

[患者・家族が在宅を希望しない] (n=3, 6)	「在宅緩和ケアを勧められて、悪く言うと何も分からないまま在宅療養が開始されるケースが増加している」「在宅医療の良さが強調されるあまり、条件が十分でないまま退院させられることがないか心配している」	「在宅調整ができていないのに退院するケースが多く、家族が準備ができていないなか、短期間で亡くなることも多い」「ふりかえるとどの人(本人、家族、医療者)の思いが強くなるのかと疑問を感じる場合が増えている」
[患者と家族の意思の違う時の対応] (n=1, 4)	「患者さんの希望と家族の希望が同一でない時の対応は難しい」	「本人が自宅に帰りたいと望んでも家族の受け入れができない」

表 5 医師・看護師の感じた課題

	課題	医師	看護師
続けること・広げることに関するもの (n=33, 84)	<ul style="list-style-type: none"> ・続けることが大事である ・広げることが大事である 病院医師・病院看護師に(広げる) 外来患者に(広げる) がん以外の緩和ケアや小児に(広げる) 少ないがんや、呼吸困難など困難症状に(広げる) 病院の指導者に(広げる) 医療過疎地域に(広げる) 施設に(広げる) 告知されていない患者に(広げる) (痛みだけでなく)眠気と鎮痛のバランスに(広げる) もっと広い地域リソースの把握に(広げる) 経過が速く、間に合わない患者に(広げる) グリーフケアに(広げる) デスクカンファレンスに(広げる) 	13	32
忙しさ・スタッフのケアに関するもの (n=19, 30)	<ul style="list-style-type: none"> ・忙しく緩和ケアに時間が割けない ・緩和ケアに関わるスタッフのケアが必要である 	18	28
質の向上に関するもの (n=9, 33)	<ul style="list-style-type: none"> ・質を向上したい 	9	33
リソースの不足に関するもの (n=34, 63)	<ul style="list-style-type: none"> ・介護力がない、家族の負担が大きい ・在宅を行う診療所の総数と質の向上が必要である ・人的資源が全般的に足りない ・訪問看護師の総数と質の向上が必要である ・緩和ケア病棟が必要である 	11	24
システムの見直しに関するもの (n=18, 36)	<ul style="list-style-type: none"> ・緩和ケアチームの働き方を検討する必要がある ・麻薬が多く煩雑・在庫が増える ・経済的負担が大きい ・より簡便な地域システムが必要である ・夜間・休日の対応が手薄である ・マニュアルなどツールの継続発行が必要である ・チューブ類など物流の問題がある ・若年者に介護保険が利用できる必要がある ・医師と看護師の権限の違いがある 	3	7
		3	3
		3	2
		1	4
		3	1
		2	2
		2	1
		1	1
		0	15

考 察

本研究は予備的な研究であるが、地域緩和ケアプログラムが行われた地域の医療福祉従事者の体験する変化をある程度推定することができる。本研究の意義は、質問紙調査の量的研究ではあらかじめ設定されていない項目を補うことにより、プロジェクトの効果をより適切に解釈するためのデータを与えるものである。

本研究の最も重要な結果は、地域対象の緩和ケアプログラムで医療福祉従事者におもに体験されることが、チーム医療と連携に関することであることが示唆されたことである。これは、Gold Standard Frameworkをはじめとする各国での地域緩和ケアプログラムの評価とも非常によく一致している⁵⁻⁸。「緩和ケアを地域に普及する」と考えると、症状コントロールに重きを置いたプログラムを策定する場合があるが、Gold Standard Frameworkでも症状コントロールは3段階目に位置づけられているように、「地域緩和ケアプログラム」にまず求められること、そしてプログラムの効果として認識されるのは、「地域内の医療福祉従事者間のコミュニケーションの改善」であると考えられる。これは、OPTIM プロジェクトの1地域で行われた複数の研究の結果からも示唆される¹²⁻¹⁴。地域医療者を対象とした緩和ケアセミナーの有用性として参加者から挙げられたものは、知識や技術の向上のみならず、「地域の医療福祉従事者の交流の場となる」ことであった¹²。緩和ケア病棟で行われた参加型の研修においても、地域の医療従事者にとって有用であったことは、身体症状コントロールの方法よりもむしろ、自分が地域で実際に受け持つ患者に説明するために「緩和ケア病棟を知る」ことや「連携上の課題について知る」ことであった¹³。さらに、地域の診療所を対象とした緩和ケアチームによるアウトリーチプログラムの評価でも、専門的な緩和ケアの知識や技術にあわせて、「地域での連携での機会となること」に役立ったことが挙げられている¹⁴。すなわち、地域を対象とした緩和ケアプログラムを行う場合にまず念頭に置かなければならないことは、地域単位でのネットワーキングであり、ネットワーキングを増やすような介入方法が用いられる必要があることが強く示唆される。

このほかに本研究で認められたこととして、【緩和ケアを意識するようになり知識や技術が増えた】ことが肯定的な体験として表現された。これも欧米圏での先行研究とも一致しており⁵⁻⁸、地域対象の緩和ケアプログラムでは、終末期ケアや患者・家族の苦痛・希望している療養場所に意識が向くようになる、症状コントロールの技術が向上するなどの効果が体験されると考えられる。

【活動の広がり】に地域や施設、個人によって差があること、あるいは、患者・家族に対する影響が医療者に対する影響よりもあいまいに表現されることも、先行研究と一致している⁵⁻⁸。地域緩和ケアプログラムでは、個々の患者や施設に対する介入と異なり、地域の医療福祉従事者への広く薄い教育的介入や連携を強める介入が地域全体に薄く実施されることが多い¹⁵。したがって、患者自身への効果は直接的でなく、地域内での影響にばらつきが生じると考えられる。患者のアウトカムをより確実に改善するプログラムの策定を目的とするのであれば、患者レベルでの介入プログラムの設定とその検証がより望ましいことが示唆される^{16, 17}。

本研究で挙げられた課題は、これまでも挙げられているものが多いが^{18, 19}、地域のプロジェクトが進んだためにより課題として鮮明となった、という特徴がある。たとえば、外来患者のサポートのための連携、がん以外の緩和ケア、医療過疎地域でどのように体制をつくるのか、頭頸部がんなど稀少がん、施設での看取り、質の向上などは、がん患者の緩和ケア体制が整っていく中で、「次に」目指されるものとして語られている。地域での緩和ケアの提供体制は範囲が大きく、数年間で体制が整えられることはないと考えられるため、継続することが重要であり、地域ごとに継続可能性のある提供体制を構築していくシステムが不可欠であることがうかがえる。

本研究の限界として、質問紙調査の自由記述の分析であるため、解釈は他の研究と合わせて行う必要がある。また、本研究ではデータが薄いため、病院医療者と地域医療者の比較の視点での分析を行わなかった。より深い洞察を得るためには、立場の違いによる比較を今後の研究では行う必要がある。

以上より、地域緩和ケアプログラムで生じる医師・看護師が体験するおもな変化は、チーム医療と連携、緩和ケアの意識と知識や技術の向上、在宅療養の普及であると考えられた。病院医師・看護師の在宅の視点、活動の広がり、患者・家族・市民の認識については、体験のされ方はまちまちであった。課題としては、続けること・広げることにに関するもの、忙しさ・スタッフのケアに関するもの、質の向上に関するもの、リソースの不足に関するもの、システムの見直しに関するものに分けられた。地域を対象とした緩和ケアプログラムでは、対象となる医療福祉従事者が最も求めている可能性が高い「地域での連携を促進するプログラム」を基盤とするべきであると考えられる。

