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## Coping in normal pregnancy

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## 5.1 Abstract

**Background:** In high-risk populations (e.g. adolescents, substance abusers) coping strategies in pregnancy have been studied. Avoidance of the stressful situation and aggressive coping are frequently used and are often related to postnatal depression and other negative outcomes. Little is known about coping strategies used to deal with stress and the necessary adjustments involved with normal risk pregnancy.

**Objective:** To examine the factor structure of the Utrecht Coping List-19 (UCL-19) in a sample of nulliparous normal risk pregnant women and to test the stability, change and predictors of coping strategies throughout pregnancy. The effectiveness of a particular coping strategy is examined by predicting reported pregnancy complaints.

**Methods:** The UCL-19 was filled out and self-report data about various aspects of personality (neuroticism, locus of control, depression, perceived stress), general characteristics (socioeconomic status, maternal age) and pregnancy complaints were collected in nulliparous women in early, mid- and late pregnancy.

**Results:** Two coping strategies were found with confirmatory factor analysis on the UCL-19: emotion-focused coping and problem-focused coping. The factor structure of the UCL-19 had a good stability throughout pregnancy. Some changes in emotion-focused coping and problem-focused coping scores were found, although the absolute differences were rather small. Most women (48.4%) favor emotion-focused coping during early pregnancy, whereas 33.2 % used more problem-focused coping and 18.4 % used both coping styles in equal amounts in this period of pregnancy. High educational level and low internal locus of control predicted high score on emotion-focused coping in this period of pregnancy ( $F(2, 228) = 11.49, p < .005, R^2 = .22$ ). Emotion-focused coping was negatively and problem-focused coping was positively related to pregnancy complaints ( $r = -.23, p < .05$  and  $r = .25, p < .005$ , respectively).

**Conclusion:** Coping in normal risk pregnancy is a process with small temporal variations. Emotion-focused coping is favored by most nulliparous pregnant women in early pregnancy and is most effective in reducing the number of reported pregnancy complaints.

## 5.2 Introduction

Coping strategies associated with stress provoking factors in pregnancy have been studied in high risk populations, such as homeless pregnant women (Killison, 1995), adolescent expectant mothers (Dukewich et al., 1996), pregnant substance abusers (Blechman et al., 1999), women fertilized by means of in vitro fertilization (Eugster & Vingerhoets, 1999; Lukse & Vacc, 1999) and women with antenatal fetal death (Nikcevic et al., 1998). Also, coping styles during pregnancy as predictors of postnatal depression have been thoroughly studied (Bifulco & Brown, 1996; Demyttenaere et al., 1995; Righetti-Veltema et al., 1998; Terry et al., 1996). Overall, these studies show that avoidance of the stressful situation (or disengagement coping) is often related to increased negative outcomes, such as postnatal depression and a lower pregnancy rate following IVF-procedures. In contrast, high self-esteem has been found to prevent women from developing postnatal depression. Substance abusers and adolescents use more aggressive coping, which does not reduce levels of distress.

On the population level, however, the majority of pregnant women fall within the normal risk category because they are exposed to about average levels of psychosocial stress. They have to make the necessary adjustments to changing life conditions due to pregnancy and expectant parenthood, while other potential stress provoking factors (e.g. life events, daily hassles, work stress) could cause distress and anxiety superimposed on the stress and concerns resulting from the event of pregnancy itself. The study of coping strategies in a normal risk pregnant population could offer more insight into the naturally occurring processes of coping during pregnancy. Moreover, it may be informative if coping strategies applied in normal risk pregnancy can be compared to the strategies used in high-risk pregnancy.

A basic distinction is usually made between emotion-focused and problem-focused coping. Emotion-focused coping is directed toward regulating affect surrounding a stressful encounter and typically includes expression of feelings to others, positive reappraisal of the situation and so on. In contrast, problem-focused coping is directed toward alleviating the circumstances which produce stress, and includes planning, information seeking and finding solutions for the problems. The distinction in emotion- and problem-focused coping should not be regarded as a dichotomy. That is, rather than being totally independent coping strategies, emotion- and problem-focused coping can both facilitate and impede each other in the coping process (Lazarus & Folkman, 1984). Another coping dimension, avoidance, is sometimes identified, and may include either person-oriented or task-oriented strategies. Avoidance is not a successful way of coping in a long-term perspective but may reduce stress levels at short term, by escaping the situation that causes stress.

