Coping with a possible breast cancer diagnosis: demographic factors and social support

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Aim. This paper reports a study examining the relationships between demographic characteristics, social support, anxiety, coping and defence among women with possible breast cancer.

Background. Awaiting a possible breast cancer diagnosis is an anxiety-provoking situation that demands coping. Social support and demographic characteristics have been reported to influence coping and well-being, but the interconnection is insufficiently understood.

Design. A survey design was used, and self-administrated questionnaires were returned by a convenience sample of 117 women in Norway who had undergone breast biopsy. The data were collected from September 1998 to February 2000.

Instruments. The instruments consisted of: the Social Provisions Scale, State-Trait Anxiety Scale, Utrecht Coping List and Defence Mechanisms Inventory. In addition, data on age, level of education, employment, marital status, and household status were collected.

Results. Social support was positively related to instrumental-oriented coping and emotion-focused coping, unrelated to cognitive defence and defensive hostility. Educational level was positively related to instrumental-oriented coping. Educational level, employment and marital status were negatively related to cognitive defence. Educational level was the most important contributor to social support. Attachment and education were the most important contributors to instrumental-oriented coping, with education as the strongest predictor.

Conclusion. Better coping was linked primarily to education, and secondly to attachment. Unemployment, low level of education and single/divorced/widowed status were related to greater use of cognitive defence. Women who used a defensive hostile style tended to receive poor social support. Nurses need to be aware of the influence of demographic characteristics on social support, coping and defence and to identify poor copers, as these patients are most in need of professional support.

Keywords: anxiety, breast cancer, coping, defence, demographics, nursing, social support

Introduction

Breast cancer accounts for 18% of all female cancers worldwide (McPherson *et al.* 2000) and is the most prevalent female cancer in Norway, affecting over 2100 women annually [Norsk Bryst Cancer Gruppe (NBCG) 2002]. Although few women undergoing breast biopsy have cancer, the diagnostic phase has been identified as stressful (Poole *et al.* 1999, Lebel *et al.* 2003), and demands coping (Harcourt *et al.* 1999, Poole & Lyne 2000). Research into coping with a potential or actual cancer diagnosis has mainly focused on the association between social support and coping, and between demographic variables (particularly age and education) and anxiety and coping. Little is known about the association between demographic variables, social support, anxiety, coping and defence in the diagnostic phase.

Literature review

Social support has been treated as a positive coping resource in the diagnostic phase of breast cancer (Northouse *et al.* 1997, O'Mahony 2001), having an anxiety-reducing effect (Deane & Degner 1997, Woodward & Webb 2001), and being important in explaining differences in women's coping mechanisms (Fridfinnsdottir 1997).

Findings concerning the association between demographics, anxiety and stress in the diagnostic phase have been conflicting. As regards age, younger women particularly have been found to report more anxiety (Chen *et al.* 1996, Seckel & Birney 1996, Cunningham *et al.* 1998). However, age has also been reported to be unrelated to anxiety (Deane & Degner 1998, Olsson *et al.* 1999), and higher age to be related to higher levels of anxiety (Novy *et al.* 2001). However, some of these studies suffer from methodological weaknesses. For example, Chen *et al.* (1996) included only women under 65 years of age, Seckel and Birney (1996) had only 30 respondents, and the studies of Cunningham *et al.* (1998) and Deane and Degner (1998) were retrospective. With regard to education, higher levels have been associated with less experienced stress (Lauver & Tak 1995, Northouse *et al.* 1995, Andrykowski *et al.* 2002). Education has also been reported to be unrelated to anxiety, albeit in a retrospective study including only 42 women between 40 and 60 years of age (MacFarlane & Sony 1992).

When the focus has been on demographic variables and coping with a threathening or actual breast cancer diagnosis, more maladaptive coping strategies have been found to be connected to low levels of education in women recalled after mammography screening (Olsson *et al.* 1999), low age in women with newly diagnosed breast cancer (Compas *et al.* 1999, Epping-Jordan *et al.* 1999), or both of these variables in survivors of breast cancer (Wonghongkul *et al.* 2000). Contrastingly, in a study of women before and after diagnosis (Stanton & Snider 1993) age was unrelated to coping, and in women with breast cancer low age has even been found to be connected to adaptive coping (Schnoll *et al.* 1998).