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著者の申告すべき利益相反なし

Original Research

Changes experienced by physicians and nurses after a region-based palliative care intervention trial: the OPTIM-study

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The primary aim of this study was to collect the views of physicians and nurses in the regions where community-based palliative care intervention trial, the OPTIM-study, was performed. A content analysis of free comments of the questionnaire survey was conducted. Questionnaires were mailed to 1,763 physicians and 3,156 nurses after the intervention, and 706 and 2,236 responses were obtained, respectively. A content analysis identified 327 free comments from physicians and 737 from nurses. As favorable effects, the categories [Multidisciplinary teams and community networks were established] [Home-based care is widespread] [Medical knowledge and skills are acquired just as those involved in palliative care] emerged. The main effects of the community palliative care program included the establishment of multidisciplinary teams and community networks, development of home-based care, and increasing knowledge, skills, and awareness about palliative care.
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Key words: palliative care, community, home-based care, network

Table 1 Favorable effects of community intervention on physicians and nurses (1)—[Multidisciplinary teams and community networks were established]

Sub-categories (Number of subjects: physician, nurse)	Physician	Nurse
[Smooth communication] (n=30, 46)	"Establishment of the palliative care unit facilitated smooth communication", "As the palliative care unit was established, I knew who to consult", "I had a chance to talk directly to people involved in palliative care in the workshop, which encouraged me to talk to anyone in later practice", "I become able to call or e-mail health care workers involved in palliative care"	"I become able to contact and consult other health care providers about patients", "I don't hesitate to ask and discuss even a small matter", "Now, I know how to contact to primary physician or health care workers in charge of patients"
[Increased opportunities to talk directly and share information among colleagues] (n=11, 21)	"Multidisciplinary case conferences before patients' discharge provided me with a place for discussion and sharing information among colleagues", "I have more chances to hear about patients transferred to home-based care"	"I have more chances to discuss directly with people involved in palliative care at multidisciplinary case conferences", "Frequent information-sharing became possible after exchanging our e-mail addresses"
[I know the name, face, roles, and views of people associated with cancer care in the community] (n=8, 27)	"I know how people involved in care would perceive matters and think", "Despite business-like communication, I can smoothly work with people involved in a patient's care, because I know their personality", "Since I had a chance to meet other health care workers at various meetings, I could establish real 'face-to-face relationships' with them"	"Because I know how other health care workers think and their level of understanding, I can smoothly communicate with them", "Meetings run more smoothly, because I understand the situation and views of other health care workers"
[Palliative care network has been expanded] (n=7, 16)	"More alternative care approaches are developed", "Mutual cooperation is achieved with local clinics"	"Horizontal relationships facilitated smooth cooperation", "I could understand that there are many people eagerly engaged in palliative care"
[I started to consider a team-based approach] (n=4, 11)	"A multidisciplinary team approach helps me decide treatment plans"	"A nurse who is in charge of supporting home-based care helps me a lot", "Integrated nursing care can be provided while discussing with palliative care nurses and nurses who coordinate discharge planning"
[Trusted relationships and a feeling of fellowship are developed] (n=1, 11)	"I got to know many people I can share ideas with"	"The awareness I had for people 'working in other facilities' was changed to 'colleagues in the same region'", "I achieved an increased awareness of cooperation"

Table 2 Favorable effects of community intervention on physicians and nurses (2) — [Home-based care is widespread]

Sub-categories (Number of subjects: physician, nurse)	Physician	Nurse
[Home-based care has become well-known as a common treatment option] (n=4, 30)	"Health care providers, patients, and family members started to understand that home-based care is not a unique option"	"More patients started to receive home-based care until the last moment of their lives", "A growing number of patients waiting for hospice care die at home"
[A care network has been developed] (n=11, 22)	"A doctor who refused to make home visits in the first year agreed from the second year", "More pharmacies support home-based care"	"Since more clinics and home-based care providers have started to provide palliative care services, more patients are encouraged to begin home-based care", "After the project started, home-based care providers did not refuse the management of patients requiring palliative care"
[Smooth transition to home-based care] (n=8, 24)	"A patient who required transfer to home-based care could be discharged on that day"	"Smooth transition is possible without taking any formal action. Every nurse tries not to waste patients' time", "Hospital discharge arrangements between hospital and community care services can be made faster than before", "Long-term care insurance has started to be applied much earlier than before"
[Discharge planning conferences for patients making a transition to home-based care] (n=2, 16)	"Multidisciplinary case conferences have started to be held"	"Multidisciplinary case conferences give me comfort because I can understand the personality of people involved in palliative care", "Discharge planning conferences help me know who to contact when I have a problem regarding patients"
[Emergency transfer of patients receiving home-based care became smooth] (n=1, 0)		

Table 3 Favorable effects of community intervention on physicians and nurses (3)—[Medical knowledge and skills are acquired just as those involved in palliative care] [I felt confident and a sense of accomplishment]

Sub-categories (Number of subjects: physician, nurse)	Physician	Nurse
[Palliative care knowledge and skills are increased] (n=14, 43)	"Misconceptions regarding narcotic drugs among physicians decreased", "Medical knowledge is increased", "Palliative care knowledge has become necessary for all physicians"	"Along with the spread of palliative care, even people engaged in welfare facilities started to accumulate knowledge on narcotic drugs", "As I learned how to assess pain of patients, I can now ask physicians to increase the dose of medication with confidence", "I started use pain-rating scales", "I obtained practical ideas at a multidisciplinary workshop, which was very helpful"
[I started to consider palliative or home-based care from the early stages of treatment] (n=9, 30)	"I started to have a positive attitude toward palliative care", "I started to think about the possibility of home-based care from the early stages of treatment"	"I pay attention to a patient's pain when providing care", "Since narcotic drugs were not used before the end-stage in conventional treatment, I saw many patients die in pain. Pain management has greatly improved"
[Increasing support from palliative care specialists] (n=14, 25)	"I received some useful advice on pain management from palliative care specialists", "The palliative care team has greatly contributed to the improvement of pain management"	"I can now ask about a patient's care anytime, since palliative care specialists have increased", "We are supported by the palliative care team, and this gives me a sense of security in care", "Community involvement disseminated technical knowledge to local care facilities"

Table 4 Favorable and unfavorable effects of community intervention on physicians and nurses

