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Inner and Outer Resources of Coping in Newly Diagnosed Breast Cancer Patients : Attachment Security and Social Support

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Objectives The purpose of this study is to evaluate the effects of attachment security, social support and health-related burden in the prediction of psychological distress and the mediation effects of social support and health-related burden in relationship between attachment security and psychological distress.

Methods Finally, 161 patients were included for the analysis. Chi-square test and independent samples t-test were used for comparing differences between depressive/anxious group and non-depressive/non-anxious group. For evaluating the relationship among attachment security, social support, psychological distress and health-related burden, structural equation modeling analysis were performed.

Results 40.7% and 32.0% of the patients have significant depressive symptoms and anxiety symptoms, respectively. In the analysis for testing the differences between groups who have psychological distress and who have not, there were no significant differences of sociodemographic factors and medical characteristics between groups, except for association between depressive symptoms and type of surgery ($p = 0.01$). Contrary to sociodemographic and medical characteristics, there were significant differences of health-related burden and two coping resources (attachment security and social support) between groups (all $p < 0.01$), except for the support from medical team in between anxious group and non-anxious group ($p = 0.20$). In the structural equation model analysis (Model fit : chi-square/df ratio = 0.8, root mean square error of approximation = 0.000, comparative fit index = 1.000, non-normed fit index =0.991), attachment security and social support emerged as an important predictor of psychopathology.

Conclusions Attachment security and social support are important factors affecting the psychological distress. We suggest that individual attachment style and the social support state must be considered to approach the newly diagnosed breast cancer patients with psychological distress.

Key Words Attachment security · Social support · Breast cancer · Depression · Anxiety.

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Introduction

Breast cancer has become the most common cancer in women, with continuously increasing incidence rates throughout the world.[1)] Similar to the worldwide pattern, the number of patients with newly diagnosed breast cancer increased 2.5-fold in recent 8 years and breast cancer became the second most common cancer in women in Korea.[2)] Therefore, the risk of psychological distress related with breast cancer is also increasing. It is known that about 37.2% and 49.6% of breast cancer patients have depression and anxiety.[3)] If depression and anxiety persisted, the disease outcomes tend to be worse because patients' compliance and illness behaviors (coping) may change negatively, and psychoneuroendocrinologically, the immune system can be downregulated.[4)]

Although depression and anxiety are prevalent in cancer patients compared with general population, not all the cancer patients have such sychological distress. The concept of 'overcoming adversity' has been described as the capacity for successful resilience against stressful circumstances.[5)] There are several mechanisms and protective factors which may interact and exert their effects during stressful state. Muller and Lemieux[6)] emphasized that the attachment and social support are two main protective factors in the prediction of psychopathology in formerly maltreated adults. Recently, there is considerable research investigating the roles and relationships of these factors with re-

gard to psychopathology among patients with medical illnesses, especially cancer.[7)8)]

Therefore, the good understanding of these two factors (patients' support system and their own attachment patterns) and its appropriate applications can bring much more favorable outcomes in the treatment of cancer patients who have psychological distress. Patients who have individual capacity and/or support systems to tolerate the stressful circumstances can overcome psychiatric problems.[9)] Few studies have reported the interactions among psychological distress and two coping resources (attachment and social support) in patients with cancer and there have been no studies investigating patients with single cancer in similar phase till now.

The purpose of this study was to evaluate the effect and relationship of two resources which are attachment security (inner) and social support (outer) in the prediction of psychological distress in breast cancer patients. We hypothesized that : 1) Psychological distress could have relationships with attachment security, social support and health-related burden ; 2) Attachment security, social support and health related burden could be different between groups with and without psychological distress ; 3) Perceived social support and health related burden could mediate the relationship between attachment security and psychological distress (Fig. 1).