This means that the association between demographic variables (particularly age and education) and coping, anxiety and stress is not clear, and the association between other demographic variables (such as marital status, household status and employment) needs further investigation. We decided, therefore, to carry out a study to investigate these relationships in women undergoing breast biopsy for a possible diagnosis of cancer.

Conceptual framework

Coping and defence

Two main uses of the term coping have been identified (Ursin & Hytten 1992). The first defines it as strategies (Monat & Lazarus 1991) and the second as positive response outcome expectancies (Ursin 1988). Coping as strategies is usually classified as problem-focused coping (trying to tackle a problem actively and directly), emotion-focused coping (trying to deal with emotional reactions to problems), and avoidance-focused coping (defensive and avoidant strategies) (Olff 1991).

Coping defined as positive response outcome expectancies is developed within a cognitive-behavioural tradition (Bolles 1972) and in stress research (Ursin & Hytten 1992). This definition has been used frequently in health-related research, and was therefore chosen for the present study. Positive response outcome expectancies are learned, based on experienced outcomes of coping efforts. The expectancy of coping success is believed to be the essence of coping. Coping is regarded as distinct from defence in the sense that coping efforts are based on a reasonably correct perception of reality, whereas defences are based on perceptive or cognitive distortions (Ursin 1988). Expectancy of positive outcomes from actions (coping) is, however, associated with *use* of certain types of coping strategies, particularly the more active problem-focused strategies. In this tradition, coping strategies were first categorized as: problem-, emotion- and avoidance-focused coping (Olff 1991). To test these categories, a factor-analytic study was performed to obtain an empirically-based classification (Eriksen *et al.* 1997). Two coping styles – instrumental-oriented coping and emotion-focused coping – and two defensive styles – cognitive defence and defensive hostility – were identified. Instrumental-oriented coping

reflects an instrumental, active coping style and positive expectancies of the result. Emotion-focused coping involves seeking social support, expressing emotions, and use of palliative responses. Cognitive defence involves a variety of strategies such as principalization, reversal and comforting cognitions. Defensive hostility contains turning against object, projection and aggressive behaviours. An instrument, CODE (Eriksen *et al.* 1997) was constructed, based on this factor-analytic study and was chosen to measure coping and defence in the present study.

Social support

Weiss' (1974) theoretical framework for social support incorporates the major elements of most current conceptualizations of social support (Cobb 1976, Cohen & Wills 1985), and was therefore chosen for this study. Weiss (1974) identified six social provisions that may be obtained from relationships with others: attachment – provided by intimate relationships from which the person receives a sense of safety and security; social integration – belonging to a group of people who share common interests; reassurance of worth – relationships in which one's competence and skills are acknowledged; opportunity for nurturance – sense of responsibility for the well-being of others; reliable alliance – relationships where the person can count on assistance under any circumstances; and guidance – relationships with authoritative individuals who can give advice. An instrument, the Social Provisions Scale (SPS) (Cutrona & Russell 1987), was developed from this theory and was used in the present study.

The study

Aim

The aim of the study was: (a) to examine the relationships between demographic variables, social support, anxiety, coping and defence strategies in women with possible breast cancer; and (b) to examine which social provisions are related to instrumental-oriented coping when demographic variables (age, educational level, employment, marital status, household status) are controlled.

Participants

A non-probabilistic convenience sample of 117 women aged between 25 and 76 years (mean: 53·6) with possible breast cancer who had undergone breast biopsy under local anaesthesia participated in this cross-sectional correlational survey. Inclusion criteria were: 18 years or older, able to read and write Norwegian. Data were collected from September 1998 to February 2000 at a university hospital outpatient breast clinic. Only 151 patients fitted the inclusion criteria during this period. All were invited to participate, and 143 agreed, and 117 completed the questionnaires, giving a response rate of 81·8%. Sending reminders to non-responders was not possible for ethical reasons. The returned questionnaires were anonymous and thus non-respondents could not be identified.

Data collection

The patients were participants in a national mammography screening programme, or were referred by their private physician. Women with an uncertain diagnosis after mammography were called back after 2 weeks for further diagnostic procedures: breast examination, mammogram, and fine needle aspiration cytology (FNAC). When necessary, patients were recalled after 1–3 weeks for surgical breast biopsy. Some were scheduled for immediate breast biopsy, depending on the seriousness of the findings. They had to wait 1–3 weeks for the results of the biopsy. Women meeting the inclusion criteria were invited by a nurse to participate in the study after breast biopsy and asked to return the questionnaires to the researcher within a week, and before the final diagnosis was given.