Categories Sub-categories (Number of subjects: physician, nurse)	Physician	Nurse
[Home care perspectives of hospital physicians and nurses]		
[Home care perspectives have been adopted by hospital physicians and nurses] (n=9, 26)	"I understood what types of physician work in the community and how to communicate with them", "I consider not only the living area, but also conditions and characteristics of the patient when choosing a local physician", "I became able to talk in a convincing manner"	"I provide hospital care in consideration of the home environment of patients", "Home care perspectives, such as the height of a toilet seat and handrail location, allowed me to provide rehabilitation for patients in a setting close to each patient's real home environment"
[Home care perspectives need to be adopted by hospital physicians and nurses] (n=1, 10)	"Not many hospital physicians are interested in home care. How to increase their interests would be a future problem"	"I often feel perplexed that many hospital nurses do not understand home-based nursing"
[Expansion of activities]		
[Limited expansions] (n=15, 30)	"Some local physicians and nurses avoid requests to provide home care", "There are local physicians who strive to provide home care. However, some physicians do not work diligently and send patients back to the hospital by ambulance if their condition deteriorates", "Physicians who belong to a different university affiliate are usually disregarded", "There are conceptual gaps among hospital physicians", "Most hospital referrals are concentrated to a single clinic"	"There is a significant difference in awareness of home care even among hospitals in the same region", "There is a gap in the level of concern among wards in a hospital", "Since a nurse in charge of patients has to be involved in their home care, I cannot participate in care even if I wish to"
[I don't feel any change] (n=14, 13)	"I have not seen any change in the acceptance status of terminal cancer patients at nursing facilities over the past three years", "I personally feel no change in local medical service"	"I don't feel any effects in our district"
[Less involvement/The intervention period was too short to feel the effects] (n=8, 16)	"The intervention period was too short to feel the effects", "My clinical practice did not change, because I rarely see cancer patients receiving home care"	"I don't feel any change, because I am never involved in the care of cancer patients", "Since few patients received palliative care on our ward, I have not had a chance to utilize the useful information given to us"
[I did not receive a project announcement] (n=8, 13)	"The project announcement was not made to general physicians", "Our hospital participated in the project, but I personally have not heard about this", "I've never received a project brochure"	"I've never heard of local support teams and lecture meetings", "Active promotion is needed to disseminate information to all nurses"
[The project involved the entire community] (n=6, 10)	"Community palliative care has been developed"	"People working in welfare facilities started to have medical knowledge"

[Recognition of patients, families, and the general public]		
[The recognition of home-based care has changed in health care professionals, but not in patients and their families] (n=15, 21)	"Even though physicians consider that cancer treatment and palliative care can be performed at the same time, most patients think that palliative care means end-of-life care", "Home-based care started to be well-recognized for physicians, but it needs to be further publicized for patients and their families", "Patients' families often prefer to keep the patient hospitalized for safety"	"Most families believe that it is difficult to take care of cancer patients at home", "Palliative care for cancer patients became popular among health care providers, but not among the general public"
[The awareness of patients, families, and the general public has gradually changed] (n=3, 7)	"Palliative care has been gradually understood by patients and families"	"Some cancer patients ask me about palliative care", "More families talk about palliative care"
[I am aware of a sense of security in patients and their families] (n=5, 4)	"Patients and their families are satisfied with treatment, because it has allowed them to realize their wishes", "The number of patients who look depressed and hopeless decreased over the past few years", "I am aware of a greater sense of security and peace in patients and their families"	"Many patients were discharged and transferred to home-based care, and all of them are satisfied with it", "More patients choose to die at home, and I often receive appreciation from patients and families"
[Patients and families do not wish to receive home-based care] (n=3, 6)	"There are many patients who were recommended and started home-based care without careful consideration", "Since the advantages of home-based care are stressed too strongly, it makes me concerned that some patients may be discharged without enough preparation"	"There are many patients who are discharged before appropriate care coordination. Some patients died shortly after discharge, because their families were not ready to take care of them", "It is often questionable who (patient, family, health care providers) actually decided to shift to home-based care"
[A gap in thinking between patients and their families] (n=1, 4)	"It is difficult when there is a gap in thinking between patients and their families"	"Some families refuse to accept the patient, even if he/she wishes to return home"

Table 5 Future tasks based on the experience of physicians and nurses

		Physician	Nurse
The program needs to be continued and disseminated (n=33, 84)	- It is important to continue	13	32
	- It is important to disseminate to:		
	hospital physicians and nurses	4	27
	outpatients	6	5
	non-cancer patients or children receiving palliative care	4	2
	treatment of small cancer tumors or dyspnea	3	1
	school instructors	1	2
	rural areas facing decreasing access to healthcare service	1	1
	healthcare facilities	1	0
	patients who have not been told of their disease	0	4
	reduce sleepiness and pain	0	4
	understand community resources	0	2
	patients with rapid progression	0	2
	bereavement follow-ups	0	1
death, grief, and bereavement conference	0	1	
Busyness/Care provided by health care workers (n=19, 30)	- Too busy to engage in palliative care	18	28
	- Health care workers involved in palliative care need to be supported	0	2
Quality improvement (n=9, 33)	- Care quality needs to be improved	9	33
Lack of care resources (n=34, 63)	- Lack of care resources, Too great a care burden on family members	11	24
	- The number of clinics providing home care and care quality need to be increased	8	18
	- Insufficient human resources	7	8
	- The number of visiting nurses and care quality need to be increased	5	9
	- A palliative care ward should be established	3	4
A re-examination of the system (n=18, 36)	- Palliative care strategies should be reconsidered	3	7
	- Too many narcotic drugs make the work complicated and cause a stock volume increase	3	3
	- Too high an economic burden	3	2
	- The community network should be simplified	1	4
	- Shortage of nurses during the night and weekend	3	1
	- The care manual should be updated and revised	2	2
	- Distribution problems regarding medical supply	2	1
	- Nursing care insurance should cover young patients	1	1
	- Differences in roles and authority between physicians and nurses	0	15

Psychological states and coping strategies after bereavement among spouses of cancer patients: a quantitative study in Japan

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Abstract

Purpose The purposes of this study were (1) to characterize psychological states and coping strategies after bereavement among spouses of cancer patients in Japan and (2) to explore the factors associated with psychological states in oncology settings.

Methods In March 2009, questionnaires to assess spouses' psychological states, coping strategies, and mental health states (GHQ-28) were sent after patients died at the National Cancer Center of Japan. To address the first purpose, exploratory factor analysis, gender comparison, and calculation of

correlation with age, time since bereavement, and mental health states were conducted. Hierarchical regression analysis was conducted to address the second purpose.

Results A total of 821 spouses experiencing bereavement for 7 months to 7 years participated in the study. Psychological states revealed three factor structures: “Anxiety/Depression/Anger”, “Yearning”, and “Acceptance/Future-Oriented Feelings”. Coping strategies also revealed three factor structures: “Distraction”, “Continuing Bonds”, and “Social Sharing/Reconstruction”. Coping strategies represented 18 % to 34 % of each factor associated with psychological states, whereas the characteristics of bereaved spouses and deceased patients represented 6 % and less than 6 %, respectively. More “Distraction and Social Sharing/Reconstruction” and less “Continuing Bonds” were significantly associated coping strategies for achieving “Acceptance/Future-Oriented Feelings” ($p < 0.01$).

Conclusions Both psychological states and coping strategies after bereavement revealed three factor structures. Coping strategies was the primary, bereaved spouses' characteristics was the secondary, and deceased patients' characteristics was the tertiary factor associated with psychological states. Enhancing “Distraction” and “Social Sharing/Reconstruction”, and reducing “Continuing Bonds” might be promising strategies for achieving positive psychological states of the bereaved.

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Keywords Psychological states · Coping strategies ·
Bereavement · Spouses · Cancer · Japan

Introduction

Cancer is the leading cause of death in Japan, with an annual rate of approximately 340,000 people, 90 % of whom die in

a hospital [1]. As a result, more than 200,000 people a year (about two thirds of deceased patients) lose their spouses [1]. In oncology settings, spouses experience the greatest distress at the time of patient death [2] and bereavement brings an increased risk of major depressive disorder [3, 4]. Therefore, comprehension and assessment of psychological states during spousal bereavement are necessary for hospital staff to provide psychological care in clinical practice.