The concept of coping was originally derived from the psychoanalytic ego psychological theory. In this model, coping was defined as: 'realistic and flexible thoughts and acts that solve problems and thereby reduce stress' (Lazarus & Folkman, 1984). Since this model of coping has dominated for decades, the emphasis on problem-focused coping as the most effective and, perhaps, most mature ego process is seen in many studies. In addition, research on the effectiveness of coping strategies has often been based on the presumed superiority of male-gender role behavior, thus promoting problem-focused coping styles that men use more frequently than women. Women, however, are generally believed to make greater use of social support as a coping strategy and therefore it could be that this kind of coping is more effective in women (Cameron et al., 1996). Many studies have failed to con-

sider more female styles of coping as potentially effective. Even in studies regarding maternal coping in pregnancy, thus per definition including female subjects, most authors tend to focus on problem-focused coping strategies. An exception is a recent study on the efficacy of emotion-focused and problem-focused group therapies for women with fertility problems (McQueeney et al., 1997). It appeared that emotion-focused coping resulted in greater improvements with regard to well-being and distress than problem-focused coping. This specific group of subjects had to deal with partly uncontrollable circumstances, which could explain why problem-focused coping is not successful in solving the problem and therefore has no clear effect on well-being and distress. These findings suggest that the context of an individual's life and the sort of event taking place are of importance in predicting the most effective coping strategy to be used to decrease levels of distress. This was also demonstrated by a study of Yali & Lobel (Yali & Lobel, 1999), in which the association between coping and pregnancy-specific distress in mid-pregnancy was examined in high medical risk women. Surprisingly, preparation for motherhood, a coping style that can be regarded as problem-focused coping, was also associated with increased pregnancy-specific distress. Since the subjects in this study were at high medical risk, they were under threat, and preparing for motherhood may have put their focus of attention on this threat and could therefore have increased their levels of distress. In general, when conditions of stress are appraised as changeable, problem-focused coping predominates. However, when the conditions are appraised as unchangeable, emotion-focused coping predominates (Lazarus, 1999). For these reasons, we used a questionnaire in the present study that could assess problem-focused coping, emotion-focused coping and avoidance. These three styles of coping were found after exploratory factor analysis in a general population, including both male and female subjects. Since our sample consisted of pregnant women, the first purpose of this study is to examine the factor structure of coping in a sample of normal risk pregnant women.

Another consequence of the psychoanalytical ego psychology approach of coping was that coping was viewed from a trait/style perspective for many years. That is, coping was presumed to remain stable over time or across conditions. An alternative view is offered by Lazarus (Lazarus & Folkman, 1984; Lazarus, 1999), which defines coping as a process. A key principle of this process-model of coping is that the choice of coping strategy will usually vary with the adaptational significance and requirements of each threat and its context, which will change over time. As pregnancy is a process itself with changing demands in the course of gestation, it is expected that the choice of coping strategies will change throughout pregnancy. In addition, certain personality dispositions or traits, such as age, socio-economic status, neuroticism, internal or external locus of control or depression can influence coping styles. These variables were examined in the present study as potential predictors of coping strategies. The health-related significance of using an effective coping strategy in pregnancy may be a reduction in reported pregnancy complaints, such as nausea, changes in appetite, backache, reduced concentration, emotional lability and so on. Therefore, we tested if a particular coping style was negatively related to reported pregnancy complaints.

In summary, the present study aims to examine:

1. the factor structure of a coping questionnaire in a sample of normal risk pregnant women;
2. the stability and change of coping strategies in the course of gestation;
3. predictors of coping strategies used throughout pregnancy;
4. the effect of coping strategies on reported pregnancy complaints.

## 5.3 Methods

### 5.3.1 Participants

All the participants in this study were included in a larger prospective longitudinal project which also investigated the influence of prenatal psychosocial factors on fetal behaviour and on the postnatal development of children. Subjects were recruited from a consecutive series of referrals to the Outpatient Clinic of the Department of Obstetrics of the University Medical Centre Utrecht (UMCU), which is a first-line referral center for low-risk pregnancies with responsibilities for mid-wives as well, between January 1996 and July 1998. The UMCU is located outside the city of Utrecht and attracts a mixed rural and urban population of patients. From a total of approximately 650 invited women, 230 agreed to participate. The main reason for refusing to participate was the time-consuming aspect of the study. The study was approved by the ethical committee of the UMCU; participation was on a voluntary basis but written informed consent was required. Only nulliparous women with a singleton pregnancy were included. Characteristics of participants did not differ from those of non-participants, except in the case of women with full-time jobs, who were less likely to participate. The descriptives of the participants are summarized in Table 4.1. As shown, the sample of participants consisted largely of middle class women, although both lower social and higher social classes were represented. The majority of women (92.4%) lived together with their partner, either in wedlock or unmarried. Furthermore, at the time of their inclusion in the study, the majority of women had a paid job, 54.2 % working less than 38 hours a week and 45.8 % working full-time.

