to increased positive mental health, reduced negative mental health, and better subjective physical health. It is important for us to find commonality or differences in the construction, because medical staffs can propose useful interventions or supports tailored to people in various countries based on the construction.

Positive and negative outcomes are not mutually exclusive. Evidence suggests that cancer survivors experience posttraumatic growth. Approximately 60-90% of breast cancer survivors (Collins, Taylor, & Skokan, 1990; Petrie, Buick, Weinman, & Booth, 1999; Taylor, Lichtman, & Wood, 1984; Zemore & Shepel, 1989) and 76% of testicular cancer survivors reported beneficial changes, such as greater life appreciation and meaning (Rieker et al., 1985). In another study that examined quality of life issues in women with ovarian cancer, 46% of women reported that cancer had a positive influence on their appreciation of life (Ersek et al., 1997). In other studies, the majority of cancer survivors who described cancer-related changes in the way they thought about their life quality reported that these changes were positive (Dirksen, 1995; S. E. Taylor, Lichtman, & Wood, 1984). That is, some degree of positive change or personal growth might be reported over time independent of this diagnosis. In contrast, Bone marrow transplant survivors reported improvement in many life domains despite poorer health (Belec, 1992; Ferrell et al., 1992; Fromm et al., 1996). These findings support a multidimensional conceptualization of adjustment in which health and dysfunction may coexist (Antonovsky, 1979; Hyland, 1993; Ryff, 1995).

However, methodological differences in scale construction or difference, in the types of events reported by participants may contribute to these findings (Cohen, Cimbalic, Armeli, & Hettler, 1998). Indeed, the relationship between posttraumatic growth predict variables and QoL should be examined in research so that these variables can be controlled for if necessary. Further work is required to explore the impact of subjective and objective threat on perceived growth, and the factors that might modify these relationships (e.g., shared medical decision making, patient's trust, decisional conflict, personaility characteristics, socioeconomic status).

Shared Medical Decision Making

Making a decision is one of the most important events encountered with life-threaten illnesses who want to address their unmet needs through different treatment regimens or programs (Tomlinson et al., 2006; Truog et al., 2006; Meyer et al., 2006). It is common that patients and physicians must make decisions throughout the course of the illnesses. This is especially important given the fact that evidence-based medicine usually fails to identify one treatment as clearly superior because each of the alternatives is associated with benefits and risks (Kasper et al., 1992). However, very few studies have investigated the process and outcomes of decision-making for women with cervical cancer.

Promoting shared decision-making among patients and doctors can better inform patients about the risks and benefits of health care interventions and offer them an opportunity to make an informed choice (Chang, 2010). Evidence suggests that compared to their counterparts who engaged in shared decision-making are associated with greater patient–doctor communication and higher satisfaction with their doctors,(Greenfield, 1985; Frosch, 1985) improved adherence with treatment regimes (Von Korff et al, 2003; Ludman et al., 2003) and a greater sense of personal control and self-esteem (Brody, 1980) In addition, shared decision-making is associated with better quality of life or self-reported health status (Su and Chang, 2011).

Decisional Conflict

Shared decision-making models emphasize three major components: information exchange, deliberation and agreement about decisional control (Charles et al., 1999). To date, many instruments have been developed to measure these different components (Dy, 2007). Among these instruments, the Combined Outcome Measure for Risk Communication and Treatment Decision-Making Effectiveness (COMRADE) has been used with a variety of populations including general cancer patients, breast cancer patients and patients at the end of life (Dy, 2007). The COMRADE focuses on decisional conflict associated with personal uncertainty in making a choice, perceptions of modifiable factors contributing to that uncertainty and the perception of the quality of the decision-making process and the decision made (O'Connor, 1995). This instrument emphasizes the concepts of risk communication and decision-making effectiveness and was developed to be applied across a range of clinical conditions. Until now, few studies exist that are focused on the decision-making regarding the cervical cancer, and none validate a decision-making tool.

Patient's Trust

Trust is a key element of therapeutic relationships. Patients' trust may influence health status through continuity of care, adherence to treatment regimens, the willingness to seek care (Stepanikova et al., 2006; Mohseni et al., 2007). Many factors affect cervical cancer patients' compliance with recommended clinical treatment practices. It is widely perceived and documented that both of the following are valuable attributes of treatment relationships: patients' trust in physicians and in the medical profession. Both patient trust and active patient involvement are desirable in their own right and because they are associated with improved health outcomes. Patients' trust might be more consistent with a deferential style of patient-physician interaction in which patients are passive, in contrast to assertive patient questioning or limitation of physician authority which might be indicative of patient distrust. Studies have shown that trust is very important in medicine (Epstein et al., 2007), and in the delivery of healthcare services to vulnerable populations, trust may be critical. Trust facilitates care seeking among patients and promotes open dialogue and adherence to physician recommendations (Thom et al., 2003). Yet while trust has been explored in a variety of settings and with various populations, little is known about cervical cancer patients (Patrick et al., 2011).