A bereaved person experiences various psychological states following the death of a loved one. Several components of negative psychological states among the bereaved have been identified as anxiety, yearning (unfulfilled desire to reunite with the deceased), anger, and depression [5–11]. Prigerson and her colleagues demonstrated that intense and prolonged yearning could be a distinctive symptom of grief disorder [8, 12–14]. Aside from these negative psychological states, recent studies suggest the presence of positive psychological states. For example, Bonanno and his colleagues reported that approximately half the bereaved had resilience to loss and adapted well over the course of bereavement [15]. In addition, “acceptance” was experienced most frequently during the 2 years after bereavement among several grief indicators [16]. In Japan, yearning has already been described in ancient poems such as “Man-yo-shu”; however, its distinctiveness has not been fully demonstrated by quantitative study. Moreover, yearning is not necessarily an expression of separation anxiety because in the Japanese view of life and death, the soul of the deceased is believed to live in eternity and provide encouragement for the bereaved [17].

Coping strategies, defined as “cognitive/behavioral efforts to manage the internal/external demands of stressful situations” [18], have an effect on psychological states and can also be enhanced through intervention [19, 20]. In Western studies, “avoidance” [21, 22], “continuing bonds” [11, 23], “sense-making” [24, 25], and “emotional disclosure” [26] were reported as coping strategies of the bereaved. However, the factor structures characterizing the coping strategies utilized by bereaved individuals remain to be identified even though several studies have found coping strategies to be one of the most influential factors of psychological states among the bereaved. The most influential theory among these Western studies is the “stress and coping theory” [18, 19]. In addition, there is still no consensus regarding which coping strategies will contribute to positive/negative psychological states because bereavement-related religious/cultural factors in each country such as mourning customs would have specific associations with psychological states. In Japan, coping strategies such as visiting the cemetery or making regular offerings at the family altar are widely accepted as ancient mourning customs [27] and might be associated with the psychological states among the bereaved. Furthermore, the degree of association between coping strategies and psychological states among the bereaved has not been explored in oncology settings.

In the present quantitative study, we used an original questionnaire comprising items generated from our previous semi-structured interviews about psychological states and coping strategies after bereavement among spouses of cancer patients in Japan [28]. The primary purpose was to characterize psychological states and coping strategies after bereavement among spouses of cancer patients in Japan by identifying their factor structures and associations with gender, age, time since bereavement, and mental health states to comprehend their characteristics and make a valid clinical assessment of the bereaved. The secondary purpose was to explore the factors associated with psychological states in oncology settings, and to comprehend the degree and pattern of association between coping strategies and psychological states. Based on the Western theoretical framework of “stress and coping theory” [18, 19], we hypothesized that coping strategies, bereaved spouses’ characteristics, and deceased patients’ characteristics would respectively be the primary, secondary, and tertiary factors associated with psychological states. We also hypothesized that the impact of coping strategies would replicate the results of previous bereavement studies among Chinese in other Asian populations: “avoidance” had no effect and “continuing bonds” had a reduced effect on psychological states [22, 23].

Methods

Participants and procedure

We conducted a cross-sectional study using a mail survey between February and April 2009 for bereaved spouses whose partners had died at the National Cancer Center Hospital East (NCCHE). This study was approved by the Institutional Review Board and Ethics Committee of the National Cancer Center of Japan in January 2009.

Two authors (M.A., N.A.) identified potentially eligible participants by using the hospital’s patient database, which states the primary clinician and date of patient’s death. Eligibility criteria were (1) a primary clinician belonging to the eight divisions cooperating with this study (Hematology, Pancreatic, Head and Neck, Gastric Surgery, Gastrointestinal, Thoracic Surgery, Thoracic Oncology, and Palliative Care), which covered 98 % of the patients who died at NCCHE; (2) patient data available in the hospital’s patient database operating since January 2001; and (3) patient died at least 6 months earlier. Exclusion criteria were (1) patient had declined to sign a consent form at the initial visit to the hospital to use their private information; (2) patient’s family had lodged a complaint with NCCHE regarding the patient’s death; (3) the division heads could not permit study participation because the patients’ primary doctors had since transferred from NCCHE; or (4) patient’s death was due to a reason other than cancer or the

primary clinician could not build up a trustful relationship with the patient's family. In February 2009, we mailed invitation letters requesting that the patients' spouses, as candidate participants, sign and return a written informed consent form if they lived there. In March 2009, we mailed questionnaires to the spouses who had agreed to participate. Finally, we matched the demographic characteristics of deceased cancer patients drawn from our patient database with those of bereaved spouses based on the completed questionnaires.

Of the 4,343 eligible patients who had died during the period from January 2001 to June 2008, 903 (21 %) were excluded under the above four criteria ($n=16, 4, 619, 264$, respectively). Of the 3,440 invitation letters mailed to the family members, 538 were undeliverable. Among the 2,902 candidate participants, 1,324 failed to return the letter and 676 declined to participate. Hence, 902 consenting spouses were mailed questionnaires. Of those, 56 failed to return their questionnaire, three withdrew, and 22 were excluded due to missing data. A total of 821 patients were analyzed.

The estimated number of patients with a spouse at the time of death was 2,895 (among 4,343 eligible patients) considering that two thirds of cancer patients in Japan have a spouse at the time of death [1]. Therefore, the estimated response rate was 28 % ($821/2,895$). Respondents' characteristics ($N=821$) showed a lower proportion of males (30 %, $n=242$ vs. 36 %, $n=753$, $p<0.01$) and a shorter duration of bereavement (3.0 ± 1.9 vs. 3.2 ± 2.0 years, $p<0.01$) compared to the non-responders ($n=2,081$); the difference in values of the other characteristics was not significant.

Questionnaires

Deceased patients' characteristics

We examined the overall computerized patient database of NCCHE to identify cancer patients' characteristics such as age at the time of death, duration of the last hospital admission, place of death, and cancer site. Time since cancer diagnosis to death was declared in the questionnaires completed by the bereaved. History of usage of psychiatric consultation services was identified by using the consultation database developed by the Psychiatric Services Division of the NCCHE [29], including demographic variables and psychiatric disorders of patients who were referred to the Psychiatric Services Division.

Bereaved spouses' characteristics

The questionnaire included a section about bereaved spouses' characteristics including physical illness under treatment, involvement in patient end-of-life care during the last month, bereavement experience, and history of any psychiatric disorder prior to the patient's death.

Psychological states after bereavement

This section of the questionnaire consisted of 44 items, 42 of which were developed from components of positive/negative psychological states obtained in our previous qualitative study in Japan [28] and two items from our own clinical experience. Each item called for a response to the question: "How often have you experienced the following emotions or thoughts associated with bereavement in the past few weeks?" using a five-point Likert-type scale (0=never, 1=rarely, 2=sometimes, 3=often, 4=always). We expected this new one would cover both positive and negative psychological states, which are poorly measured by the existing validated inventory.

General health questionnaire 28-item version (GHQ-28) [30]

This questionnaire covered the mental health states of the bereaved in the previous few weeks using a four-point Likert-type scale (possible range, 0 to 3; higher scores indicate poor mental health states). We used the validated Japanese version of GHQ-28 [31].