Participants were asked to fill out questionnaires three times during pregnancy; at 15-17 weeks (early pregnancy), 27-28 weeks (mid pregnancy), and 37-38 weeks of gestation (late pregnancy). Of the 230 women who completed the questionnaires on the first occasion, 217 completed the questionnaires on the second occasion and 172 on the third occasion. The main reason for the drop in the number of participants towards late pregnancy was delivery before 37 weeks of gestational age or delivery before the last session of data collection, which was planned near term, had taken place; other reasons were lack of interest, lack of time, twin pregnancy, stillbirth, pregnancy complications that required intensive follow-up, or relocation to another city.

### 5.3.2 Questionnaire measures

The package of questionnaires was composed to measure, among others, coping behavior and aspects of personality such as neuroticism, locus of control, prenatal depression and primary and secondary appraisal of pregnancy.

*Utrecht Coping List.* To assess the coping style of our subjects, we used the 'Utrecht Coping List-19' (Schreurs et al., 1988), which is an abbreviated form of the 'Utrecht Coping List-30'. It contains 19 items to be answered at a 5-point scale, which have been found to be dispersed over 3 factors: 'problem-focused coping', 'emotion-focused coping' and 'avoidance'. The first two factors consisted of 5 items, whereas the third factor contained 4 items. Thus,

5 items of the questionnaire were not used in calculating these factor scores. This questionnaire was filled out in early, mid- and late pregnancy and women were asked to describe their coping style during that particular time period of pregnancy. The factor structure of the questionnaire was reanalyzed in this study on pregnant women.

*State-Trait Anxiety Inventory (STAI)*. The STAI (Spielberger et al., 1970) is comprised of two self-report scales for measuring two distinct anxiety concepts, state-anxiety and trait-anxiety. Both scales contain 20 statements that ask the respondent to describe how they feel at a particular moment in time (state-anxiety) or how they generally feel (trait-anxiety). State-anxiety is conceptualized as a transitory emotional state, whereas trait anxiety refers to relatively stable individual differences in anxiety proneness. In the present study only the trait-anxiety score was examined as predictor of coping style. Cronbach's alpha in this study was .83 for trait anxiety. The STAI was filled out on each occasion.

*Edinburgh Postnatal Depression Scale (EPDS)*. The EPDS (Cox et al., 1987) is a 10-item questionnaire that can be used to measure prenatal and postnatal depression and has been validated for use in pregnancy (Green & Murray, 1994). The EPDS was filled out twice during pregnancy (mid and late pregnancy) and Cronbach's alphas in this study were .86 and .87, respectively.

*Neuroticism* was determined with a subscale of the Amsterdam Biographical Questionnaire (Wilde, 1963). This questionnaire was filled out only during early pregnancy because it is believed to reflect a stable personality trait. Cronbach's alpha of the items of the subscale Neuroticism was .83.

*Locus of control* was measured by means of the items with the highest factor loadings on the subscales of the Internal locus of control, Powerful Others and Chance-Scale (IPC; Brosschot et al., 1994), with two items reflecting the Powerful Others scale, two items representing the Internal locus of control scale and two items for the Chance scale. Both Powerful Others and Chance reflect external locus of control. Powerful Others means that an individual believes that powerful others are in control of one's life, whereas the Chance scale reflects the idea that the world is unordered and unpredictable, and is thus controlled by chance. Internal locus of control is found in individuals who believe they have their own life under control. Since locus of control is believed to reflect a stable characteristic the questionnaire was filled out only once during early pregnancy.

*Appraisal of pregnancy* was measured by two single-item instruments. The perceived threat of the situation, or primary appraisal, was measured by the question 'Can you indicate on a ten-point scale the degree to which your pregnancy relates to the most upsetting (=1) and most pleasant event (=10) of your life?' Secondary appraisal, or the perceived options to control the situation, was assessed with the question 'To what extent do you think you are able to influence the course of your pregnancy?' Participants could answer on a 5-point scale ranging from 'much' to 'not at all'. These two items were answered on each occasion.