Personality Characteristics

According to the literatures, there appear to be two basic personality qualities that may affect the likelihood that people can make positive use of the aftermath of traumatic events that befall them: extraversion and openness to experience. Park (1996) pointed out that positive and negative aspects of adjustment may be independent, and that compared to persons who report only positive change, those who report both positive and negative changes show more growth (Tedeschi et al., 1996). This indicates that posttraumatic growth and optimism may well be distinct concepts. The way optimism may be related to posttraumatic growth may again be through the influence it has on cognitive processing. Specifically, optimists may be better able to focus attention and resources on the most important matters, and disengage from uncontrollable or unsolvable problems (Aspinwall et al., 1999). In the clinical work, only prospective, longitudinal research designs will be able to demonstrate conclusively whether certain pre-trauma personality characteristics allow for posttraumatic growth, but empirical longitudinal studies are needed to confirm this.

4. Research Methodology

4.1 Research Design

The proposal is planning to investigate into that patient latent changes in quality of life (QoL) over an 18-month period after cervical cancer. Posttraumatic growths (PTG) are then assessed at 6, 12, and 18 months, respectively. Using structural equation modeling and test 3 hypotheses of patient latent change:

stability of PTG symptoms between 6, 12, and 18 months; change between 6 and 12 months; and change between 12 and 18 months.

This proposal has three objectives: (i) to examine when change in PTG symptoms occurs at a patient level over a 18-month period by testing three different hypotheses of change, and (ii) to determine the respective predictive power of patients’ involvement, trust, and decisional conflict for developing short and long-term PTG symptoms, and (iii) explore the association between posttraumatic growth and quality of life. As predicting PTG symptoms first involved accounting for change in PTG symptoms over time, the third objective was subordinate to the second. To answer the study questions above, the SEM of a data sample including four time points was used: a baseline assessment of PTSD and three measurements of PTG symptoms and QoL at 6-months, 12-months, and 18-months.

Table 1 Four Possible Transitions in PTG symptoms over 6, 12 and 18 months

| | | Symptoms evolve between months 6 and 12 | |
|-----------------------------------|-----|---|--------|
| | | No | Yes |
| Symptoms evolve between 12 and 18 | No | Case 1 | Case 2 |
| | Yes | Case 3 | Case 4 |

In terms of patient latent changes between time points, PTG symptoms could either (i) remain stable (Case 1, see Table 1), (ii) change between 6 and 12 months (Case 2), (iii) change between 12 and 18 months (Case 3), or (iv) change between 6 and 12 months and between 12 and 18 months (Case 4). The SEM approach to the data enabled us to test the plausibility of Cases 1, 2, and 3, as detailed below. In this way, it is possible to examine whether PTG symptoms remained stable between 6, 12, and 18 months, whether a change occurred between 6 and 12 months, or between 12 and 18 months. The predictive power of the different factors for developing PTG was then assessed accordingly.

4.2 Participants and Procedure

The study group will recruit 300 women who suffering from early clinical stages of cervical cancer (FIGO IA2-IIA). The exclusion criteria were as follows: patients with diagnosed malignant disease of the reproductive organs other than cervical cancer, and previously treated for such disease (surgery, chemotherapy, radiotherapy, hormonal therapy, immune therapy), other malignant disease concurrent or diagnosed within the previous 5 years. According to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV; American Psychiatric Association, 1994), participants will send the Impact of Events Scale-Revised (IES-R) questionnaire ascertain symptoms of chronic posttraumatic stress disorder (PTSD) over the previous month. Further, patients were asked to complete the questionnaires three times, i.e. 6, 12, 18 months later. Issues related to the method of completing the questionnaire forms were discussed individually with every respondent during the baseline enrollment interview. Based on the literature review, three measures are generated that referred to PTG and describe as follow. In addition, the Global Health Status Scale of EORTC QLQ-C30 (version 3.0) (GHS) and the EORTC QLQ-CX24 (CX24) questionnaires were used to assess QoL. Both questionnaires were linearly transformed and analyzed according to the procedures of the EORTC QoL Group. Higher scores on the GHS indicate a higher level of functioning and a better QoL. Higher scores correspond to worse or more symptoms except for sexual activity and sexual enjoyment (i.e. higher scores represent better QoL).

4.3 Instruments

The self-report questionnaire covered items on demographic characteristics (including age, education level and occupation field), Impact of Events Scale-Revised (IES-R), Shared Decision-making Scale (SDMS), Patient Trust Scale (PTS), Decisional Conflict Scale (DCS), Ten-Item Personality Inventory (TIPI),

Posttraumatic Growth Inventory (PTGI) and EORTC QLQ-C30 and CX24 (EORTC).

Impact of Events Scale-Revised (IES-R)

The IES-R is composed of 22 self-report items and survey designed to measure subjective distress following a traumatic event. Intrusion includes the trauma being re-experienced through symptoms, such as disturbing recollections of the trauma, distressing dreams of the event, and dissociative flashback episodes.