Coping strategies after bereavement

This section of the questionnaire consisted of 38 items, 33 of which were developed from components of bereavement-specific/general coping strategies obtained in our previous qualitative study in Japan [28] and five from our own clinical experience. Each item called for a response to the question: "How often have you utilized the following coping strategies in stressful situations related to your bereavement from the time of spousal death to date?" using a five-point Likert-type scale (0 = never, 1 = rarely, 2 = sometimes, 3 = often, 4 = always). This question covered an extended period of time because we assumed that the most recent psychological states of the bereaved would be more affected by cumulative past coping strategies than by recent coping strategies even if recall bias existed when reporting past coping strategies retrospectively. We expected this new one would cover both bereavement-specific and general coping strategies, which are poorly measured by the existing validated inventory.

Coping inventory of stressful situations (CISS) [32]

This questionnaire on the frequency of engagement in coping strategies in stressful situations consisted of 48 items measuring three coping factors (task-oriented, emotion-oriented, avoidance-oriented) using a five-point Likert-type scale (possible range, 1 to 5; higher scores indicate greater frequency). We used the validated Japanese version of CISS [33].

Statistical analysis

Exploratory factor analysis using the maximum-likelihood method (we chose this method because it is robust to moderate departures from normality in generating appropriate factor solutions [34]) with promax rotation was conducted to identify factor structures. A scree plot was used to determine the number of factors. In the case of cross-loading, the item was categorized in the factor with which it had the highest factor loading. For the factor analysis, we did not eliminate any items with low factor loading because the purpose of this quantitative study was not to develop measures but to characterize psychological states and coping strategies after bereavement using an original questionnaire comprising items generated from overall components obtained in our previous semi-structured interviews among spouses of cancer patients in Japan [28]. Cronbach's alpha coefficient for each factor was calculated to evaluate internal consistency [35]. To examine the convergent-discriminant validity of the factor structure, Pearson's correlation coefficient with validated scales (GHQ-28, CISS) was used. To compare gender differences and to identify correlations with the characteristics and mental health of the bereaved, we used Student's *t* test and Pearson's correlation coefficient. Hierarchical regression analysis was used to identify factors associated with psychological states after bereavement. A three-step model was used for this analysis: step 1, deceased patients' characteristics (16 variables); step 2, bereaved spouses' characteristics (13 variables); and step 3, coping strategies after bereavement (three variables).

Values of $p < 0.05$ were considered significant and all *p* values were two-tailed. SPSS for Windows (ver.12.0J; SPSS Japan Institute Inc., Tokyo, Japan) was used for all statistical analyses.

Results

Characteristics of deceased patients and bereaved spouses

Table 1 shows the characteristics of the 821 participants experiencing bereavement for 7 months to 7 years. In this study, 579 bereaved (70 %) were female, 441 patients (54 %) died in the palliative care unit, and 629 bereaved (77 %) were involved in end-of-life caregiving "every day".

Characteristics of psychological states after bereavement

The scree plot of 44 items showing three factor structures was the most comprehensible solution (Fig. 1). Factor 1 (Anxiety/Depression/Anger) accounted for 31.58 %, factor 2 (Yearning) accounted for 7.88 %, and factor 3 (Acceptance/Future-Oriented Feelings) accounted for 3.92 % of the

Table 1 Characteristics of deceased patients and bereaved spouses ($N=821$)

	Mean \pm SD (median, range)	<i>n</i> (%)
Deceased patients' characteristics		
Age, years	64 \pm 9.0 (65, 32–88)	
Time since cancer diagnosis to death, months	27 \pm 29 (16, 1–187)	
Duration of last hospital admission, days	27 \pm 29 (17, 1–208)	
Place of death		
General wards		380 (46)
Palliative care unit		441 (54)
History of usage of psychiatric consultation service		
Presence		161 (20)
Absence		660 (80)
Cancer site		
Lung		257 (31)
Pancreas		98 (12)
Stomach		70 (9)
Colon		68 (8)
Head and neck		62 (8)
Esophagus		50 (6)
Breast		47 (6)
Liver		39 (5)
Biliary tract		36 (4)
Lymphoma		11 (1)
Others		83 (10)
Bereaved spouses' characteristics		
Age, years	66 \pm 9.0 (66, 32–89)	
Gender		
Male		242 (30)
Female		579 (70)
Time since bereavement, years	3.0 \pm 1.9 (3.0, 0.6–7.2)	
Living status		
Living alone		391 (48)
Living with someone		430 (52)
Marital status		
Remarried		8 (1)
Widowed		804 (98)
Employment status		
Employed (full time, part time)		232 (28)
Unemployed (housewife, retired)		518 (63)
Education		
≤ 9 years		133 (16)
≥ 10 years		688 (84)
Religiousness ^a	2.4 \pm 1.1 (2.0, 1.0–5.0)	
History of any psychiatric disorder		
Presence		60 (7)
Absence		756 (92)

Table 1 (continued)

	Mean \pm SD (median, range)	n (%)
Physical illness under treatment		
Presence		464 (57)
Absence		325 (40)
Bereavement experience other than spousal loss		
Before the death of spouse		514 (63)
After the death of spouse		216 (26)
Involvement in patient end-of-life care		
Less than 1 day/week		18 (2)
1–3 days/week		54 (7)
4–6 days/week		98 (12)
Everyday		629 (77)

Some percentages do not add up to 100% because of missing data
SD standard deviation

^a Possible range, 1 to 5. Higher scores indicate greater religiosity

total variance (Table 2). All factors showed good internal consistency ($\alpha > 0.70$). “Anxiety/Depression/Anger” and “Yearning” showed convergence in GHQ scores ($r = 0.76$ and 0.44 , $p < 0.01$, respectively). “Acceptance/Future-Oriented Feelings” showed discrimination in GHQ scores ($r = -0.40$, $p < 0.01$).

Gender difference was not significant ($p = 0.16$, 0.93 , and 0.92 , respectively) although females showed a higher mean score across factors. Males showed a significantly higher score in two items of “Yearning”: “Regretting that my care for the deceased was insufficient (No. 12)” and “Feeling guilty about my recovery (No. 13)”. Younger bereaved partners showed significantly higher scores for “Anxiety/Depression/Anger” ($p < 0.01$) and lower scores for “Acceptance/Future-Oriented Feelings” ($p < 0.01$). Those for whom a longer time had passed since bereavement showed significantly lower scores for “Anxiety/Depression/Anger” ($p < 0.01$) and “Yearning” ($p < 0.01$) and significantly higher scores for “Acceptance/Future-Oriented Feelings” ($p < 0.01$).

Five items in “Yearning” were only weakly correlated with GHQ scores and not significant: “Appreciating the deceased’s support (No. 14)”, “Being eager to live up to the wishes of the deceased (No. 9)”, “Being eager to pray that the soul of the deceased will rest in peace (No. 17)”, “Appreciating help from people around me (No. 44)”, and “Being eager to forgive the deceased for what he/she had done (No. 16)”.

