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The Role of Coping Styles and Self-efficacy in the Development of Dysphoric Mood Among Nursing Students

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Abstract Coping styles and self-efficacy have been recognized as important determinants of dysphoric mood. The objectives of this study were to determine the influence of these two factors on depression and anxiety in Japanese students. A set of questionnaires, including the Hospital Anxiety and Depression (HAD) Scale, the Coping Inventory for Stressful Situations (CISS), and the Self-efficacy Scale (SES) was distributed to 146 nursing students. Structural equation modelling was conducted to specify the relationships between measured variables. The HAD depression and anxiety scores were predicted by emotion-oriented coping. The HAD depression alone was predicted by avoidance-oriented coping. Self-efficacy scores predicted the emotion-oriented coping and HAD depression scores. Students' dysphoric moods were influenced by emotional-oriented coping that mediated the effects of low self-efficacy, and self-efficacy also had a direct effect on depression.

Keywords Depression · Anxiety · Emotion-oriented coping · Self-efficacy · Structural equation model

Depression has long been the subject of mental health research as well as a condition treated by clinical practices. In the search for causal factors related to depression and anxiety, two important psychological issues have been determined: coping styles and self-efficacy. The relation between these two factors has been studied during explorations of the onset of depression (Bandura 1997; Benight and Bandura 2004; Maciejewski et al. 2000; Steffen et al. 2002).

Coping styles have been studied intensively for both mental and physical conditions (Cronkite et al. 1998; Franken et al. 2001; Marlowe 1998; Park and Adler 2003; Somerfield and McCrae 2000; Stewart et al. 2001; Vollrath et al. 1994, 1996). Lazarus and Folkman (1984) defined coping as constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding one's resources. Coping is considered as an important resource for the regulation of well-being and the maintenance of psychological adaptation to stressful situations (Cooper et al. 2006; Enns and Cox 2005; Vollrath et al. 1994, 1996). However, there are differences in opinion regarding the categories of coping styles. Thus, Lazarus and Folkman (1984) proposed two coping strategies: problem-focused and emotion-focused. Problem-focused coping is directed at managing or altering the problem causing the distress. This form of coping is more likely to be used when harmful, threatening, or challenging environmental conditions are appraised as amenable to change. Emotion-focused coping, on the other hand, is directed at regulating emotional response to a problem. This form of coping is more likely to be used when a person believes that nothing can be done to modify the harmful, threatening, or challenging environmental conditions (Folkman and Lazarus 1980). Endler and Parker (1990a), after a factorial analysis of different coping behaviours, proposed three categories of coping styles: task-, emotion-, and avoidance-oriented. Task-oriented coping refers to strategies that attempt to

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solve or reconceptualize a problem, or minimize the effects of a problem. Emotion-oriented coping pertains to emotional responses, self-preoccupation, and fantasizing reactions. Avoidance-oriented coping refers to strategies that avoid a stressful situation by seeking out others or engaging in a substitute task. The task-oriented coping style has been inconsistently linked to adaptive health variables (Endler and Parker 1990a, b; Endler et al. 1993; Miller et al. 1988; Parkes 1990). The emotion-oriented coping style has been linked to negative health variables such as depression, anxiety, and poor recovery from bodily illnesses (Billings et al. 1983; Endler and Parker 1990a; Endler et al. 1993; McWilliams et al. 2003; Vollrath et al. 1994). The avoidance-oriented coping style has been reported to be correlated with maladaptive health variables (Cronkite et al. 1998; Endler and Parker 1990a; Holahan and Moos 1987; Krantz and Moos 1988; McCrae and Costa 1986) though Park and Adler (2003) reported no such link.