Methods

Participants

The sample is comprised of 197 postoperative breast cancer patients, participating in a broader study of psychosocial adjustment. Newly diagnosed breast cancer patients who were hospitalized in Kyungpook National University Hospital and Kyungpook National University Medical Center were enrolled in two weeks following their surgery between July 2010 and March 2012. Patients were eligible to participate if they met the following inclusion criteria : having been diagnosed with breast cancer, having done breast surgery, having no ongoing and past history of major disabling medical and psychiatric conditions, being female aged between 18 and 80 years, and being able to give written informed consent. This study was approved by the institutional review board of Kyungpook National University Hospital. All participants provided written informed consent after the procedure had been fully explained. Finally, 161 patients were included for the analysis. Twenty six patients were excluded because of past history of major psychiatric disorders. The other 10 patients were excluded because they did not complete up to 75% of study assessment questionnaire.

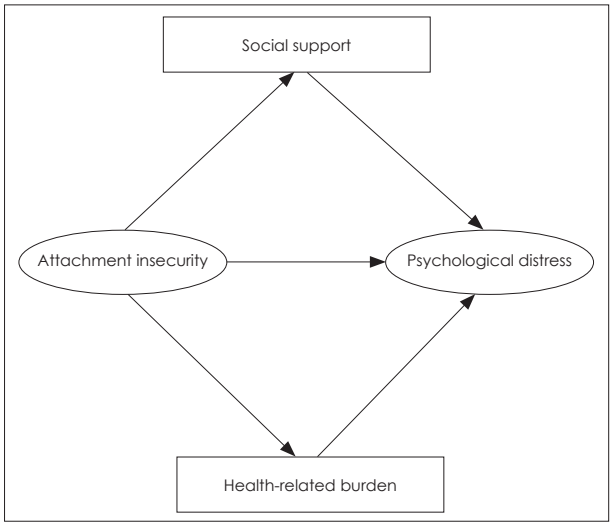

Fig. 1. Hypothesized model of the effect and relationships of two resources (attachment insecurity and social support) in the prediction of psychological distress.

Assessment

Hospital Anxiety and Depression Scale (HADS)

The Hospital Anxiety and Depression Scale (HADS), a 14-tiem self-report screening scale that was originally developed to indicate the possible presence of anxiety and depression states in the setting of a medical non-psychiatric outpatient clinic.[10)] The HADS consists of a 7-item anxiety subscale (HADS-A) and a 7-item depression subscale (HADS-D). Each item scores on a 4-point Likert scale, giving maximum subscale scores of 21 for depression and anxiety, respectively. The norms give us an idea of the level of Anxiety and Depression (0−7 = normal, 8−10 = borderline abnormal, 11−21 = abnormal). The Korean version of the HADS was used in this study.[11)] Each subscale's cut-off points of Korean version of the HADS are also 8. We divided the sample into two groups (depressive/anxious group and non-depressive/non-anxious group) according to these cut-off points.

Euro Quality of Life Questionnaire 5-Dimensional Classification (EQ-5D)

Euro Quality of Life Questionnaire 5-Dimensional Classification (EQ-5D) is one of the most widely used generic index measures of health related quality of life.[12)] The descriptive system contains five items that measure five dimensions of health including mobility (M), self-care (SC), usual activities (UA), pain/discomfort (PD), and anxiety/depression (AD). Each dimension is represented by a single item with three levels of responses : no problem (level 1), some/moderate problems (level 2), and extreme problems (level 3). EQ-5D index was calculated according to the guide of Korean Centers for Disease Control and Prevention.[13)] We used this index as health related burden. It

means that the lower index score, the higher health related burden.

Revised Adult Attachment Scale (RAAS)

Attachment security was measured using the 18 items from the revised Adult Attachment Scale (RAAS).[14] This scale consists of three attachment style-descriptions (close, depend, anxiety). The 18 statements were each scored on 5-point Likert scale, 1 (not at all like me) to 5 (very much like me). The scores for the six items relating to each of the original attachment styles were summed to produce a score for that attachment style, ranging from 6 to 30. The Korean version of RAAS has been developed, and its validity and reliability has been proven.[15] RAAS has another scoring system, which consists of anxiety subscale and avoidance subscale, according to subscale domain. We adopted the latter scoring system which has two subscales (anxiety and avoidance), since the interpretation of result and the explanation of the notion of attachment security can be done easily. Attachment security can be represented by lower scores on the attachment anxiety and avoidance subscales.