Characteristics of coping strategies after bereavement

The scree plot of 38 items showing three factor structures was the most comprehensible solution (Fig. 2). Factor 1’ (Distraction) accounted for 13.36 %, factor 2’ (Continuing Bonds) accounted for 8.47 %, and factor 3’ (Social Sharing/

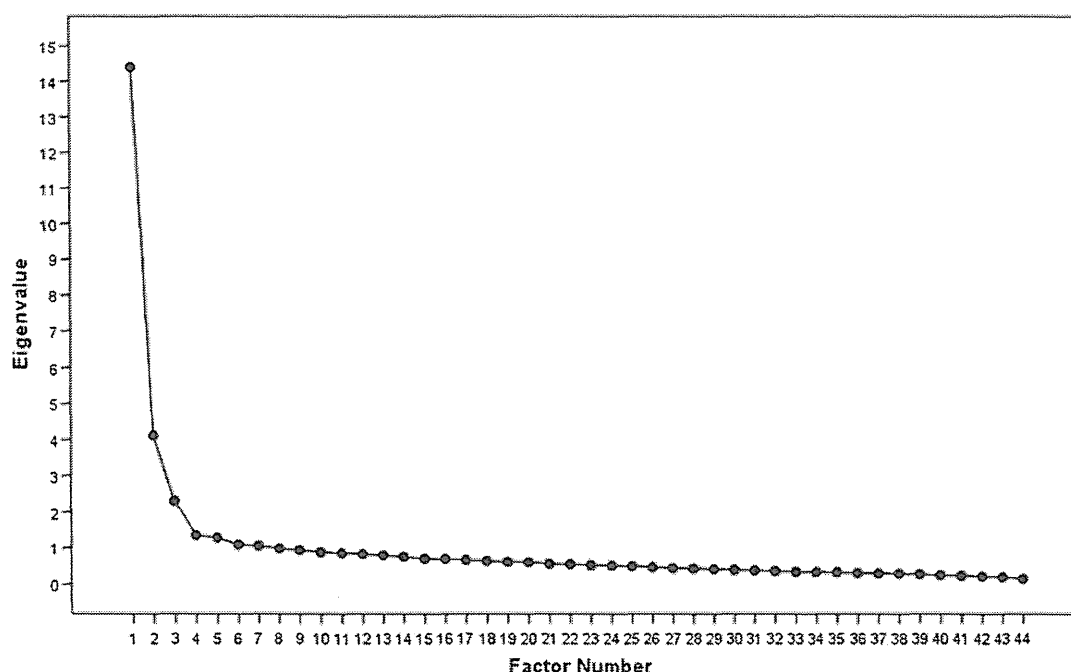


Fig. 1 Scree plot of psychological states after bereavement obtained by exploratory factor analysis

Reconstruction) accounted for 4.30 % of the total variance (Table 3). All factors showed good internal consistency ($\alpha > 0.70$). “Distraction” showed convergence in task-oriented and avoidance-oriented ($r=0.43, 0.25, p<0.01$, respectively) and it also showed discrimination in emotion-oriented ($r=-0.33, p<0.01$). “Continuing Bonds” showed convergence in emotion-oriented and avoidance-oriented ($r=0.26, 0.22, p<0.01$, respectively). “Social Sharing/Reconstruction” showed convergence in avoidance-oriented, task-oriented, and emotion-oriented ($r=0.49, 0.40, \text{and } 0.24, p<0.01$, respectively).

Females showed a significantly higher score on each factor mean ($p<0.01$). Males showed a significantly higher score in one item of “Distraction”: “Not seeking any support and trying to do everything by myself (No. 13)”. Younger bereaved showed significantly lower scores for “Distraction” and “Social Sharing/Reconstruction” ($p<0.01$). Those for whom a longer time had passed since bereavement showed significantly higher scores for “Distraction” ($p<0.01$).

“Distraction” was negatively correlated with GHQ scores ($p<0.01$) and “Continuing Bonds” was positively correlated ($p<0.01$). Three items in “Continuing Bonds” were negatively correlated but not significantly: “Talking about the deceased (No. 2)”, “Living up to the wishes of the deceased (No. 7)”, and “Visiting the cemetery or making regular offerings at the family altar (No. 5)”.

Factors associated with psychological states after bereavement

Coping strategies represented 18 % to 34 % of the total variance of each factor associated with psychological states, whereas the characteristics of deceased patients/bereaved spouses represented 6 % or less (Table 4).

For “Anxiety/Depression/Anger”, significantly associated factors were less “Distraction” ($p<0.01$) and more “Continuing Bonds” ($p<0.01$). For “Yearning”, significantly associated factors were shorter duration of bereavement ($p<0.01$), higher education (≥ 10 years) ($p<0.05$), less involvement in patient end-of-life care ($p<0.05$), less “Distraction” ($p<0.01$), more “Continuing Bonds” ($p<0.01$), and more “Social Sharing/Reconstruction” ($p<0.01$). For “Acceptance/Future-Oriented Feelings”, significantly associated factors were longer time from cancer diagnosis to patient death ($p<0.05$), liver as the cancer site ($p<0.01$), absence of physical illness under treatment ($p<0.05$), more “Distraction” ($p<0.01$), less “Continuing Bonds” ($p<0.01$), and more “Social Sharing/Reconstruction” ($p<0.01$).

Discussion

Psychological states after bereavement revealed three factor structures. “Anxiety/Depression/Anger” was the major factor that focused on negative psychological states and accounted for 31.58 % of the total variance. The second factor was “Yearning”, which was identified as an entity factor distinct from bereavement-related depression and anxiety as previously reported [8, 12–14], and it also focused on negative psychological states. The tertiary factor was “Acceptance/Future-Oriented Feelings” focused on positive psychological states. As for factor characteristics, the following results of this study replicate those of previous studies: frequency in experiencing negative psychological states was higher in female [3], younger [3, 36], and recently bereaved spouses [9, 36, 37]. As an original finding of this quantitative study, “Yearning” included maladaptive and not so maladaptive items even though it was a factor of negative psychological states. Not so maladaptive items were thoughts directed toward the deceased such as appreciation, idealization, praying, and forgiveness. This result could be influenced by the Japanese view of life and death: the soul of the deceased is believed to live in eternity and provide encouragement to the bereaved [17]. Considering this, we should avoid a hasty conclusion that “Yearning” in Japanese is a negative psychological state that should be alleviated. In addition, we should clinically assess each component in “Yearning” individually because it indicates not only separation anxiety but also dependence on a comforting illusion.

Coping strategies after bereavement revealed three factor structures. “Distraction” was the major factor that focused on adaptive coping strategies and accounted for 13.36 % of the total variance. The first factor, “Distraction”, focused on distraction coping by doing tasks and avoiding emotional coping, and the second factor, “Continuing Bonds”, partly covered both emotional and avoidance coping; these are presumably replications of “Avoidance” [21, 22] and “Continuing Bonds” [11, 23] in previous studies. “Yearning” could be considered as a consequence of “continuing bonds”, so it was a predictable result that we obtained both of these as separate factors. However, the tertiary factor, “Social Sharing/Reconstruction”, focused on avoidance coping by doing tasks with a certain degree of emotional coping and was interpreted as a mixture of “sense-making” [24, 25] and “emotional disclosure” [26]. All three factors of coping strategies were significantly more frequent among females, replicating previous findings on gender