*Socioeconomic status*. Two aspects of social economical status were assessed; educational level and professional level (Westerlaak et al., 1976). A stratification was provided for educational level, ranging from primary school ('1') to university level ('7') and for professional level, ranging from unschooled jobs ('1') to jobs on academic level or jobs with very high responsibilities, such as senior managers ('7'). In table 1 an aggregated descriptive frequency score of the total sample is provided.

*Perceived stress*. Perceived stress was assessed by means of a Dutch translation of the

Perceived Stress Scale of Cohen & Williamson (1987). It contains 14 items on perceived stress of an individual during the preceding four weeks to be answered on a 4-point scale, ranging from 'never' to 'always'. Items assess the degree to which respondents perceive their lives as unpredictable, uncontrollable, and burdensome. This questionnaire was filled out on each occasion.

*Pregnancy complaints.* Pregnancy complaints were assessed with a self-developed questionnaire, containing 33 items that include various physical and psychological complaints that may be associated with pregnancy. The items are given in Appendix B. Items were answered on a 4-point scale, ranging from 'never' to 'very often' and a total score was calculated. This questionnaire was filled out twice during pregnancy (mid and late pregnancy).

### 5.3.3 Statistical analysis

The factor structure of the UCL-19 was examined by means of exploratory and confirmatory factor analysis (CFA), using SPSS version 6.1 for Windows and LISREL 8.30, respectively. CFA can be performed by means of structural equation modelling and postulates relations between the observed measures and the underlying factors a priori. The goodness of fit between the hypothesized structure and the sample data is subsequently tested. This provides information on the reliability and validity of the model while taking measurement errors into account. Goodness of fit measures used are for instance Chi Square ( $\chi^2$ ) and Chi-square divided by degrees of freedom. Chi-square with degrees of freedom is sensitive for sample size, and is therefore regarded as a measure of fit instead of a test statistic. When chi-square is divided by its degrees of freedom it should be smaller than 3 to indicate a reasonable fit to the data. Other fit criteria include: Comparative Fit Index (CFI ;  $>.9$  indicates a good fit), Non-Normed Fit Index (NNFI;  $>.9$  indicates a good fit), Root Mean Square Error of Approximation (RMSEA) which should be at least smaller than .08 and Root Mean Square Residual (RMR) which should be smaller than .05.

In a next step, the stability of the factors representing coping styles throughout pregnancy was examined by means of LISREL tests for stability of factor loadings and with Pearson inter-correlation coefficients. The change in level of coping behavior throughout pregnancy was examined with ANOVA with repeated measures.

The associations of coping behavior with common symptoms of anxiety and depression and with personality factors were examined with stepwise linear regression models. Correlations were calculated between coping scores and the total pregnancy complaints scores. Finally, exploratory analyses with t-tests were performed to test for differences in mean scores on anxiety and neuroticism in women with high levels of emotion-focused coping as compared to women with low levels of this coping strategy.

## 5.4 Results

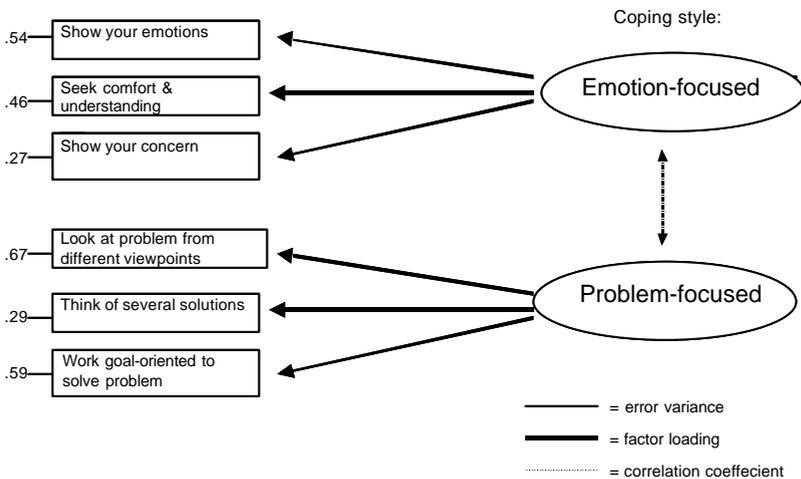
### 5.4.1 The factor structure of coping