Hyper-arousal includes symptoms such as difficulty falling asleep, irritability, and exaggerated startle response. Avoidance includes symptoms such as efforts to avoid thoughts, feelings, or places that arouse recollections of the trauma and detachment from others (APA, 2000). Numerous studies have demonstrated robust reliabilities of the assessment (Morris et al., 2005; Beck et al., 2008). Patients will utilize total IES-R scores to indicate participant's overall distress (Stockton et al., 2011). Respondents will ask to rate each item in the IES-R on a scale of 'not at all', 'a little bit', 'moderately', 'quite a bit', 'extremely' according to the level experienced in the past seven days. The hyperarousal subscale holds good predictive validity in regards to trauma. The avoidance and intrusion subscales have been shown to detect change in respondents' clinical status over time. In regards to content validity, the subscales had high endorsements of up to 85%. Higher scores indicate increased levels of posttraumatic distress. Appendix has shows the more in detail.

Shared Decision-making Scale (SDMS)

According the result of our previous NSC project, the Shared Decision-making Scale is an 11-items normative instrument. A theory-driven instrument to measure the process of SDM has been developed and validated by use of rigorous method revealing first promising results and with an acceptable reliability for person measures (0.77) and very good reliability for item difficulties (0.95) (Chang, 2010). In addition, analysis of subgroups revealed a different use of items in different conditions. The 5-item scales developed in this study (with higher values indicating more willing involve decision process) provide tools to facilitate such research. Please refer to the appendix for the detail information.

Patient Trust Scale (PTS)

Abbreviated measures (5-items) were developed for both of scales (patient trust in a physician scale and patient trust in the medical profession scale). Cronbach's alpha was 0.87 for trust in a physician (test-retest reliability = 0.71), and 0.77 for trust in the medical profession (Elizabeth et al., 2005). The patient trust in a physician scale is a 5-item scale can be used to assess a patient's trust in her/his doctor. The 5-item scale is one-dimensional. Responses are summed and scores are on a 5-25 scale, with higher values indicating more trust. The patient trust in the medical profession scale is adequate evidence that the 5-item scale can be used to assess a patient's trust in the medical profession. The 5-item scale is one-dimensional. Responses are summed and scores are on a 5-25 scale, with higher values indicating more trust. The scale is given in Appendix.

Decisional Conflict Scale (DCS)

The Combined Outcome Measure for Risk Communication and Treatment Decision-Making Effectiveness (COMRADE) is a well-known instrument for measuring the degree of patients' decisional conflict in shared decision-making (O'Connor, 1995; Edwards et al., 2003). The instrument emphasizes the concepts of risk communication and decision-making effectiveness and was developed to be applied across a range of clinical conditions. The COMRADE consists of 20 items which measure two domains of decision-making: satisfaction with communication and confidence in decision. The response categories for each item are 'strongly disagree', 'disagree', 'neither agree nor disagree', 'agree' and 'strongly agree'. The domain scores are calculated using the algorithms of factor analysis provided by the developer, with 0 for the lowest effectiveness in shared decision-making and 100 the highest (Flynn et al., 2008).

Ten-Item Personality Inventory (TIPI)

The Ten-Item Personality Inventory (TIPI) was used to measure parents' personality traits (Gosling et al.,

2003). The TIPI is a 10-item scale measuring five personality traits, which are extraversion, agreeableness, conscientious, emotional stability and openness to experiences. For each item, the response categories are 'disagree strongly', 'disagree moderately', 'disagree a little', 'neither agree nor disagree', 'agree a little', 'agree moderately' and 'agree strongly'. The domain score is calculated by summing scores of items in a specific domain, with a range from 1 (lowest level of personality trait) to 14 (highest). A median split was created to classify parents who have higher level of personality traits (top 50th percentile) versus lower level of personality traits (bottom 50th percentile).

Posttraumatic Growth Inventory (PTGI)

The PTGI aims to capture the construct of posttraumatic growth (PTG), which has been defined as positive psychological changes experienced as the result of the struggle with major life crises or traumatic events (Calhoun & Tedeschi, 1996), the 21-item PTGI yields a total score and five subscale scores: New Possibilities (5 items), Relating to Others (7 items), Personal Strength (4 items), Spiritual Change (2 items), and Appreciation of Life (3 items). Items are rated on a 6-point Likert scale, ranging from 0 (I did not experience this change as a result of my crisis) to 5 (I experienced this change to a very great degree as a result of my crisis). For cervical cancer participants, the response options were modified to refer to cancer rather than crisis. Participant's perception of diagnosis severity was assessed via a five-point Likert scale ranging from 1 (not at all traumatic) to 5 (severely traumatic). Previous research has utilised total scores of the PTGI as an indication of a global measure of PTG, and found strong internal reliability in research with cancer survivors (Morris and Shakespeare-Finch, 2011).