Table 2 Characteristics of psychological states after bereavement

No.	Item	Factor loading			Score ^a (0–4)		Gender comparisons			Correlations					
		Factor 1	Factor 2	Factor 3	<i>M</i>	(SD)	<i>t</i>	<i>p</i>		Age of the bereaved (years)		Time since bereavement (years)		GHQ28 (0–84)	
										<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Factor 1: Anxiety/Depression/Anger ($\alpha=0.95$)				1.31	(0.85)	-1.39	0.16			-0.10	<0.01**	-0.13	<0.01**	0.76	<0.01**
20	Being emotionally numb	0.90	-0.10	0.12	0.98	(1.09)	-1.05	0.29		-0.05	0.20	-0.10	0.01*	0.55	<0.01**
22	Feeling hypersensitive	0.90	-0.05	0.10	1.25	(1.20)	-3.47	<0.01**	M < F	-0.05	0.19	-0.10	<0.01**	0.63	<0.01**
21	Worrying about my psychological state	0.84	0.04	0.07	1.33	(1.17)	-1.37	0.17		-0.06	0.09	-0.13	<0.01**	0.62	<0.01**
31	Feeling tired easily	0.81	-0.12	0.01	1.53	(1.22)	-2.84	<0.01**	M < F	-0.06	0.08	-0.10	<0.01**	0.66	<0.01**
32	Having a lack of interest or pleasure	0.79	-0.08	-0.01	1.22	(1.15)	-0.44	0.66		-0.08	0.02*	-0.12	<0.01**	0.57	<0.01**
26	Feeling what I have to do is a burden	0.79	-0.11	-0.05	1.37	(1.17)	-0.75	0.45		-0.13	<0.01**	-0.08	0.02*	0.60	<0.01**
25	Being more irritable than ever before	0.76	-0.07	0.04	0.82	(1.00)	0.89	0.37		-0.07	0.04*	-0.02	0.61	0.56	<0.01**
30	Being too lazy to start something	0.76	0.02	-0.06	1.28	(1.23)	-0.84	0.40		-0.05	0.14	-0.15	<0.01**	0.62	<0.01**
19	Can't be relaxed at any time	0.73	-0.07	0.11	1.54	(1.15)	-2.23	0.03*	M < F	-0.07	0.07	-0.10	<0.01**	0.47	<0.01**
18	Being emotionally unstable	0.72	0.05	-0.04	1.29	(1.20)	-1.13	0.26		-0.05	0.15	-0.14	<0.01**	0.65	<0.01**
23	Worrying about the proximity of death	0.65	0.02	0.05	1.33	(1.21)	-1.89	0.06		-0.06	0.09	-0.09	0.02*	0.49	<0.01**
43	Being reluctant to go out or meet the people around me	0.63	-0.03	-0.07	0.83	(1.03)	-2.12	0.04*	M < F	-0.06	0.09	-0.10	<0.01**	0.54	<0.01**
41	Feeling uncomfortable with the remarks or attitude of others toward me	0.53	-0.04	0.05	0.87	(0.94)	-2.04	0.04*	M < F	-0.13	<0.01**	-0.06	0.10	0.38	<0.01**
24	Having a sense of unfairness for what happened to me	0.49	0.18	0.07	1.01	(1.21)	1.95	0.05		-0.09	0.01*	-0.02	0.55	0.39	<0.01**
27	Feeling lonely	0.48	0.24	-0.13	1.78	(1.31)	1.53	0.13		-0.05	0.16	-0.12	<0.01**	0.54	<0.01**
29	Feeling empty	0.47	0.38	-0.12	1.95	(1.36)	0.69	0.49		-0.06	0.10	-0.15	<0.01**	0.58	<0.01**
1	Worrying about my future without the deceased	0.39	0.35	-0.14	2.05	(1.20)	-1.23	0.22		-0.11	<0.01**	-0.11	<0.01**	0.51	<0.01**
Factor 2: Yearning ($\alpha=0.89$)				2.08	(0.75)	-0.08	0.93			-0.08	0.31	-0.18	<0.01**	0.44	<0.01**
14	Appreciating the deceased's support	-0.26	0.74	0.15	3.49	(0.85)	0.99	0.33		-0.02	0.52	-0.06	0.11	0.02	0.66
8	Being preoccupied with thoughts about the deceased	0.04	0.73	-0.08	2.07	(1.23)	-2.18	0.03*	M < F	-0.02	0.53	-0.19	<0.01**	0.37	<0.01**
9	Being eager to live up to the wishes of the deceased	-0.14	0.70	0.20	2.16	(1.25)	-2.14	0.03*	M < F	0.01	0.93	-0.10	<0.01**	0.07	0.05

Table 2 (continued)

No.	Item	Factor loading			Score ^a (0–4)		Gender comparisons			Correlations					
		Factor 1	Factor 2	Factor 3	<i>M</i>	(SD)	<i>t</i>	<i>p</i>		Age of the bereaved (years)		Time since bereavement (years)		GHQ28 (0–84)	
										<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
5	Can't help crying when I think of the deceased	0.13	0.64	-0.09	1.80	(1.35)	-3.87	<0.01**	M < F	-0.09	<0.01**	-0.20	<0.01**	0.43	<0.01**
11	Being eager to keep the deceased's possessions just as they are	0.03	0.62	-0.04	2.12	(1.25)	-0.04	0.97		-0.02	0.64	-0.10	<0.01**	0.29	<0.01**
4	Feeling a sense of the presence of the deceased in daily life	0.10	0.61	0.07	1.84	(1.29)	-2.45	0.01**	M < F	0.01	0.69	-0.15	<0.01**	0.26	<0.01**
17	Being eager to pray that the soul of the deceased will rest in peace	-0.09	0.57	0.25	3.50	(0.86)	0.25	0.81		0.03	0.45	-0.05	0.16	0.06	0.08
3	Feeling disbelief regarding the death of my spouse	0.13	0.55	-0.08	1.75	(1.35)	-1.24	0.21		-0.08	0.02*	-0.26	<0.01**	0.33	<0.01**
12	Regretting my care for the deceased was insufficient	0.02	0.53	-0.12	2.25	(1.39)	2.37	0.02*	M > F	-0.10	<0.01**	-0.01	0.80	0.31	<0.01**
2	Being painful to recall memories of the deceased	0.25	0.53	-0.06	1.84	(1.24)	-0.42	0.67		-0.02	0.60	-0.19	<0.01**	0.45	<0.01**
10	Longing for help from the deceased	0.28	0.51	-0.06	1.88	(1.33)	-2.54	0.01*	M < F	-0.15	<0.01**	-0.11	<0.01**	0.47	<0.01**
28	Being sad	0.36	0.48	-0.09	2.01	(1.34)	0.14	0.89		-0.06	0.11	-0.14	<0.01**	0.52	<0.01**
42	Feeling envious of married couples	0.21	0.41	-0.04	2.07	(1.34)	1.45	0.15		-0.12	<0.01**	-0.04	0.32	0.38	<0.01**
13	Feeling guilty about my recovery	0.24	0.38	0.01	1.07	(1.19)	2.45	0.02*	M > F	-0.01	0.75	-0.08	0.02*	0.34	<0.01**
6	Believing that no one will ever take his/her place	0.01	0.34	-0.04	1.84	(1.68)	0.25	0.80		-0.24	<0.01**	-0.16	<0.01**	0.15	<0.01**
44	Appreciating help from people around me	-0.01	0.32	0.31	2.66	(1.12)	-1.03	0.31		-0.01	0.91	-0.05	0.19	-0.03	0.38
7	Searching for the image of the deceased in others	0.15	0.31	0.11	0.90	(1.16)	1.42	0.16		0.02	0.63	0.02	0.68	0.15	<0.01**
16	Being eager to forgive the deceased for what he/she had done	0.11	0.26	0.25	2.44	(1.41)	0.85	0.40		-0.02	0.62	-0.03	0.42	0.10	0.10
Factor 3: Acceptance/Future-Oriented Feelings ($\alpha=0.79$)					1.93	(0.70)	-0.10	0.92		0.10	<0.01**	0.12	<0.01**	-0.40	<0.01**
40	Can afford to consider the future	0.04	0.02	0.82	1.95	(1.02)	-0.24	0.81		0.07	0.04*	0.12	<0.01**	-0.37	<0.01**
39	Being ready to face any difficulties	0.01	0.12	0.78	1.90	(1.09)	0.96	0.34		0.10	<0.01**	0.08	0.03*	-0.38	<0.01**
36		-0.12	0.04	0.66	1.62	(1.18)	-1.19	0.23		0.13	<0.01**	0.13	<0.01**	-0.44	<0.01**