Multidimensional Scale of Perceived Social Support (MSPSS)

The Multidimensional Scale of Perceived Social Support (MSPSS) is a 12-item scale with a seven point scale (from 1 = strongly disagree to 7 = strongly agree) measuring three sources of support : support from family, friends and significant other.[16] This scale is short and easy to understand for the populations who cannot tolerate a long questionnaire and have limited literacy level. In particular, the significant other subscale can be defined depending on study design. The Korean version of MSPSS has already been developed, and its reliability has been proven.[17] The Korean version has a five point scale, being different from the original one. We defined significant other subscale as the support from medical team (doctor, nurse and social worker).

Statistical analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 12.0 (SPSS Inc., Chicago, IL, USA). Descriptive statistics were obtained for the sociodemographic and clinical characteristics, including age, marital status, educational level, socioeconomic state, employment status, cancer stage and type of surgery. The housewives were defined as unemployed in employment status.

Chi-square test and independent samples t-test were used for comparing differences between groups. For evaluating the relationship among attachment security, social support, psychological distress and health-related burden, Pearson's correlation coefficients was performed.

Analysis of moment structure (AMOS) version 7.0 (SPSS Inc., Chicago, IL, USA), with maximum likelihood estimation was used for Structural equation modeling (SEM) analyses. Adequate fit is suggested by a chi-square/df ratio in the range of 2, a root mean square error of approximation (RMSEA) < 0.08, and comparative fit index (CFI) and non-normed fit index (NNFI) > 0.95.

We used the bootstrap procedure to test the statistical significance of the indirect effects.[17] From 3000 bootstrap samples, AMOS saved the estimates for indirect effects. If the 95% confidence interval for the estimate of the indirect effect does not include zero, then the indirect effect is statistically significant at the 0.05 level.

Table 1. Sociodemographic and clinical characteristics of total breast cancer patients

Variable domain	Variable	Number (%)
Demographic	Age	
	≤29	1 (0.6)
	30–39	24 (14.9)
	40–49	68 (42.2)
	50–59	53 (32.9)
	≥60	15 (9.3)
	Marital state	
	Married	144 (89.4)
	Unmarried	17 (10.6)
	Education	
	> High school	46 (28.6)
	High school	51 (31.7)
	< High school	19 (11.8)
	Unknown	45 (28.0)
	Socioeconomic state	
	High	9 (5.6)
	Middle	125 (77.6)
	Low	27 (16.8)
	Employment	
	Yes	54 (33.5)
	No	107 (66.5)
Clinical	Cancer stage	
	0	17 (10.6)
	I	57 (35.4)
	II	59 (36.6)
	III	25 (15.5)
	IV	3 (1.9)
	Type of surgery	
	BCS	54 (33.5)
	Mastectomy	53 (32.9)
	Oncoplastic surgery	54 (33.5)

BCS : breast conserving surgery

Table 2. Psychosocial characteristics of total breast cancer patients

Variable domain	Variable	Mean (SD)		
Attachment	Anxiety	12.30 (3.32)		
	Avoidance	20.50 (5.61)		
Social support	Family	15.76 (3.05)		
	Friend	14.15 (3.14)		
	Medical team	12.38 (4.26)		
	Total	42.24 (8.03)		
Psychological distress	HADS-D	6.93 (3.80)		
	HADS-A	6.68 (3.81)		
Health-related burden	EQ-5D index	0.78 (0.13)		
		Level 1 number (%)	Level 2 number (%)	Level 3 number (%)
Response level of EQ-5D	Mobility	89 (57.1)	66 (42.3)	1 (0.6)
	Self care	59 (37.8)	88 (54.7)	9 (5.6)
	Usual activity	55 (35.3)	90 (55.9)	11 (6.8)
	Pain/discomfort	43 (27.6)	110 (68.3)	3 (1.9)
	Anxiety/depression	80 (51.3)	73 (45.3)	3 (1.0)