EORTC QLQ-C30 and CX24 (EORTC)

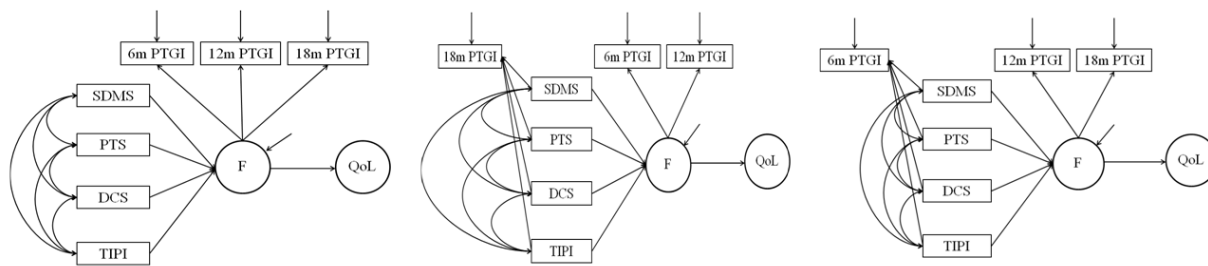
The project employed two types of survey questionnaires: the EORTC QLQ-C 30 and QLQ-CX 24. EORTC (European Organization for Research and Treatment of Cancer) is a non-profit organization focusing on the development and coordination of cancer clinical research in Europe. EORTC quality of life questionnaire (QLQ) is a standardized self-administered questionnaire measuring aspects of quality of life relevant to cancer patients. It has been developed for use in clinical trials, validated, and cross-culturally tested by the EORTC Study Group on Quality of Life (Aaronson et al., 1993; Aaronson et al., 1995; Sprangers et al., 1993). EORTC provides questionnaire versions translated and validated into more than 80 languages. QLQ C-30 is a questionnaire assessing global quality of life of cancer patients. It consists of 30 questions covering three modules; functioning scales (physical functioning, role functioning, emotional functioning, cognitive functioning, and social functioning); symptom scales (fatigue, nausea and vomiting, pain, dyspnea, insomnia, appetite loss, constipation, diarrhea, financial difficulties); global health status scales (global health status and quality of life). QLQ CX-24 is a module validated for cervical cancer. It comprises a universal tool adapted to examine patients in all disease stages. The Chinese translation of the questionnaire was used in this study was conducted by Dr.Chen (中山醫學大學附設醫院精神科主任陳錦宏醫師/計畫共同主持人). Statistical analyses were performed on patients who had completed the five assessments. All scores were transformed to a 0-100 scale. Scores for single items forming a scale were transformed according to the guidelines for the scale to which they belong.

4.4 Model for Predicting PTG

We will adopt the maximum likelihood estimation with standard errors to account for nonmultivariate normality. The SEM model estimates were obtained using the full information maximum likelihood estimation procedure of Mplus (version 6.0) (Muth'en & Muth'en, 1998–2008). Thus, any observation with a missing value on a covariate was eliminated from the analysis. Three competing models were tested via SEM to test the three hypotheses of individual latent change: (i) stability of PTG symptoms between 6, 12, and 18 months; (ii) change between 6 and 12 months; and (iii) change between 12 and 18 months. As this strategy followed a prospective longitudinal method, the directionality of paths will be constrained by the time at which the variables be assessed. Accordingly, the variables are divided into two categories: (i) PTGI (dependent variable) at three different time points (6, 12, and 18 months); and (ii) predictors (SDMS, PTS,

DCS, and TIPI).

According to the first hypothesis, PTG symptoms would have remained stable for each patient throughout the three time points. Accordingly, in Model 1 the 6, 12, and 18 month PTGI were entered as tau equivalent measurements of a single latent variable F (i.e., the loadings and intercepts are set to 1 and 0, respectively). F was simultaneously regressed on the SDMS, PTS, DCS, and TIPI (Fig. 1a). According to the second hypothesis, PTG symptoms would have been stable between 6 and 12 months and would change between 12 and 18 months. Accordingly, in Model 2, 6 and 12 month PTGI are entered as tau equivalent measurements of a latent variable F (i.e., the loadings and intercepts are set to 1 and 0, respectively), which predicted 18-month PTGI. Both F and 18-month PTGI are then regressed on the SDMS, PTS, DCS, and TIPI (Fig. 1b). According to the third hypothesis, PTG symptoms would have changed between 6 and 12 months and would remain stable between 12 and 18 months. 12-month and 18-month PTGI are entered as tau equivalent measurements of a latent variable F (i.e., the loadings and intercepts are set to 1 and 0, respectively) predicted by 6 month PTGI. Both F and 6-month PTGI are then regressed on the SDMS, PTS, DCS, and TIPI (Fig. 1c). In addition to the χ^2 value, three indices were used to assess the goodness of fit of the three different models, estimated with the robust estimator as implemented in Mplus software: the Tucker-Lewis Index (TLI), the Comparative Fit Index (CFI), and the Root Mean Square Error of Approximation (RMSEA). For TLI and CFI, values $>.90$ are considered acceptable and values $>.95$ as good. For the RMSEA, good models have values $<.05$, whereas values $>.10$ are considered poor. Furthermore, the Akaike Information Criterion (AIC) has also been used for comparison between models. All analyses were carried out using SPSS 19.0 and MPlus 6.0 (Muth'en & Muth'en, 1998-2008).