Questionnaires

The questionnaires consisted of four self-report questionnaires. In addition, participants were asked to fill in a form giving their demographic characteristics: age, level of education (primary school, grammar school, college and university), employment (full-time, part-time, unemployed, homemaker, on sick leave and retired), marital status (married/cohabiting, single, divorced and widowed) and household status (living alone, living with spouse/partner/children).

The State-Trait Anxiety Scale (STAI) (Spielberger *et al.* 1970) is a 40-item test designed to measure state-anxiety and trait-anxiety. Only the State-Anxiety Scale (STAI-S) was used. This has 20 items, measured on a four-point scale: not at all, somewhat, moderately so, very much so. High scores indicate high levels of state-anxiety. The validity and reliability of STAI are good (Spielberger *et al.* 1970).

The social provision scale (SPS) (Cutrona & Russell 1987) consists of 24 items, four for each of the six social provisions in Weiss' (1974) theory: reassurance of worth; attachment; nurturance; reliable alliance; guidance; and social integration. The response categories were: strongly disagree, disagree,

agree, and strongly agree. High scores indicate high levels of the provision. Summing the six individual provision scores gives a total social support score. Internal consistency reliability for the SPS is relatively high, ranging from 0·85 to 0·92 across varying populations. Factor analysis has confirmed a six-factor structure corresponding to the six social provisions. Several studies support its construct validity (Cutrona 1986, Cutrona & Russell 1987).

CODE (Eriksen *et al.* 1997) consists of the Utrecht Coping List (UCL; Schreurs *et al.* 1993) and a reduced Defence Mechanism Inventory (DMI; Gleser & Ihilevich 1969). The UCL has 47 statements covering seven coping strategies and is scored on a four-point scale. The DMI has 60 statements covering five defence strategies and is scored on a five-point scale. CODE measures two coping factors – instrumental mastery-oriented coping and emotion-focused coping – and two defence factors – cognitive defence and defensive hostility. High scores indicate high use of the strategy. Internal consistency reliability and construct validity of the UCL and DMI subscales have been evaluated, with satisfactory results. Construct validity using factor analysis has confirmed the four-factor structure of the CODE (Olff *et al.* 1993, Eriksen 1998).

Ethical considerations

The study was approved by the appropriate research ethics committee, the hospital authorities and the Norwegian National Mammography Screening Programme. Patients were given information according to the Helsinki declaration, and gave written consent before receiving the questionnaires.

Data analysis

SPSS 9.0 for Windows was used for analysis. The analyses carried out were: Cronbach's coefficient alpha, factor analysis, varimax rotation, descriptives, Spearman's correlation, simple linear regression, multiple regression, and stepwise linear regression: At each step, the independent variable not in the equation, which had the smallest probability of *F*, was entered if that probability was less than 0·05. Variables already in the regression equation were removed if their probability of *F* became larger than 0·10. The method terminates when no more variables are eligible for inclusion or removal. Age was analysed as year of birth. As employment, marital status and household status were at nominal levels, they were grouped into two categories: employment (unemployed/homemaker/on sick leave/retired = 0; employed = 1), marital status (single/divorced/widowed = 0; married/cohabiting = 1); and household status (living alone = 0; living with spouse/partner/children = 1). Statistical significance was set at $P < 0{\cdot}05$.

Results

Internal reliability

The Cronbach's alpha coefficients indicated high internal reliability in this sample: 0·94 for the STAI, 0·83 for the UCL, and 0·81 for the DMI. For the total SPS it was 0·82, and for the subscales the values were: reassurance of worth 0·50, attachment 0·57, nurturance 0·57, reliable alliance 0·71, guidance 0·77, and social integration 0·52.

Construct validity

Principal components analysis with Kaiser varimax rotation using a six-factor solution was carried out to confirm the components of the SPS. The SPS was found to reflect a global factor and, to some degree, six separate factors. The six factors accounted for 59·4% of the variance. Principal components analysis with Kaiser varimax rotation using an eigenvalue >1·0 was conducted on the UCL and DMI subscales. The analysis extracted four factors which accounted for 68·9% variance. In accordance with previous studies (Olff *et al.* 1993, Eriksen *et al.* 1997), the four dimensions of the CODE were confirmed to a satisfactory degree.