The fact that coping styles influence psychological adjustments has led researchers to examine the psychological determinants of such styles. One possible determinant of coping behaviours is self-efficacy. Bandura (1997, 1982) proposed that an individual's sense of self-efficacy determines whether coping behaviours will be initiated and sustained, as well as how much coping effort will be put forth. He proposed two levels of self-efficacy: specific and general. Since the contextual introduction of self-efficacy by Bandura (1977), many studies have examined the relationship between self-efficacy and depression (Bandura 1997; Bandura et al. 2003). These studies have used context-specific measures of self-efficacy. For example, Cutrona and Troutman (1986) examined the relationship between parenting self-efficacy and post-partum depression. McFarlane et al. (1995) studied the influence of social self-efficacy on depression in high-school students. In contrast, general self-efficacy may be a useful adjunct measure to determine the success of psychotherapy and behavioural change procedures (Sherer and Adams 1983; Sherer et al. 1982). Empirical studies by Bandura et al. (Bandura 1997; Bandura et al. 1977, 1980) demonstrated that therapeutic changes in behaviour follow changes in self-efficacy. Although studies examining the relationships between specific measures of self-efficacy and depression have been conducted, little is known about the relationship between general self-efficacy and depression. For instance, Maciejewski et al. (2000) examined the relationship between a global measure of personal efficacy and symptoms of depression, using a large sample size (N= 2,858), and they suggested that those with low self-efficacy are at risk of developing severe symptoms of depression. They proposed that efforts to establish and maintain higher levels of self-efficacy may help build up a long-term resistance to future depression.

Bandura (1995) noted that efficacy beliefs regulate stress and anxiety through their impacts on coping behaviour. The nature and content of stressful situations can potentially determine the choice of coping style (Folkman and Lazarus 1980). Lazarus and Folkman (1984) considered that coping styles evolve from resources and that resources precede and influence coping. They also argued that individuals who positively appraise a stressful situation are more likely to control their environments. This is very similar to what Bandura (1977) refers to as efficacy expectancies. Efficacy expectancies determine a person's coping effort and persistence (Bandura 1982). Despite its theoretical importance as a resource, little research has been done to study how beliefs are actually manifested in coping processes. Furthermore, little is known about the relationship between coping and self-efficacy on one hand and depression and anxiety on the other.

This study focuses on the impact of coping styles and self-efficacy on two types of dysphoric moods-depression and anxiety—in a population of Japanese students. Student populations have been shown to contain significant levels of symptomatology (Gotlib 1984; Morrison and O'Connor 2005; Tomoda et al. 2000). Among others, nursing students are at particular risk for anxiety and depression because they are exposed to heavy workloads, academic pressures, clinical settings, competitive environments, and the limitation of time for leisure activities.

The above arguments have led to several research questions or issues. First, literature suggests that emotion-oriented coping is consistently linked to psychological maladjustment but avoidance-oriented coping and low task-oriented coping are not always linked to it; however, these relationships have not been demonstrated in a Japanese population. Second, Japanese people with high self-efficacy may be less likely to suffer from psychological maladjustment. If this is the case, the effect may be direct or mediated by coping styles. High self-efficacy may lead to adaptive coping styles, i.e., task-oriented coping and low emotion-oriented and avoidance-oriented copings. Finally, it was expected that the two types of dysphoric mood—depression and anxiety—would show different patterns of causal pathways.

In the present study, the research objectives are summarised as:

(a) People with depression and anxiety will use emotion-oriented coping more frequently.
(b) People with high self-efficacy will be less likely to suffer from depression and anxiety.
(c) Coping styles will mediate the effects of self-efficacy on depression and anxiety.
(d) There are different effects from self-efficacy and coping to depression and anxiety.

Materials and Methods

Participants

Students from two nursing schools in Japan participated in this study. Their participation was voluntary, and anonymity was ensured. They were all Japanese. Of 166 eligible students, 151 (90.9%) participated. Participants with any missing data were excluded from further analyses, yielding a final sample size of 146 participants (15 men and 131 women). Their mean (S.D.) age was 20.7 (2.2) years. Informed consent was obtained from all subjects as part of the questionnaires. This project was approved by the Ethical Committee of Kumamoto University Graduate School of Medical Sciences.

Measures

Mood States

Depression and anxiety were measured by the Hospital Anxiety and Depression (HAD) Scale (Zigmond and Snaith 1983). This is comprised of 14 items—(1) seven for Anxiety and seven for Depression-on a four-point scale from 1 to 4. The HAD measures cognitive symptoms of depression and anxiety deliberately excluding somatic items of depression and anxiety. The possible range of scores is thus from 7 to 28 for each of the two subscales. A higher score indicates more severe depression or anxiety. The reliability and validity of the HAD is well established (Bjelland et al. 2002; Herrmann 1997). The HAD has been widely used in a clinical and research setting (Fukui et al. 2001; Hirai et al. 2002; Matsubayashi et al. 2004; Matsudaira and Kitamura 2006; Takamatsu et al. 2003). The HAD was translated by Kitamura (1993) after obtaining the permission, including back-translation into English to verify the wording. In this study Cronbach's alpha coefficient was 0.84 for Anxiety and 0.67 for Depression.