(a) Model 1. Stability

(b) Model 2. Change from 6/12 M

(c) Model 3 Change from 12/18 M

Figure 1 Three models of PTGI and their relationship with SDMS, PTS, DCS, and TIPI

Structural equation modeling (SEM) centers around two steps: validating the measurement model, and fitting the structural model. The former is accomplished through confirmatory factor analysis, while the latter is accomplished through path analysis with the latent variables. The former is accomplished through confirmatory factor analysis, while the latter is accomplished through path analysis with the latent variables. This process then incorporates the benefits of a multiple regression analysis, in that it considers multiple factors that may simultaneously influence a phenomenon, and the benefits of path analysis, which allows for the influence of mediating variables. Further, SEM deals with one of the inherent difficulties of multiple regression analysis, that of measurement error arising from the multiple interactions (Jaccard & Wan, 1996). These components will then be analysed via SEM to test elements of the PTG model and to test a hypothesized model for understanding posttraumatic growth in patients who suffering from early clinical stages of cervical cancer.

5. Data Analysis

Descriptive Statistics

Preliminary data were collected from August to December 2012. Of the 78 invited participants, 63 women validly responded and returned the questionnaire to the investigator for a 80.77% response rate. Table 1 shows the characteristics of the sample. Responses were analysed using descriptive statistics, univariate analysis of variance and independent samples t-tests. The majority of respondent's had graduated from junior high (31.7%) or had some Senior High School (49.2%). The statistics can be inferred most patients have less knowledge. Most respondents were married (90.5%). This analysis can be show that most of the patients were over 40 years of age, and as housewife. (see Table 1)

Approval for the study was received from the institutional review boards at Chung Shan Medical University Hospital. Informed consent was obtained from participants prior to in-person interviews. (see appendix A) Based on a series of independent t-test samples utilized to examine the relationship between respondents' PTG score and the behavior of seek medical advice, there were a statistically significant correlation between the PTG and age, marital satus, educational level, patients' trust, and shared decision making variable. On the contrary, there was a statistically significant negative correlation between the PTG and decisional conflict.

Measurement model analysis included reliability analysis and validity analysis. Reliability of the questionnaire used in this study Cronbach's α analysis by SPSS 19.0, confidence in the composition formula. Convergent validity in the questionnaire, through Amos 17 for confirmatory factor analysis, the average variance extracted amount to be calculated.

Table 2 Baseline Demographic Characteristics of Study Cohort (n=63)

| Characteristics | Number | % |
|--------------------------|--------|------|
| Age | | |
| 20-29 | 3 | 4.8 |
| 30-39 | 8 | 12.7 |
| 40-49 | 24 | 38.1 |
| 50-59 | 15 | 23.8 |
| > 65 | 13 | 20.6 |
| Marital status | | |
| Married | 48 | 76.2 |
| Single | 6 | 9.5 |
| Divorced | 2 | 3.2 |
| Widowed | 7 | 11.1 |
| Educational level | | |
| Junior High School | 20 | 31.7 |
| Senior High School | 31 | 49.2 |
| Undergraduate university | 10 | 15.9 |
| Postgraduate university | 2 | 3.2 |

Scale Reliability

To measure scale reliability, known as internal consistency, Cronbach's alpha coefficients were estimated to indicate the degree to which items of the same domain yield consistent results. Alpha coefficients above 0.7 were deemed acceptable for the purpose of group comparisons. As shown in Table 2, Cronbach's alpha coefficients suggest that the Patient's Trust (PTS), Decisional Conflict (DCS), and Shared Medical Decision Making (SDM) demonstrated acceptable internal consistency reliability.

Table 3 Reliability and Convergent/Discriminant Validity

| Scale | Factors | Cronbach's Alpha | Convergent Validity | Average Variance Extracted |
|-------|------------------------|------------------|---------------------|----------------------------|
| PTS | Trust in Physician | 0.897 | 0.685-0.803 | 0.672 |
| | Trust in Profession | 0.735 | | |
| DCS | Risk Communication | 0.980 | 0.863-0.958 | 0.919 |
| | Confidence in Decision | 0.937 | | |
| SDM | Preference | 0.896 | 0.849-0.924 | 0.802 |
| | Perception | 0.865 | | |
| | Informed feeling | 0.925 | | |

Convergent/Discriminant Validity

Table 2 shows item-domain convergent/discriminant validity. Through this study, confirmatory factor analysis and the average amount of variance extracted convergent validity of the questionnaire testing. This preliminary analyses adopts scholars Nunnally (1978) of the proposal, Cronbach's α coefficient of 0.7 or more dimensions retained; average variance extracted on behalf of observed variables can be measured by how many percentage of the potential variables of value, not only can be used to judge the reliability, it also means convergent validity. Fornell & Larcker (1981) recommended 0.5 as the critical standard, that can effectively measure the observed variables, and standardized factor loading (Factor Loading) greater than 0.5; combination of reliability (Composite Reliability, CR) is greater than 0.7. Table 2 can be learned from the study of various dimensions of this reliability are greater than 0.7, indicating dimensions of this study have good reliability and convergent validity.