HADS-D : Hospital Anxiety and Depression Scale-Depression subscale score, HADS-A : Hospital Anxiety and Depression Scale-Anxiety subscale score, EQ-5D : Euro Quality of Life Questionnaire 5-Dimensional Classification, Response level : Level 1 = no problem, Level 2 = some/moderate problems, Level 3 = extreme problems, SD : standard deviation

A two-step procedure was used. The first step involved a confirmatory factor analysis to specify a measurement model with acceptable fit to the data. We extracted two latent factors, labeled Attachment insecurity from two indicators (RAAS anxiety score and RAAS avoidance score) and Psychological distress (HADS-D score and HADS-A score).

The second step involved testing a structural model for the mediation effect. A model was first estimated to test the significance of each path between variables. To obtain the best model, non-significant paths can be removed.

Results

Characteristics of the participants

The 161 participants ranged in age from 25 to 69 years (mean age = 48.0 [standard deviation (SD) = 8.1]. Most of participants were married (89.4%), higher than or equal to high school educated (60.3%), middle socioeconomic level (77.6%) and unemployed (66.5%). 46% of the patients have early-stage breast cancer (0 and I)(Table 1). The means of HADS-D score and HADS-A score were 6.93 (SD = 3.8) and 6.68 (SD = 3.8). Among the health-related variable, the number of patients who had some/moderate or extreme problem with mobility was the lowest (42.9%) and pain/discomfort was the most frequent problem (70.2%)(Table 2).

Comparison between two groups depend on psychological distress

Of the breast cancer patients, 40.7% and 32.0% have significant depressive symptoms and anxiety symptoms, respectively. In the chi-square test, there were no significant differences of sociodemographic factors and medical characteristics between groups, except for association between depressive symptoms and type of surgery ($p = 0.01$)(Table 3, 4). Contrary to sociodemographic and medical characteristics, there were significant differences of all the factors between groups (all $p < 0.01$), except for the support from medical team between anxious group and non-anxious group ($p = 0.21$) in the independent samples t-test (Table 5, 6).

Relationship of attachment, social support, health-related burden, depressive and anxiety symptoms

HASD-D and HASD-A scores were positively correlated with attachment anxiety and avoidance score with significance ($p < 0.01$) and negatively with support variable scores and EQ-5D index ($p < 0.01$) in the Pearson's correlation analysis (Table 7).

In the structural equation model analysis, the first factor loading for measurement model for hypothesis model was calculated (Table 8). Observed indicators loaded significantly onto their corresponding latent variables and standard factor loadings ranged from 0.53 to 1.02. The measurement model also fit well (chi-square/df ratio = 1.8, RMSEA = 0.06, CFI = 0.995, NNFI = 0.989).

Preliminary SEM analysis indicated that the path from attachment secure to health related burden was not significant and model fit was not good. Therefore, the path via health related burden was excluded from further analysis.

A revised model including mediation effect was tested. First a

Table 3. Sociodemographic and clinical characteristics between depressive group and non-depressive group in breast cancer patients

	Depressive group (n = 66)	Non-depressive group (n = 95)	p
Age			0.49
<50	36 (38.7)	57 (61.3)	
≥50	30 (44.1)	38 (55.9)	
Marital state			0.29
Married	57 (39.6)	87 (60.4)	
Unmarried	9 (52.9)	8 (47.1)	
Education			0.42
>High school	19 (41.3)	27 (58.7)	
High school	22 (43.1)	29 (56.9)	
<High school	5 (26.3)	14 (73.7)	
Socioeconomic state			0.65
High	13 (68.4)	6 (31.6)	
Middle	50 (40.0)	75 (60.0)	
Low	3 (17.6)	14 (82.4)	
Employment			0.19
Employed	26 (48.1)	28 (51.9)	
Unemployed	40 (37.4)	67 (62.6)	
Cancer stage			0.91
Early stage (0, I)	30 (40.5)	44 (59.5)	
Late stage (II–IV)	36 (41.4)	51 (58.6)	
Type of surgery			0.01
BCS	23 (42.6)	31 (57.4)	
Mastectomy	29 (54.7)	24 (45.3)	
Oncoplastic surgery	66 (62.3)	40 (37.7)	