Coping Styles

The Coping Inventory for Stressful Situations (CISS; Endler and Parker 1990a) is a self-report measure of an individual's typical patterns of coping. There are 48 items with a 5-point scale (1=not at all, 5=very much). They include three orthogonal subscale dimensions: task-oriented coping, emotion-oriented coping, and avoidance-oriented coping. Its factor structure was confirmed (Rafnsson et al. 2006). It was translated by Furukawa and its reliability and validity are well established (Furukawa et al. 1993). Task-oriented coping is adaptive and outlines priorities, determines a course of action, and follows through with the action involved. Emotion-oriented coping involves blaming oneself for being too emotional about the situation and becoming preoccupied with worrying about what to do. Avoidance-oriented coping involves participation in other activities as a way of ignoring the problem. The range of possible scores of each subscale is from 16 to 80, with higher scores indicating the greater use of a given coping style. In this study Cronbach's alpha coefficient was 0.90 for task-oriented coping, 0.86 for emotion-oriented coping and 0.80 for avoidance-oriented coping.

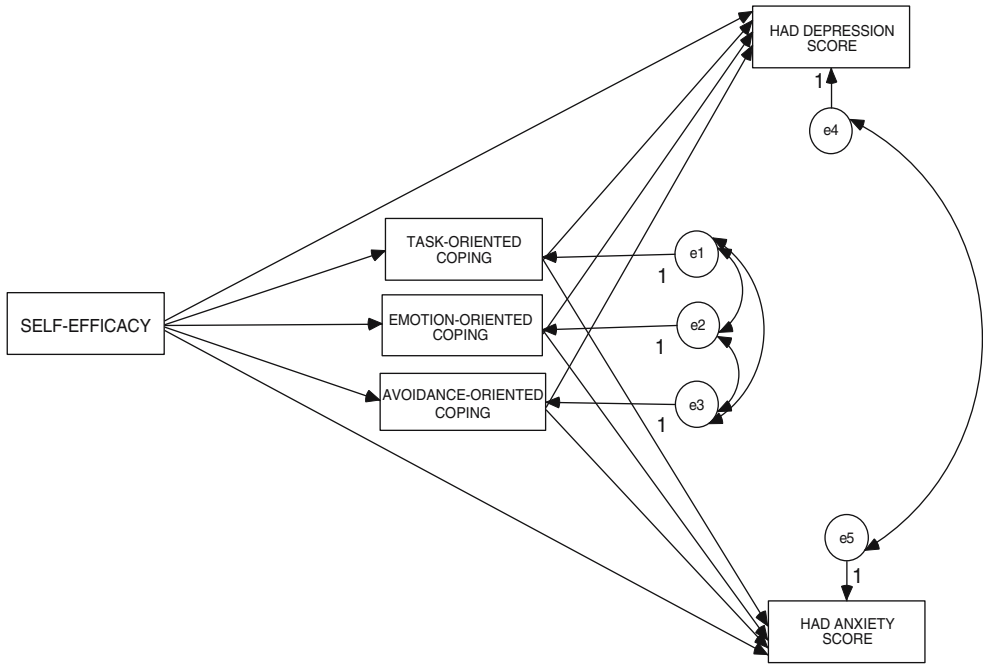
Self-efficacy

Self-efficacy was measured using the Self-efficacy Scale (SES; Sherer et al. 1982). The SES was translated by Narita with the original author's permission, and its reliability and validity were subsequently examined (Narita et al. 1995). The Japanese version of the SES is comprised of 23 items with a 5-point scale from 1 to 5. The range of possible scores is from 23 to 115. A higher score indicates greater perception of self-efficacy. In this study Cronbach's alpha coefficient was 0.82.