In the proposal model, the latent variables of Patient's Trust (PTS), Decisional Conflict (DCS), and Shared Medical Decision Making (SDM) were confirmed with p values of the Satorra-Bentler scaled chi-square greater than .05. This indicates that the data fit the proposed model. However, the latent variable of TIPI could not be identified separately, as there was only one measurement variable. The overall fit of the model was satisfactory but not excellent, $\chi^2(63) = 30.487, p < .00$ (RMSEA = .082, GFI = .917, GFI = .880, AGFI = .826, NFI = .863) The Satorra-Bentler scaled chi-square goodness-offit test was significant at a p value of .00. This indicates that there was a discrepancy between the model and the data. However, the argument has been made that testing a perfect fit is not appropriate for social sciences because of the complexity of the causal relationships; rather, it would be better to assess the fit of the model to the data (Goffin and MacLennan, 1997). Steiger (1990) developed the root mean square error of approximation and proposed that values below .05 indicate an excellent fit and that values less than .10 indicate a reasonable fit. Thus, this model's value of .08 indicates that the model fits reasonably well. Similarly, the goodness of fit index is pleasing at .880, as it approximates the recommended .90. The model in its simple form fits the data satisfactorily. The fit indices might be improved on by the addition of paths that would complicate the model and not necessarily be supported by theory.

6. Conclusion

To our knowledge, this is the first study to investigate the individual latent changes in PTG symptoms and quality of life for cervical cancer patients. The goal of this project is to afford the patient the opportunity to have a reasonable quality of life and to providing the chance for a cure in the future. The main limitation of the current study is the sample size, which increases the type II error risk. However, we did not have the funding of the second year. According to the result of the first year, there were:

- (i) When change in PTG symptoms occurs at a patient level over a 12-month period by testing the different hypotheses of change, and the Cronbach's alpha coefficients suggest that the Patient's Trust (PTS), Decisional Conflict (DCS), and Shared Medical Decision Making (SDM) demonstrated acceptable internal consistency reliability.

(ii) These results suggest that, the respective predictive power of patients' involvement, trust, decisional conflict and personality for developing short and long-term PTG symptoms, and Factors contributing to adjustment and quality of life in women diagnosed with cervical cancer were PTS, DCS and SDM.

(iii) In the proposal model, the latent variables of PTS, DCS and SDM were confirmed with p values of the Satorra-Bentler scaled chi-square greater than .05. This indicates that the data fit the proposed model. However, the latent variable of TIPI could not be identified separately, as there was only one measurement variable.

In conclusion, despite a number of limitations, this prospective study contributes significantly to our understanding of PTG. The results indicate that individual changes in PTG and QOL occur during the first year after trauma exposure. It is important that further studies be carried out to investigate other factors, especially those occurring after trauma exposure, which might have an impact on crystallization of PTG.

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【計畫成果自評】

目標達成度：100%（第一年）

學術價值：子宮頸癌是全球影響婦科癌症死亡的重要原因。子宮頸癌的確診可以視為心理的創傷，過去研究僅集中在記錄壓力和功能障礙的成因，可能誤導癌症潛在可行的治療方法。本研究發現，在創傷壓力經驗後發生正面的生活變化的感知-創傷後成長。雖然文獻對於癌症病患創傷後成長的診斷已經獲得許多正面結果，但在方法論上仍有其限制。

本計畫針對缺乏對於樣本的長期追蹤，難以觀察創傷後成長的變化進行突破並發現：

(1)對子宮頸癌病患進行檢定上述三項假設在 12 個月的變化：得知在 6 與 12 個月間之間發生成長變化，意即在高度與低度的創傷成長有較高的生活品質；相對地在中度的創傷成長組別顯示較低的生活品質水準。

(2)探討創傷後成長的預測因子(病患參與決策，信任，決策衝突，人格特質)在長短期間的差異：病患參與決策，信任，決策衝突三項觀察變項對於創傷後成長具有顯著的效果；人格特質對於創傷後成長不具有統計顯著性，但在生活品質具備有顯著的效果。

目前的研究成果有 2 篇的會議論文以及跨院際合作委託研究計畫一件。進一步的模式分析將在第三次收案完成後進行，在回饋與臨床參考與討論後，進一步發表至優良國際期刊與世界創傷後成長之研究接軌。