Description of demographic variables, anxiety, social support and coping/defence

Of the total sample, 73·5% were married or cohabiting, 8·5% single, 7·7% widowed and 10·3% divorced. The majority (78%) lived with another person (spouse/partner/children). With regard to educational attendance, 39·7% had primary school only, whereas 31% had grammar school, 18·1% high school, and 11·2% had a university degree. Full-time or part-time employment was held by 70·9%, 12% were unemployed/homemakers, 12·8% retired, and 4·3% on sick leave. Eighty-five patients were participants in the national mammography screening programme and 32 were referred by their private physician.

The mean value for state anxiety was 41·4 (SD = 11·80, range 20–80) and comparable with that of patients awaiting breast cancer surgery (mean = 44, SD = 11·64) (Millar *et al.* 1995). The median value for the total SPS score was relatively high at 90·00 (SIQR = 8·0, range 24–96). On CODE, the mean values were: instrumental-oriented coping 2·94 (SD = 0·26, range 1–4), emotion-focused coping 2·25 (SD = 0·39, range 1–4), cognitive defence 2·07 (SD = 0·35,

range 0·87–4), defensive hostility 0·90 (SD = 0·41, range 0·80–4). The findings were comparable with those reported for female back pain patients and students sampled from the same region as the present investigation (Eriksen & Ursin 1999), indicating that scores on the CODE scales had a distribution which was rather typical for women in this region.

Relationships between social provisions scale (SPS) and coping/defence (CODE): correlations

Due to lack of normality, Spearman's correlation coefficients were calculated (Table 1). These showed that SPS was positively related to instrumental-oriented coping and emotion-focused coping, and unrelated to cognitive defence and defensive hostility. The correlation between SPS and CODE subscales was low, with the strongest correlation for instrumental-oriented coping.

Relationships between coping/defence (CODE) and demographic variables: regressions

Simple regression analysis (Table 2) was computed in order to investigate the association between CODE subscales as the dependent variable and the demographic variables as independent variables. Year of birth and education were positively related to instrumental-oriented coping, with education as the strongest predictor, explaining 16·3% of the variance. Year of birth and employment were positively related to emotion-focused coping and, together with education, negatively related to cognitive defence. Higher education level and lower age were related to more use of instrumental-oriented coping and, conversely, lower education level, higher age and unemployment were related to more use of cognitive defence. Employment explained the largest portion of variance in cognitive defence, followed by education. The demographic variables were unrelated to defensive hostility.

However, as simple regression analysis does not control for possible confounders, multiple regression analysis was performed, with CODE subscales as dependent variables. The result showed a positive relationship between instrumental-oriented coping and education [B (unstandardized coefficient) = 0·097, SE = 0·026, $P < 0·001$], where the demographic variables explained 18·2% of the variance. Education ($B = -0·083$, SE = 0·035, $P < 0·017$) and employment ($B = -0·190$, SE = 0·077, $P < 0·015$) were negatively related to cognitive defence. Demographic variables explained 23·6% of the variance in cognitive defence. However, demographic variables were unrelated to emotion-focused coping and defensive hostility, accounting for only 8% of variance in emotion-focused coping and 2·7% of variance in defensive hostility.

Stepwise regression analysis on the same variable was computed with CODE subscales as the dependent variable, in order to investigate which of the demographic variables were the most important contributors. Education remained a significant predictor to instrumental-oriented coping ($B = 0·103$,

Table 1 Spearman's correlations coefficient (r) and P-values between the social provisions scale (SPS) and the subscales of coping/defence (CODE)

CODE subscales	Instrumental-oriented coping ($n = 114$)	Emotion-focused coping ($n = 114$)	Cognitive defence ($n = 107$)	Defensive hostility ($n = 108$)
Social Provisions Scale (SPS)				
r	0·398	0·328	−0·079	−0·104
P-value	0·000	0·000	0·421	0·285

Table 2 Simple linear regression analysis of subscales of coping/defence (CODE) (dependent variable) and demographic variables (independent variables)