Statistical Analyses

For descriptive purposes, univariate statistics were conducted on the demographic characteristics by SPSS 10.0. Then a hypothetical model (Fig. 1) was evaluated using structural equation modelling in order to obtain the direct and indirect effects between the variables, an allowance for error terms (e.g. measurement error), and an indication of the overall 'fit' of the model. Here it was hypothesized that both HAD depression and HAD anxiety scores were influenced by each of the three subscales of the coping style and that both the HAD depression and anxiety and the CISS coping style scores were influenced by self-efficacy. Covariances were expected between the error variables of the three coping subscale scores and between those of the HAD depression and anxiety scores because they were found to be correlated substantially. The fit of the model was evaluated using various fit indices, including chi-squared statistics, X^2/df, goodness-of-fit index (GFI), adjusted goodness of fit index (AGFI), comparative fit index (CFI), and root mean square error of approximation (RMSEA). According to conventional criteria, an adequate fit would be indicated by $X^2/df<2$, GFI>0.85, CFI>0.90, and RMSEA<0.1 (Anderson and Gerbing 1984; Bentler 1990; Byrne 2001). The Akaike Information Criterion (AIC; Akaike 1987) was used for the comparison of different models. A model with an AIC with at least two points lower is regarded as a better model. The analysis was conducted by AMOS 4.0.

Fig. 1 The hypothesized model



Procedure

Questionnaires were distributed in classes and returned by hand.

Results

Because the participants were predominantly women, the differences between men and women for each variable were examined and no statistically significant differences were found. The data from men and women were thus combined for further analyses.

Descriptive statistics of all the variables used in this study, and their bivariate correlations, are presented in Table 1.

As expected, HAD depression and anxiety scores correlated moderately with one another. HAD depression and anxiety were positively correlated with emotion-oriented coping and negatively with self-efficacy. Many of the predictor variables, however, were inter-correlated. Significant correlations were found between task-oriented coping and emotion-oriented coping, and between emotion-oriented coping and avoidance-oriented coping. Self-efficacy was negatively correlated with emotion-oriented coping. Therefore structural equation modelling was carried out (Fig. 1). At this point, it was hypothesized that both depression and anxiety would be influenced by the three styles of coping behaviours, which would in turn be determined by self-efficacy and that depression and anxiety would be directly influenced by self-efficacy.

Table 1 Descriptive statistics and Pearson's correlations between variables (N=146)

Variables	Descriptive statistics			Correlation coefficients						
	Mean	S.D.	Alpha	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) Gender				–						
(men=1; women=2)	m : f =	15:131								
(2) Age	20.7	2.15		−0.10	–					
(3) HAD depression	6.4	3.41	0.67	−0.12	0.10	–				
(4) HAD anxiety	7.9	4.08	0.83	−0.03	0.04	0.59***	–			
(5) Task	46.2	10.94	0.90	−0.19	0.01	−0.07	0.11	–		
(6) Emotion	41.9	10.91	0.86	−0.13	0.08	0.34***	0.49***	0.22**	–	
(7) Avoidance	45.7	9.50	0.80	0.08	−0.04	−0.17	0.04	0.14	0.28***	–
(8) Self efficacy	68.5	10.71	0.82	0.18	−0.06	−0.42***	−0.29***	0.14	−0.43***	−0.03

S.D. standard deviation, *Alpha* Cronbach's alpha, *Task* Task oriented coping, *Emotion* Emotion oriented coping, *Avoidance* Avoidance oriented coping; **p<0.01. *** p<0.001.

Because the original default model was rejected, the model was improved by deleting paths with no significant standard regression weights. The final model (Fig. 2) indicated that both depression and anxiety were predicted by emotion-oriented coping, while depression alone was predicted by *low* avoidance-oriented coping. Self-efficacy predicted depression and emotion-oriented coping. This model fit the data well (Chi-squared=0.343, df=2, p=0.843, GFI=0.999, AGFI=0.992, CFI=1.000, RMSEA=0.000). The degree of improvement was examined by AIC, which was 42.0 for the original model and 38.3 for the second model. Because of the extreme gender ratio, the same analysis was repeated only among a subset of woman participants. The result was virtually the same as that obtained from the combined data.