臨床價值：為了反應學術價值，在臨床上不同治療方式的差異，分析結果顯示病患決策參與、決策信任、決策衝突以及人格特質對於創傷後成長存在顯著影響關係。病患創傷後成長的可能因素、影響的範圍與生活品質部分構面具有線性關係。決策衝突、決策信任、憂鬱和共同醫療決策在創傷事件反應與創傷後成長間有中介效果，而決策衝突及共同醫療決策在人格特質外向的和認真盡責的與創傷後成長間有中介效果；根據共同主持人婦產部陳進典醫師以及共同主持人身心科主任陳錦宏醫師的臨床審視，後續的研究對於癌症病患創傷後成長的可能因素、影響的範圍與生活品質是否具有線性關係仍需要進一步深入長時間的研究。本研究結果除提供醫師及護理人員更了解子宮頸癌病患的決策參與、決策信任、決策衝突情形外，也希望能夠在後續定期追蹤病患的生活品質。

後續研究發展：創傷後成長的重要性，在癌症臨床已經被發現，但是文獻還是缺乏創傷後成長過程的因素探討，我們的研究證實病患在決策參與、決策信任、決策衝突與創傷後成長間存在顯著影響關係，並初步驗證本研究所提出之模式。心理學家認為人與環境互動中，會有一些壓力源，壓力會造心理學家認為人與環境互動中，壓力會造成身心問題而會影響生活品質。在過去的研究也發現，癌症病患接受外科切除手術、化學治療與放射線治療時所引起的副作用皆會負面影響生活品質。反觀，透過子宮頸癌病患就醫行為，我們的研究證實決策衝突在創傷後成長與創傷事件反應具有中介效果，而創傷後成長與生活品質間則是部分構面有顯著性的影響。

本研究為首次針對子宮頸癌病患在歷經創傷事件後，進一步觀察就醫行為是否為創傷後成長的預測因子，以及與生活品質是否存在相關性。研究發現創傷後成長與生活品質之間是無線性關係。後續的研究對於癌症病患創傷後成長的可能因素、影響的範圍與生活品質是否具有線性關係仍需要進一步深入長時間的研究。根據 Vaz et al. (2011)的建議，關於創傷後成長與生活品質間的關係需更進一步針對不同的時間點觀察與深入分析。本研究為第一、二個時間點的觀察，後續有第三時間點（18 個月後），將會進行更為完整的分析。

計畫執行感言：展望未來研究生涯，將持續爭取國家研究經費補助以及獲得國內各醫療院所合作的機會與資源，自許成為醫療決策領域專家，並成為學門之研究主力；此外，藉由出席國際會議與論文發表等管道建立各種國際合作研究，以提升個人學術與台灣在醫療決策領域的國際地位。

國科會補助計畫衍生研發成果推廣資料表

日期:2013/10/31

| | |
|-----------|--------------------------------------|
| 國科會補助計畫 | 計畫名稱: 追蹤子宮頸癌病患的創傷後成長與生活品質關聯--結構方程模式 |
| | 計畫主持人: 張啟昌 |
| | 計畫編號: 101-2410-H-040-009- 學門領域: 醫務管理 |
| 無研發成果推廣資料 | |

101 年度專題研究計畫研究成果彙整表

| 計畫主持人：張啟昌 | | 計畫編號：101-2410-H-040-009- | | | | | |
|------------------------------------|-------------|--------------------------|-----------------|------------|------|-------------------------------------|--|
| 計畫名稱：追蹤子宮頸癌病患的創傷後成長與生活品質關聯--結構方程模式 | | | | | | | |
| 成果項目 | | 量化 | | | 單位 | 備註（質化說明：如數個計畫共同成果、成果列為該期刊之封面故事...等） | |
| | | 實際已達成數（被接受或已發表） | 預期總達成數（含實際已達成數） | 本計畫實際貢獻百分比 | | | |
| 國內 | 論文著作 | 期刊論文 | 0 | 0 | 100% | 篇 | |
| | | 研究報告/技術報告 | 1 | 1 | 100% | | |
| | | 研討會論文 | 0 | 0 | 100% | | |
| | | 專書 | 0 | 0 | 100% | | |
| | 專利 | 申請中件數 | 0 | 0 | 100% | 件 | |
| | | 已獲得件數 | 0 | 0 | 100% | | |
| | 技術移轉 | 件數 | 0 | 0 | 100% | 件 | |
| | | 權利金 | 0 | 0 | 100% | 千元 | |
| | 參與計畫人力（本國籍） | 碩士生 | 2 | 2 | 100% | 人次 | |
| | | 博士生 | 0 | 0 | 100% | | |
| | | 博士後研究員 | 0 | 0 | 100% | | |
| | | 專任助理 | 0 | 0 | 100% | | |
| 國外 | 論文著作 | 期刊論文 | 0 | 1 | 100% | 篇 | |
| | | 研究報告/技術報告 | 1 | 1 | 100% | | |
| | | 研討會論文 | 2 | 1 | 100% | | |
| | | 專書 | 0 | 0 | 100% | 章/本 | |
| | 專利 | 申請中件數 | 0 | 0 | 100% | 件 | |
| | | 已獲得件數 | 0 | 0 | 100% | | |
| | 技術移轉 | 件數 | 0 | 0 | 100% | 件 | |
| | | 權利金 | 0 | 0 | 100% | 千元 | |
| | 參與計畫人力（外國籍） | 碩士生 | 0 | 0 | 100% | 人次 | |
| | | 博士生 | 0 | 0 | 100% | | |
| | | 博士後研究員 | 0 | 0 | 100% | | |
| | | 專任助理 | 0 | 0 | 100% | | |