Table 2 (continued)

No.	Item	Factor loading			Score ^a (0–4)		Gender comparisons			Correlations					
		Factor 1	Factor 2	Factor 3	<i>M</i>	(SD)	Male (<i>n</i> =242)		<i>M</i> < <i>F</i>	Age of the bereaved (years)		Time since bereavement (years)		GHQ28 (0–84)	
							<i>t</i>	<i>p</i>		<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
34	Being eager to find my purpose in life	–0.09	0.07	0.57	2.09	(1.10)	–2.51	0.01*	<i>M</i> < <i>F</i>	0.09	<0.01**	0.13	<0.01**	–0.34	<0.01**
38	Being aware of my emotional recovery	0.17	0.24	0.49	1.81	(1.30)	0.11	0.91		–0.01	0.73	0.02	0.52	–0.03	0.50
33	Wanting to make my bereavement experience contribute to others	–0.01	0.01	0.49	1.76	(1.09)	1.41	0.16		0.22	<0.01**	0.07	0.05	–0.31	<0.01**
15	Feeling proud of what I had done	0.01	–0.04	0.46	2.35	(1.16)	–0.66	0.51		0.04	0.30	0.10	<0.01**	–0.22	<0.01**
35	Being able to accept death	0.36	–0.33	0.43	0.98	(1.12)	–0.56	0.57		0.05	0.15	0.02	0.59	–0.08	0.03*
37	Feeling released from spousal care	–0.03	0.42	0.43	2.86	(1.21)	0.41	0.68		–0.06	0.10	0.07	0.06	–0.10	0.01*
	Wishing to put the deceased at rest by bringing up children/grandchildren proudly	–0.03	0.42	0.43	2.86	(1.21)	0.41	0.68		–0.06	0.10	0.07	0.06	–0.10	0.01*
	Percentage of total variance	31.58	7.88	3.92											
	Cumulative percentage of total variance	31.58	39.46	43.38											
	Correlation matrix with factor 1	–	0.66	–0.47											
	Factor 2	–	–	–0.24											

An exploratory factor analysis using the maximum-likelihood method with promax rotation was employed. Factor loadings >0.40 are in boldface. Student's *t* test and Pearson's correlation coefficient were used. Factor means are in boldface

M mean, *SD* standard deviation

^a Possible range, 0 to 4. Higher scores indicate greater frequency

p*<0.05, *p*<0.01

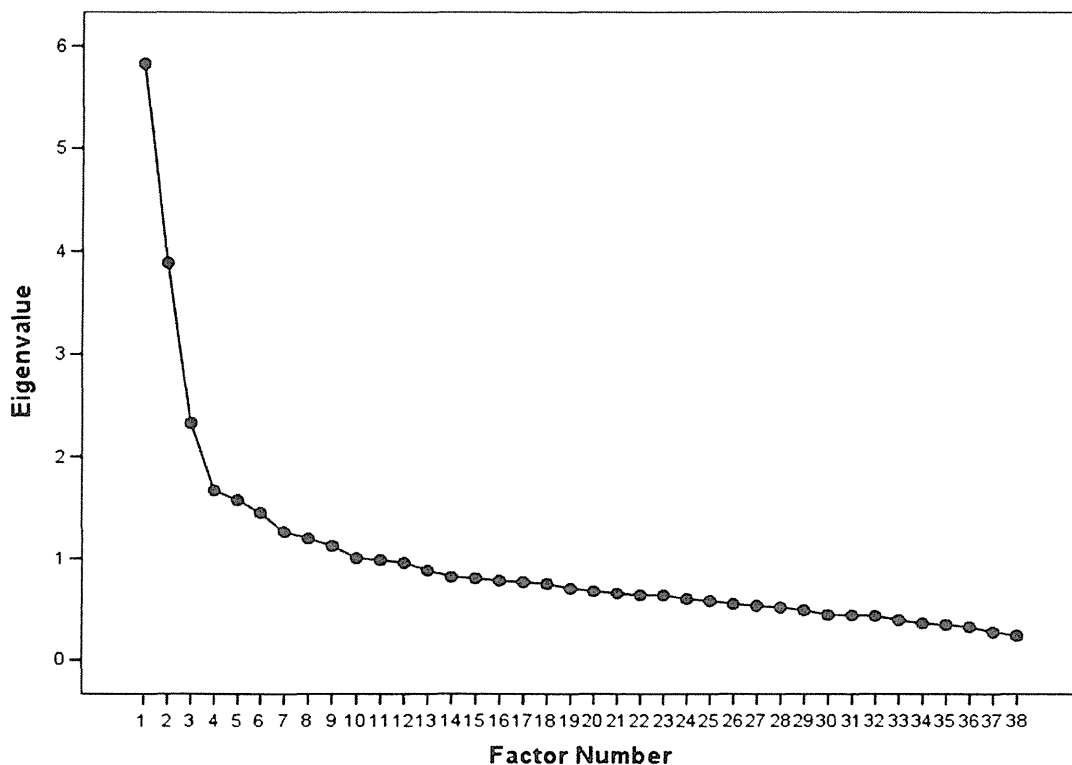


Fig. 2 Scree plot of coping strategies after bereavement obtained by exploratory factor analysis

difference in coping [32]. However, “Not seeking any support and trying to do everything by myself” was the only significantly frequent item in males. This result replicated that of a previous study where widowers used their own resources and widows accessed social resources [38]. As an original finding of this quantitative study, all three factors include adaptive and maladaptive items. This result might contribute to understanding the inconsistency across studies about what constitutes adaptive coping [39]. When assessing whether coping strategies utilized by the bereaved are adaptive or not, we should consider factor characteristics and item characteristics separately. Especially, “Continuing Bonds” includes adaptive items with reference to ancient Japanese mourning customs [27] such as visiting the cemetery or making regular offerings at the family altar, even though it was a maladaptive factor. “Distraction” was adaptive, “Continuing Bonds” was maladaptive, and “Social Sharing/Reconstruction” was neither. These results did not replicate previous study results where “avoidance” had no effect [22] and “continuing bonds” had a reduced effect on psychological consequences [23] among Chinese bereaved. This discrepancy might be attributed to cultural differences regarding the effect

of coping strategies on psychological states. However, these hypotheses need to be verified in a future longitudinal study.

Considering that coping strategies were the primary associated factor, beyond the characteristics of bereaved spouses/deceased patients, representing 18–34 % of the total variance of each factor in psychological states, we could identify a strategy for encouraging coping strategies that contribute to positive psychological states in the bereaved: enhancing both “Distraction” and “Social Sharing/Reconstruction” and reducing “Continuing Bonds” might be effective. “Distraction” might be the most adaptive in Japan, but this result did not replicate a previous study in Australia which reported the effectiveness of sharing of emotions with family members of cancer patients [40]. As a result, it is necessary to develop an original Japanese program of psychological support for the bereaved who have lost their spouses to cancer.

For the study limitations, first, there was a sample bias. Although we believe that our sample provided proper coverage of the patients’ cancer site and place of death, and the spouses’ duration of bereavement, the sample population may not fully represent Japanese