In particular, greater self-efficacy was associated with lower depression. The direct effect from self-efficacy to depression was −0.276. The indirect effect on depression via emotion oriented coping was −0.143. Total effect from self-efficacy to depression was −0.419. This coefficient corresponds to the correlation between depression and self-efficacy. Therefore, the direct effect was larger than the indirect effect on depression. On the other hand, the direct effect from efficacy to anxiety was −0.089. The indirect effect on anxiety via emotion oriented coping was −0.203. Total effect from self-efficacy to anxiety was −0.292. This coefficient corresponds to the correlation between anxiety and self-efficacy. Therefore, the indirect effect was larger than the direct effect on anxiety.

Baron and Kenny (1986) proposed that if factor B is the mediator between factor A and factor C, then the following four criteria need to be satisfied. First, factor A scores are significantly associated with factor C scores. Second, factor B score are significantly related to factor C scores. Third, factor A scores are significantly related to factor B scores. Fourth, factor A scores are no longer associated with factor C scores when factor B scores are taken into account but factor B scores remain associated with factor C scores significantly. Applying these criteria to the model, factor A is self-efficacy, factor B is the emotion-oriented coping style, and factor C is either of the HAD scores. Pearson's correlations between the self-efficacy, emotion-oriented coping, depression, anxiety were computed to examine whether the first three criteria were satisfied in the model. The first three criteria were met (Table 1). Two regression analyses were then performed. In the first regression analyses, the HAD anxiety scores were forced to be regressed on the emotion-oriented coping style scores (standardised beta=0.441, p<0.001) and then the self-efficacy scores (standardised beta=−0.101, p NS). In the second regression analyses, the HAD depression scores were forced to be regressed on the emotion-oriented coping style scores (standardised beta=0.200, p<0.05) and then the self-efficacy scores (standardised beta=−0.328, p<0.001). Thus, the emotion-oriented coping was found to fulfil the criterion as a mediator only between self-efficacy and anxiety. For depression the self-efficacy still remained as a direct predictor. Similarly in the structural equation modelling the effects of low self-efficacy on dysphoric mood were mediated by emotion-oriented coping and were direct only for depression.

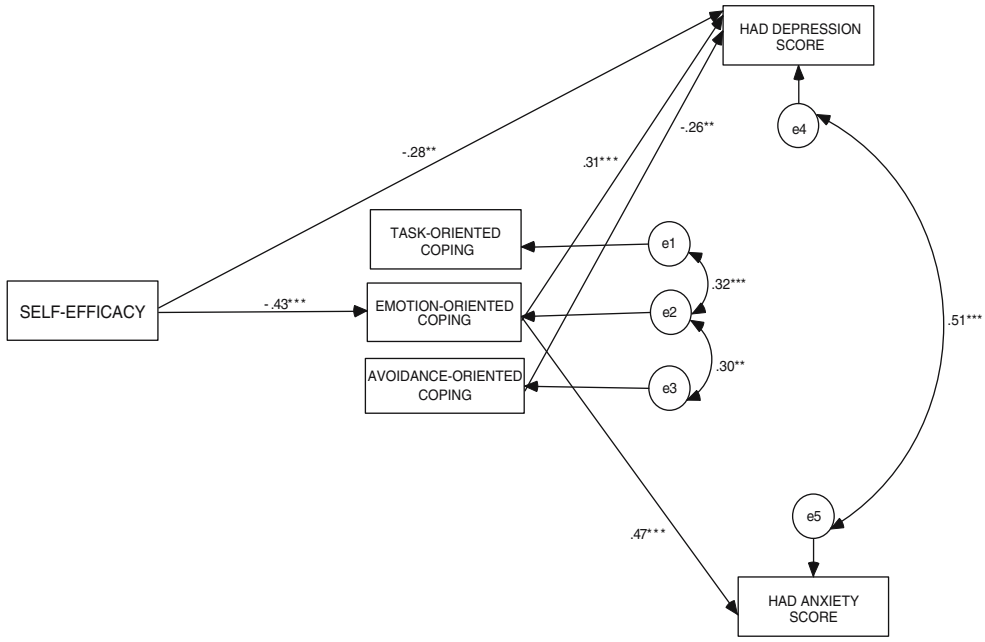


Fig. 2 The path model predicting depression and anxiety. Model showing standardized path coefficients of the variables. Only statistically significant paths are shown. **p<0.01, ***p<0.001

Discussion

This study indicates that students are more likely to experience depression and anxiety if they use emotion-oriented coping behaviours, whereas they are more likely to experience depression alone if they do *not* use avoidance-oriented coping behaviours. It also shows that low general self-efficacy predicts both depression and anxiety indirectly through its influence on emotion-oriented coping styles and low general self-efficacy also predicts depression directly.