| | |
|--|--|
| <p>其他成果 (無法以量化表達之成果如辦理學術活動、獲得獎項、重要國際合作、研究成果國際影響力及其他協助產業技術發展之具體效益事項等，請以文字敘述填列。)</p> | <p>1. 完成第一、二期(6, 12 個月的收案)，對預測因子(病患參與決策，信任，決策衝突)完成量表初步的信效度分析、創傷後成長之中介效果以及多元迴歸分析、路徑分析預試。</p> <p>2. 完成子宮頸癌病患創傷後成長模式的預測離形建構。</p> <p>3. 上述現階段成果，出席 2 場國際會議發表與交流</p> <p>●Factors affecting decisional conflict for patients with cervical cancer in Taiwan: an observational study, The 5th World Congress on Women' s Mental Health to be held from 4-7 March 2013 in Lima, Peru. (為全球探討婦女心理健康之重要國際會議)</p> <p>●Developing a Longitudinal model for Quality of life measurement in Women with Cervical Cancer - A Structural Equation Modeling Framework, The Third Asian Conference on Psychology & the Behavioral Sciences, March 28-31 2013, Osaka, Japan. (為亞洲地區探討心理健康與行為科學之重要國際會議)</p> |
|--|--|

| | 成果項目 | 量化 | 名稱或內容性質簡述 |
|---|-----------------|----|-----------|
| 科 教 處 計 畫 加 填 項 目 | 測驗工具(含質性與量性) | 0 | |
| | 課程/模組 | 0 | |
| | 電腦及網路系統或工具 | 0 | |
| | 教材 | 0 | |
| | 舉辦之活動/競賽 | 0 | |
| | 研討會/工作坊 | 0 | |
| | 電子報、網站 | 0 | |
| | 計畫成果推廣之參與(閱聽)人數 | 0 | |

國科會補助專題研究計畫成果報告自評表

請就研究內容與原計畫相符程度、達成預期目標情況、研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）、是否適合在學術期刊發表或申請專利、主要發現或其他有關價值等，作一綜合評估。

1. 請就研究內容與原計畫相符程度、達成預期目標情況作一綜合評估

達成目標

未達成目標（請說明，以 100 字為限）

實驗失敗

因故實驗中斷

其他原因

說明：

本研究規劃以二年時程完成，因第二年經費未獲補助，但將持續進行尚未收案問卷回收以完成三個時間點創傷後成長與生活品質的研究分析。

2. 研究成果在學術期刊發表或申請專利等情形：

論文： 已發表 未發表之文稿 撰寫中 無

專利： 已獲得 申請中 無

技轉： 已技轉 洽談中 無

其他：（以 100 字為限）

3. 請依學術成就、技術創新、社會影響等方面，評估研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）（以 500 字為限）

子宮頸癌是全球影響婦科癌症死亡的重要原因。主要治療的目標有：治癒惡性腫瘤或延長生存時間以及提高生活品質。子宮頸癌的確診可以視為心理的創傷，過去研究僅集中在記錄壓力和功能障礙的成因，可能誤導癌症潛在可行的治療方法。最近的研究發現，在創傷壓力經驗後發生正面的生活變化的感知-創傷後成長。雖然文獻對於癌症病患創傷後成長的診斷已經獲得許多正面結果，但在方法論上仍有其限制：首先，以不具效度的工具進行樣本資料回收並評估其結果，缺乏科學的說服力。第二，相關研究的量化資訊，並無法顯示來是於何種明確變數的影響。第三，研究調查的變數缺乏有理論背景與根據。第四，缺乏對於樣本的長期追蹤，難以觀察創傷後成長的變化。

因此，原研究規劃二年的時程針對子宮頸癌確診病患進行 6，12 與 18 個月的三次觀察並追蹤其創傷後成長的變化。進一步以結構方程模式檢定三項假設：三次時間點之間呈現穩定狀態，6 與 12 個月間之間發生成長變化，12 與 18 個月間之間發生成長變化。由於第二年計畫經費未得補助，第一年的研究成果之學術與臨床價值為

(1) 對子宮頸癌病患進行檢定上述三項假設在 12 個月的變化：得知在 6 與 12 個月間之間發生成長變化，意即在高度與低度的創傷成長有較高的生活品質；相對地在中度的創傷成長組別顯示較低的生活品質水準。

(2)探討創傷後成長的預測因子(病患參與決策，信任，決策衝突，人格特質)在長短期間的差異：病患參與決策，信任，決策衝突三項觀察變項對於創傷後成長具有顯著的效果；人格特質對於創傷後成長不具有統計顯著性，但在生活品質具備有顯著的效果。

進一步的模式分析將在第三次收案完成後進行，在回饋與臨床參考與討論後，進一步發表至優良國際刑期刊與世界創傷後成長之研究接軌。