	Instrumental-oriented coping				Emotion-focused coping				Cognitive defence				Defensive hostility			
CODE subscales	B^*	SE	P-value	R^2	B^*	SE	P-value	R^2	B^*	SE	P-value	R^2	B^*	SE	P-value	R^2
Year of birth	0·057	0·002	0·012	0·055	0·088	0·003	0·009	0·059	−0·099	0·003	0·002	0·088	0·019	0·004	0·600	0·003
Education	0·103	0·022	0·000	0·163	0·058	0·035	0·100	0·024	−0·127	0·031	0·000	0·137	0·040	0·039	0·917	0·000
Employment	0·092	0·053	0·083	0·026	0·167	0·078	0·035	0·039	−0·290	0·070	0·000	0·141	0·108	0·086	0·213	0·015
Marital status	0·070	0·054	0·200	0·014	0·046	0·082	0·578	0·003	−0·126	0·077	0·105	0·025	−0·027	0·089	0·761	0·001
Household status	0·076	0·059	0·195	0·015	0·034	0·088	0·698	0·001	−0·146	0·084	0·085	0·028	−0·065	0·097	0·502	0·004

B^* = unstandardized coefficient.
R^2 = R square.

SE = 0·022, $P < 0·001$) and explained 16·3% of variance. Employment ($B = -0·209$, SE = 0·074, $P < 0·006$), education ($B = -0·091$, SE = 0·033, $P < 0·007$) and marital status ($B = -0·141$, SE = 0·70, $P < 0·045$) were negatively related to cognitive defence and explained 22·9% of the variance. Employment explained 14·4% of the variance, education 5·4% and marital status 3·1%. Year of birth was positively related to emotion-focused coping ($B = 0·082$, SE = 0·003, $P < 0·019$) and explained 5·7% of the variance. The other demographic variables were unrelated to CODE subscales.

Relationships between the social provisions scale (SPS) and demographic variables: regressions

Simple regression (Table 3) showed that all variables were significant predictors of SPS, with education accounting for 11·9% of the variance and year of birth for 10·3%. The other variables explained little of the variance in SPS. To control for possible confounders, multiple regression analysis was performed with SPS as dependent variable, and showed that education was the only significant predictor of SPS. Together, all variables explained 20·3% of the variance. Stepwise regression on the same variables revealed that education and household status accounted for 17% of the variance. The effect of household status disappeared when marital status was included in the model. It would be expected that these variables would be highly associated with each other. Education accounted for 11·9% of the variance, and was the most important contributor.

Relationships between anxiety and demographic variables: regressions

Multiple regression analysis was carried out to investigate the association between anxiety as the dependent variable, and the demographic variables as independent variables. There were no statistsically significant findings, and the demographic variables accounted for only 3% of the variance in anxiety.

Relationships between the subscales of social provisions scale (SPS), demographic variables and instrumental-oriented coping: regressions

As SPS and education were important in explaining instrumental-oriented coping, possible contributions from the subscales of SPS and demographic variables were studied in multiple and stepwise regression analysis, with instrumental-oriented coping as the dependent variable (Table 4). Here again education was a significant contributor to instrumental-oriented coping in multiple regression analysis. The other variables were unrelated. The subscales of SPS and demographic variables explained 28·6% of the variance in instrumental-oriented coping. Stepwise regression on the same variables revealed that education and attachment were significant contributors to instrumental-oriented coping, with education as the strongest contributor. The effect of attachment was slightly smaller when adjusting for all other variables, compared with adjusting for education alone; however, it was still of borderline statistical significance ($P = 0·086$). Education explained 16·4% of the variance. Together, the variables explained 24·3% of the variance.

Discussion

Social support is regarded as an undisputable resource when coping with difficult life situations (Monat & Lazarus 1991). However, the beneficial effects of social support on coping have been scrutinized in several studies, raising doubt about the previously identified unequivocal positive effects (Lindstrøm 2002). Among other things, it has become

Table 3 Simple-, multiple- and stepwise linear regression analysis for the social provisions scale (SPS) (dependent variable) and demographic variables (independent variables)

	Simple linear regression				Multiple linear regression			Stepwise linear regression		
	Social Provisions Scale				Social Provisions Scale			Social Provisions Scale		
	B^*	SE	P-value	R^2	B^*	SE	P-value	B^*	SE	P-value
Year of birth	0·221	0·061	0·000	0·103	0·103	0·069	0·140			
Education	2·570	0·658	0·000	0·119	1·868	0·725	0·011	2·590	0·641	0·000
Employment	4·362	1·493	0·004	0·070	1·703	1·592	0·287			
Marital status	3·416	1·577	0·032	0·032	1·450	2·945	0·624			
Household status	4·159	1·695	0·016	0·050	2·098	3·248	0·520	4·204	1·598	0·010
						$R^2 = 0·203$			$R^2 = 0·170$	

B^* = unstandardized coefficient.
R^2 = R square.