Values are n (%). BCS : breast conserving surgery

model was tested for model fit and the significance of the paths. The structural model fit well (chi-square/df ratio = 0.8, RMSEA = 0.000, CFI = 1.000, NNFI = 0.991).

In the path analysis, all the pathways have significance (Fig. 2, Table 9). The standardized coefficients and squared multiple correlations are shown in Fig. 2 and unstandardized pathway values are shown in Table 8.

The mediation effect

The result of bootstrap method for testing mediation effect was statistically not significant (p = 0.06). The direct effect was 0.48 between attachment insecurity and psychological distress. After mediation, the effect (namely the indirect effect) was changed to 0.12 with 75% of effect reduction (Table 10).

Discussion

In the sociodemographic data, most were in their forties and fifties (75.1%) and in the 0, I and II stage (82.6%). These distribution patterns of age and cancer stage were very similar to the ones of previous epidemiologic study.[19] The age distribution pattern in Korea differs from that of western countries. In Korea, more than 60% of breast cancer patients are under 50 years old, while incidence rates continue to increase with age and high incidence after menopause in western countries.[20] So, the effect of cancer itself and cancer-related psychosocial problem could be more significant than in western societies, because women in this age group play an important role in their family and society.

The score of support from a medical team was relatively lower than from family and friends. The support from a medical staff may be small since the communication with medical team might be unilateral and not supportive compared with family and friends. This could be the explanation of the difference of perceived supports.

The health-related burden was larger in these individuals compared with general population. The mean EQ-5D index was 0.78 (SD = 0.13), lower than 0.88 of Korean general population.[21][22] Of the patients, 42.9% suffered from mobility and 72.4% have difficulties from pain and discomfort. The percentage of patients who have a burden from pain and discomfort was highest ; it can be explained by the time of investigation. The enrollment period was in two weeks after surgery and the operation sites were not recovered completely. And the burden related with mobility was lowest because the internal organs were not damaged in the

Table 4. Sociodemographic and clinical characteristics between anxious group and non-anxious group in breast cancer patients

	Anxious group (n = 52)	Non-anxious group (n = 109)	p
Age			0.72
<50	29 (31.2)	64 (68.8)	
≥50	23 (33.8)	45 (66.2)	
Marital state			0.40
Married	45 (31.3)	99 (68.7)	
Unmarried	7 (41.2)	10 (58.8)	
Education			0.10
>High school	11 (23.9)	35 (76.1)	
High school	22 (43.1)	29 (56.9)	
<High school	5 (26.3)	14 (73.7)	
Socioeconomic state			0.98
High	3 (33.3)	6 (66.7)	
Middle	40 (32.0)	85 (68.0)	
Low	9 (33.3)	18 (66.7)	
Employment			0.36
Employed	20 (37.0)	34 (63.%)	
Unemployed	32 (29.9)	75 (70.1)	
Cancer stage			0.71
Early stage (0, I)	25 (33.8)	49 (66.2)	
Late stage (II–IV)	27 (31.0)	60 (69.0)	
Type of surgery			0.24
BCS	21 (38.9)	33 (61.1)	
Mastectomy	18 (34.0)	35 (66.0)	
Oncoplastic surgery	13 (24.1)	41 (75.9)	

Values are n (%). BCS : breast conserving surgery

Table 5. Psychosocial characteristics between depressive group and non-depressive group in breast cancer patients