The finding that the emotion-oriented coping style is related to dysphoric mood, while the task-oriented coping style is not, is consistent with past reports (Endler et al. 1993). Avoidance-oriented coping styles are often linked to maladaptive health conditions. Unexpectedly, this result indicates that avoidance-oriented coping is linked to *lower* depression. Avoidance-oriented coping includes distractive behaviours such as taking a walk, watching TV, sleeping, going to the movies, and shopping. These activities may distract the conscience of a person with depression. Defining ruminative responses as focusing on symptoms and their possible causes and consequences (Nolen-Hoeksema 1991), Nolen-Hoeksema et al. (Nolen-Hoeksema and Davis 1999; Nolen-Hoeksema et al. 1994) demonstrated that bereaved people who engage in ruminative responses are more likely to suffer from long and severe depression. The negative link between avoidance-oriented coping and depression can be explained by such a mechanism. Another possible interpretation is that the above avoidance-oriented behaviours are linked to standing back from one's negative thoughts and emotion so that one can be aware of oneself non-judgmentally. This phenomenon is called mindfulness and has recently been the topic of psychological research on the cognitive therapy of depression and stress (Broderick 2005; Carlson et al. 2001; Speca et al. 2000).

According to Bandura (1977), self-efficacy expectations are judgements about how well a person can act in a certain way in order to meet a goal or cope effectively with stressful situations. High self-efficacy is related, for example, to the regulation of the stress process, to higher self-esteem, better well-being, better physical condition, better adaptation to and recovery from acute and chronic diseases (Bandura 1997; Karademas 2006). Furthermore, low self-efficacy is related to more symptoms of anxiety and depression (Bandura et al. 2003; Maciejewski et al. 2000). The present study has partially confirmed these expectations in a Japanese student population. Thus, high self-efficacy is directly linked to depression. It is also linked to lower possibility that people use emotion-oriented coping. However, anxiety is not influenced directly by low self-efficacy. Nor are the two other coping styles—task- and avoidance-oriented coping styles—linked to self-efficacy.

Thus, Bandura's hypothesis was supported at least partially: the degree of self-efficacy determines which coping style an individual will select. Self-efficacy was not a determinant for task-oriented or avoidance-oriented coping styles. However, because emotion-oriented coping is linked to both depression and anxiety, the level of self-efficacy that has a direct link to emotion-oriented coping is of both research and clinical importance. The effects of psychological intervention are reportedly led by stress-buffering factors of coping (e.g., Billings and Moos 1984). Efforts to establish and maintain higher levels of self-efficacy are expected to build resistance to future symptoms of depression and anxiety (Maciejewski et al. 2000) through counselling or stress management programs. However, what remains as a research topic of future studies may be other determinants of selection and degree of coping styles.

The current study has several limitations. First, the small sample size limited the power to find relationships among the variables. On the other hand, finding significant associations between coping, self-efficacy, depression, and anxiety in this small sample suggests that these are relatively robust relationships. Second, the uneven distribution of men and women in this study made it difficult to assess the effects of gender. It is well recognised that depression is more prevalent in women than in men. Men and women may respond to a similar type of adversities using coping styles differently. The link between self-efficacy and coping styles may also be different between the two sexes.

This study has focused the relationship between self-efficacy, coping styles and dysphoric mood. A very important predictor of the onset of dysphoric mood is negative (stressful) life events. The choice of coping styles in an everyday situation may be determined much by the type and nature of the event involved. Future studies should address this issue. Finally measures were self-reported in a cross-section study. One may criticise that the measures used in this study may confound each other. Future studies should examine these issues using more objective psychological indices. A cross-sectional study only provides correlational data. This issue should be resolved in a longitudinal follow-up study in which all variables are measured on at least two occasions. Generalization of the present study may also be limited because the sample consisted of students from only two nursing schools.

Despite these limitations, the present results highlight the significant role that coping style and self-efficacy play in determining depression and anxiety in nursing students. In a cross-sectional study, low self-efficacy was found to influence depression and anxiety through emotion-oriented coping together with the direct effect towards depression.

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