Table 4 Multiple- and stepwise linear regression analysis for instrumental-oriented coping (dependent variable) and subscales of the social provisions scale (SPS) controlled for demographics (year of birth, education, employment, marital status, household status)

	Instrumental-oriented coping					
	Multiple linear regression			Stepwise linear regression		
SPS subscales	B^*	SE	P-value	B^*	SE	P-value
Opportunity of nurturance	−0·068	0·011	0·524			
Attachment	0·036	0·021	0·086	0·047	0·014	0·001
Social integration	0·012	0·019	0·530			
Reassurance of worth	0·024	0·020	0·218			
Guidance	0·016	0·016	0·313			
Reliable alliance	−0·027	0·019	0·150			
Year of birth	0·015	0·003	0·556			
Education	0·086	0·026	0·001	0·089	0·022	0·000
Employment	−0·024	0·055	0·668			
Marital status	0·055	0·101	0·588			
Household status	−0·010	0·112	0·926			
		$R^2 = 0·286$			$R^2 = 0·243$	

B^* = unstandardized coefficient.
R^2 = R square.

increasingly recognized that one must also take into consideration what kind of coping the effect is related to, as well as contextual variables, such as demographic variables.

Social support, which was high in this sample, was most strongly connected to instrumental-oriented, followed by emotion-focused coping style, whereas the defensive styles (cognitive defence and defensive hostility) were unrelated to social support. This finding may fit the view which regards social support as a coping resource that promotes coping. However, the relationship may also be the other way round: people who are good instrumental copers may also be good at attracting and building up a social network *because* of their coping abilities (Drageset & Lindstrøm 2003). Also, those who rely on the more passive emotion-focused coping style may find it important to have a qualitatively good social network. In both cases, the social networks may primarily be *consequences* of the coping styles. Therefore, instead of primarily regarding social support as a *resource* for coping (Monat & Lazarus 1991) that has a one-way effect *on* coping, we believe that the social support system has a *mutual interaction* with coping, and may be a *consequence* of coping, particularly in connection with an instrumental-oriented coping style.

We found some support for these ideas when looking at the connections between demographic variables, social support and coping. The results revealed positive connections between education, attachment, and instrumental-oriented coping, with education as the most important. Education may in itself enrich personal resources and promote an active, instrumental coping style. Attachment is suggested to be the most important kind of social support (Cohen & Wills 1985). Better education was particularly connected to social support, as reported previously (Katapodi *et al.* 2002). However, it seems difficult to explain our finding without suggesting employment as a mediating variable. Getting an education may also lead to having social networks: lasting friendships, colleagues and organizational connections at work. Therefore, a social network may partly be a result of high education alone, or may lead to social contacts at work, which may be important resources for social support (Cohen & Syme 1985, Landmark *et al.* 2002).

Less important than education, but also positively related to social support, was household status: 78·8% of the women were living with their family or another person. That the family is an important primary contributor to social support has been established in investigations of women with suspected or confirmed breast cancer (Fridfinnsdottir 1997, Veronesi *et al.* 1999). What we found in the relationship between education, social support and instrumental-oriented coping was a pattern of good copers: women using instrumental-oriented coping, having a reasonably good education, living with others, and with an available social network providing attachment and support if and when needed.

Emotion-focused coping was also connected to social support but, contrasting with instrumental-oriented coping, was related to employment and not to education. This finding may reflect a pattern of important job-related social support in women using more of the emotion-focused coping style and thereby making friends at work.

Social support was unrelated to cognitive defence, a style which was particularly connected to unemployment but also to low education, single/divorced/widowed status and to higher age. Younger age was related to instrumental-oriented and emotion-focused coping styles – styles which in turn were

connected to social support. These differences may be a cohort effect. Younger cohorts of Norwegian women have more education and employment, and this may explain their greater use of instrumental- and emotion-focused coping styles. That education and paid work increase women's self-confidence and belief in their coping abilities is reported in previous studies (Aber 1992, Kåresen & Langmark 1999).