	Depressive group (n = 66)	Non-depressive group (n = 95)	Statistics	
			t	p
Attachment anxiety	13.37 (3.77)	11.55 (2.76)	3.34	<0.01
Attachment avoidance	23.31 (5.89)	18.54 (4.49)	5.82	<0.01
Support from family	14.01 (3.35)	16.97 (2.12)	−6.35	<0.01
Support from friends	12.72 (3.24)	15.14 (2.66)	−5.00	<0.01
Support from medical team	11.28 (4.30)	13.14 (4.08)	−2.77	<0.01
Support, total	37.89 (8.65)	45.27 (5.95)	−6.01	<0.01
EQ-5D index	0.73 (0.15)	0.81 (0.11)	−3.32	<0.01

Values are mean (SD). EQ-5D : Euro Quality of Life Questionnaire 5-Dimensional Classification, SD : standard deviation

operation as breast is an external organ.

Previous studies showed that a considerable number of breast cancer patients have depression and anxiety.[3)23)] Similar to these studies, depression and anxiety of problematic levels were also common with 40.7% and 32.0%, respectively, in our study. However, our study is cross-sectional. We must know that the prevalence of depressive and anxiety symptoms could be changed over time. Burgess et al.[24)] reported that the prevalence of depression, anxiety, or both is decreased over time in early breast cancer patients. Point prevalence of depression and anxiety was 33% at diagnosis and 24% at three months after diagnosis, decreased to 15% at one year.

No difference existed between the above two groups with respect to age, marital status, educational level, socioeconomic states, employment status and cancer stages. Previous studies showed the relationship between the variables above and psychological distress. These results could reflect that the age, educational level, socioeconomic state, and cancer stage could not have effects on the patients' depression and anxiety, rather the inner and outer psychosocial resources could play an important role. And it is also postulated that the effect of those factors was not significant at early time just after surgery. However, the ef-

Table 6. Psychosocial characteristics between anxious group and non-anxious group in breast cancer patients

	Anxious group (n = 52)	Non-anxious group (n = 109)	Statistics	
			t	p
Attachment anxiety	13.84 (3.85)	11.56 (2.78)	3.81	<0.01
Attachment avoidance	22.57 (6.01)	19.51 (5.15)	3.33	<0.01
Family support	14.11 (3.23)	16.55 (2.64)	−4.72	<0.01
Friends support	13.07 (3.11)	14.66 (3.03)	−3.08	<0.01
Medical team support	11.76 (4.37)	12.67 (4.19)	−1.26	0.20
Support, total	38.78 (9.08)	43.89 (6.93)	−3.58	<0.01
EQ-5D index	0.71 (0.15)	0.81 (0.11)	−4.10	<0.01

Values are mean (SD). EQ-5D : Euro Quality of Life Questionnaire 5-Dimensional Classification, SD : standard deviation

Table 7. Correlation of attachment, social support, EQ-5D index, depression and anxiety in total breast cancer patients

	HADS-D	(1)	(2)	(3)	(4)	(5)	(6)	(7)
HADS-A (1)	0.62†							
Family support (2)	−0.55†	−0.32†						
Friends support (3)	−0.48†	−0.21†	0.57†					
Medical team support (4)	−0.27†	−0.17*	0.23†	0.22†				
Support total (5)	−0.54†	−0.29†	0.70†	0.71†	0.76†			
Attachment anxiety (6)	0.31†	0.30†	−0.29†	−0.36†	−0.52	−0.23†		
Attachment avoidance (7)	0.48†	0.26†	−0.41†	−0.39†	−0.21†	−0.39†	0.45†	
EQ-5D index	−0.28†	−0.39†	0.13	0.84	0.19*	0.18*	0.03	−0.01

* : $p < 0.05$, † : $p < 0.01$. HADS-D : Hospital Anxiety and Depression Scale-Depression subscale score, HADS-A : Hospital Anxiety and Depression Scale-Anxiety subscale score, EQ-5D : Euro Quality of Life Questionnaire 5-Dimensional Classification

Table 8. Factor loading for measurement model for hypothesis model

Latent variable and observed indicator	Unstandardized factor loading	Standard error	Standardized factor loading
Attachment insecurity			
Attachment anxiety	1.00		0.53
Attachment avoidance	2.45	0.57	0.77
Psychological distress			
HADS-D	1.00		0.61
HADS-A	1.66	0.34	1.02

All factor loadings were significant ($p < 0.01$). HADS-D : Hospital Anxiety and Depression Scale-Depression subscale score, HADS-A : Hospital Anxiety and Depression Scale-Anxiety subscale score

fect size would be changed and become significant over time. For its clarification, further study must be needed.

Depending on type of surgery, there was a significant difference of depressive symptoms. In the oncoplastic surgery among the three type of surgery, the highest percentage of patients was suffering from depressive symptoms. The patients who underwent oncoplastic surgery have a higher expectation for their body image and anxiety about re-operation and losing their breast again because of incomplete removal or recurrence of cancer in this early period. In one observational cohort study,[24] the depression and anxiety were related with patient's own factors rather than with disease or treatment. This fact could tell us that the difference of percentage of depression can be explained by patient's own factors such psychosocial factors rather than by surgery type. However, the reason why there were differences depending on the type of surgery would be clarified by future research.

In this study, attachment security was significantly related with the prediction of depression and anxiety. The more insecurely attached, the more depressive and anxious patients were. This is consistent with attachment theory, which reports that attachment security acts as an "inner resource" that promotes adaptive coping.[25] Attachment insecurity may obstruct the development of inner resources necessary for coping with distress, limiting the individual's ability to navigate the coming challenges successfully.[26]

Social support also emerged as an important predictor of psychopathology in this study. Previous studies have demonstrated the role of social support that facilitated the emotional well-being of cancer patients.[27] Kornblitch et al.[28] showed that social

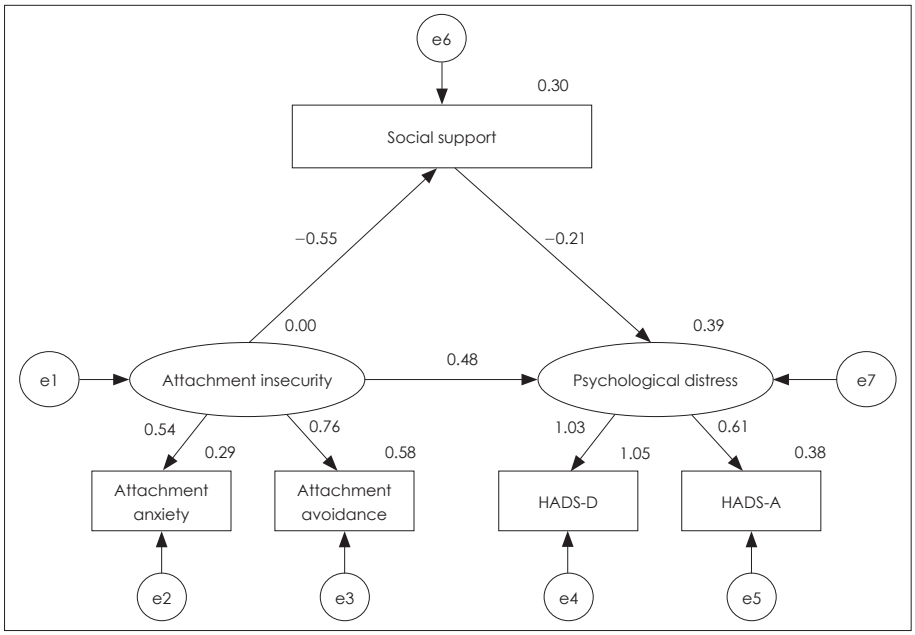

Fig. 2. Structual equation model of social support as a mediator of the effect of attachment insecurity on psychological distress, showing standardized coefficient. Social support : total score of social support, Attachment anxiety : RASS anxiety score, Attachment avoidance : RASS avoidance score, HADS-D : Hospital Anxiety and Depression Scale-Deperssion score, HADS-A : Hospital Anxiety and Depression Scale-Anxiety score, eX : equation errors, RASS : Revised Adult Attachment Scale.