Different cohorts are socialized under different socio-cultural contexts, and this may influence their coping. Older women in this study tended to be unemployed, retired or homemakers. These cohorts, therefore, had poorer opportunities for getting education and work and the coping abilities and social networks that these may lead to. Therefore, the life situations of older women may favour a more passive cognitive defensive strategy than an instrumental-oriented or emotion-focused coping strategy. However, this connection between low education, unemployment and a cognitive defensive style may also be characteristic of women in difficult life situations in general, irrespective of age and cohort.

There is also more to be said about the cognitive defensive style, in which self-comforting thoughts and acceptance are elements. Although very different from instrumental-oriented coping, this style may have positive aspects, such as modest anxiety-reducing effects (Eriksen *et al.* 1997, Drageset & Lindstrøm 2003). It contains a variety of cognitive defensive strategies, from the more self-deceptive to the more cognitively mature (Eriksen 1998). Dealing with problems by instrumental-oriented coping is usually effective. However, life also includes unavoidable changes and situations. Trying to change these may result in frustration, whereas acceptance may sometimes be a more appropriate strategy, involving cognitive reflection and reformulation.

The defensive hostility style was unrelated to all demographic factors; however, as expected it was negatively related to social support, although not at statistically significant levels. The latter result may have two explanations: people who are aggressive and hostile are unpleasant to be around and contact with them is avoided, or: lonely people may, because of their loneliness, be aggressive and hostile towards others. We believe the first explanation to be the more reasonable, but there may also be possible interactive effects between the two.

Similar to other studies (Poole 1997, Deane & Degner 1998), and exceeding normative values (Spielberger *et al.* 1983), our participants reported raised levels of anxiety. Surprisingly, there were no particular relationships between age, educational level and anxiety as has been reported by others (Olsson *et al.* 1999, Montazeri *et al.* 2000). The lack of relationships in this study may be caused by the fact that most participants were between 50 and 70 years old. Also, the question of selection bias must be raised: perhaps women with high anxiety levels were over-represented among those who did not participate.

Limitations and further research

When generalizing these findings to other populations, it should be remembered that the study was based on a convenience sample from just one hospital in Norway. The majority participants were between 50 and 70 years old. This means that the younger age groups were somewhat under-represented. However, the sample realistically represented the age groups of women who go through these diagnostic procedures.

The study was based on data collected at one point of time, and the inferences drawn are limited by this. It would be interesting to expand the study by follow-up of these women over time, during the diagnostic period and after the diagnosis was confirmed. Such an investigation, preferably a qualitative interview study, ought to have an emphasis on what women actually *did* and *thought*, how they *coped*, and how they used their social resources when trying to deal with the threat of a potential or identified cancer diagnosis. However, a longitudinal study measuring the potential effect of nursing interventions in the form of longer follow-up with breast cancer patients identified as having poor coping styles, poor education and poor social support would also be of clinical interest.

Conclusion

In this paper, the focus has primarily been on identifying the positive aspects: best coping style, and best social provision and demographic conditions connected to it. This offers valuable general information: better coping in women seems to be connected primarily to education, secondly to attachment. However, the other side of the coin also emerges: poor coping styles (cognitive defence or defensive hostility) and their possible social and demographic concomitants (unemployment, low education, single/divorced/widowed status, and poor social support).

Women using a cognitive defensive style before biopsy have been reported to be more distressed when receiving a breast cancer diagnosis and after surgery (Stanton & Snider 1993). The even more difficult style, defensive hostility, may reflect frustration and lack of trust in available resources offering support and help. It is a threat to affectional ties, and may result in fewer social contacts and resources (Billings & Moos 1981). From a practical, clinical nursing perspective, it

What is already known about this topic

- Although few women undergoing breast biopsy have cancer, the diagnostic phase has been identified as stressful.
- The relationship between demographic and coping variables in the diagnostic phase is not well understood.

What this paper adds

- Patients who cope best while awaiting a possible breast cancer diagnosis have reasonably good education and receive social support from relationships characterized by attachment.
- Poorly educated, unemployed and single/divorced/widowed women tend to use a cognitive defensive coping style.
- Those who use a defensive hostile coping style tend to receive poor social support, and therefore are most in need of professional support from nurses.

is vital to identify poor copers, primarily those who tend to use defensive styles because they are the patients who truly need professional help and support.

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Author contributions

SD and TCL were responsible for the study conception and design and drafting of the manuscript. SD performed the data collection and analysis.

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