Table 9. Unstandardized pathway values for Fig. 2

Pathway	B	SE	p
Attachment insecurity → Social support	−2.46	0.56	<0.01
Attachment insecurity → Psychological distress	1.06	0.30	<0.01
Social support → Psychological distress	−0.10	0.05	0.03
Attachment insecurity → Attachment anxiety	1.00		
Attachment insecurity → Attachment avoidance	2.40	0.50	<0.01
Depression and anxiety → HADS-D	1.00		
Depression and anxiety → HADS-A	0.60	0.11	<0.01

Social support : total score of social support, Attachment anxiety : RASS anxiety score, Attachment avoidance : RASS avoidance score. SE : standard error, HADS-D : Hospital Anxiety and Depression Scale-Depression subscale score, HADS-A : Hospital Anxiety and Depression Scale-Anxiety subscale score, RAAS : Revised Adult Attachment Scale

Table 10. Standard direct and indirect effects for psychological distress in mediating model of social support and attachment insecurity

	Total effects		Direct effect		Indirect effect	
	Psychological distress	Social support	Psychological distress	Social support	Psychological distress	Social support
Attachment insecurity	0.60†	−0.21*	0.48†	−0.21*	0.12	
Social support	−0.55†		−0.55†			

* : p < 0.05, † : p < 0.01

support could buffer against the psychological impact of stressful life events in women with breast cancer. The p value of path from social support to psychological distress was relatively weak (Table 9). Most of Korean breast cancer patients are in their forties and fifties, younger than Western patients. The women in this age group, on average, have a crucial role in their families and are of emotional independence relatively, so they could have a tendency to overcome the disease burden by themselves rather than to depend on their family and friends. There are differences of seeking social support according to culture. Koreans, Asians and Asian Americans tend to use social support less for coping with distress than European Americans.[29] And the patients in this study were in relatively acute phase and did not need to have active social support than women in advanced stage.[24] These three factors could contribute to the relatively weaker significance of social support.

In preliminary SEM analysis, the path related with health-related burden was excluded because model fit was not good. However, the path from health-related burden to psychological distress was still significant. This indicated that health-related burden has no effect on psychological distress, rather attachment security and social support have more powerful effects than he-

alth-related burden.

Attachment security is associated with the capacity to communicate with and share an emotional experience with others. Previous mediation effects of attachment security via social support could be explained under the assumption that securely attached individuals were more likely to seek social support in response to stress.[30] The findings of this study were not compatible with the previous study[8] that attachment security is mediated through perception of social support to psychological distress. This can be also explained by age distribution, cultural difference and the time-line in this study, as mentioned above. Further investigation must be needed with more population and elaborated study design.

This study has limitations that should be taken into consideration. First, this study design was cross-sectional and time period of investigation was just after surgery. This nature makes a causal inference impossible. Second, the majority of data was obtained by self-reporting questionnaire and among the questionnaire ; EQ-5D was not cancer-specific tool, which contained possibilities of bias. In the future, the results should be elaborated on in further studies by more objective and circumstance-specific method.

Despite of these limitations, this is the first study that dealt with attachment security, social support and its mediation effect in Korean breast cancer patients with homogenous timeline.

According to our findings, a simple notion that patients with cancer have higher possibilities of depression and anxiety in the suffering circumstances must be evolved. We must additionally consider the concepts of two resources (attachment security and social support) and its interactions.

In conclusion, attachment security and social support are important factors affecting the psychological distress. We suggest that individual attachment style and the social support state must be taken into consideration to approach breast cancer patients with psychological distress.

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Conflicts of interest

The authors have no financial conflicts of interest.

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