Exploratory factor analysis with varimax rotation of the coping questionnaire filled in in early pregnancy resulted in 5 factors with eigenvalues greater than 1 and explained 58.3 % of the total variance. However, two of these factors consisted of only two items each, and showed only a small contribution to the total explained variance (7.3 % and 6.3 %, respectively, with eigenvalues of 1.39 and 1.19); these two factors were considered as not meaningful. Therefore, we used a three-factor solution in our conceptual model as suggested by Schreurs (1996). 'Emotion-focused coping' contained 5 items, had an eigenvalue of 3.83 and contributed 20.1 % to the total explained variance. 'Problem-focused coping' consisted of 4 items, had an eigenvalue of 2.73 and contributed 14.3 % to the total explained variance. 'Avoidance' consisted of 4 items, had an eigenvalue of 1.96 and contributed 10.3 % to the total explained variance. This solution showed minor deviations from the proposed factor solution by Schreurs.

The suggested factor scores in our first conceptual model were tested with confirmatory factor analysis in LISREL. This model did not fit the data well ( $\chi^2 = 257.57$ ,  $df = 101$ ,  $p < .0001$ ,  $RMSEA = .080$ ,  $RMR = .077$ ,  $CFI = .83$ ,  $NNFI = .80$ ). Several items of the three proposed factors showed high error variances (.80 - .88) and were removed in the next model, including all items of the factor 'avoidance'. Therefore, the remaining model only included two factors: 'emotion-focused' and 'problem-focused' coping. This model fitted the data best ( $\chi^2 = 12.24$ ,  $df = 8$ ,  $p = .14$ ,  $RMSEA = .05$ ,  $RMR = .04$ ,  $CFI = .99$ ,  $NNFI = .98$ ) and can be theoretically explained. The model is presented in Figure 5.1.

Figure 5.1. Best fitting model of the factor structure of the UCL-19 in early pregnancy.

The same procedure was followed with data of the UCL-19 questionnaire collected in mid



and late pregnancy. The results showed factor structures, similar to the one found in early pregnancy in mid ( $\chi^2 = 9.06$ ,  $df = 8$ ,  $p = .25$ ,  $RMSEA = .04$ ,  $RMR = .04$ ,  $CFI = 1.00$ ,  $NNFI = .99$ ) and late pregnancy ( $\chi^2 = 14.08$ ,  $df = 8$ ,  $p = .08$ ,  $RMSEA = .07$ ,  $RMR = .05$ ,  $CFI = .99$ ,  $NNFI = .97$ ).

The rather low correlation coefficients (.20, .18, and .26 at the three occasions, respec-

tively) between the total scores of emotion-focused coping and problem-focused coping reflect that these two coping styles are rather independent.

Cronbach's alphas for the factor emotion-focused coping fell within the range of .78 - .80 whereas the Cronbach's alphas for problem-focused coping were .71, .84, and .87 for early, mid and late pregnancy, respectively.

### 5.4.2 Stability of factor structure

Stability of the CFA model and its factor loadings across time was tested with LISREL. Factor loadings of items were set equal in early, mid and late pregnancy. In addition, the measurement error of an item assessed during early pregnancy was allowed to correlate with the measurement error of the same item determined during mid and late pregnancy. Fit indices showed an excellent fit for the stability of the factor loadings of the items of 'emotion-focused coping' ( $\chi^2=21.01$ ,  $df=20$ ,  $p= .40$ ,  $RMSEA= .017$ ,  $RMR = .045$ ,  $CFI= 1.00$ ,  $NNFI=.99$ ) and for the items of 'problem-focused coping' ( $\chi^2=17.50$ ,  $df=20$ ,  $p= .62$ ,  $RMSEA< .0001$ ,  $RMR= .040$ ,  $CFI= 1.00$ ,  $NNFI=1.00$ ).

Another procedure to determine the stability of the factor structure is to calculate intercorrelation coefficients of the two factors from early to late pregnancy. Intercorrelations for emotion-focused coping during the course of pregnancy were significant, varying from .52 to .62 ( $p < .0005$ ). Scores derived at early, mid and late pregnancy on problem-focused coping were also significantly intercorrelated (.53- .65;  $p < .0005$ ).

### 5.4.3 Changes in coping behavior during pregnancy

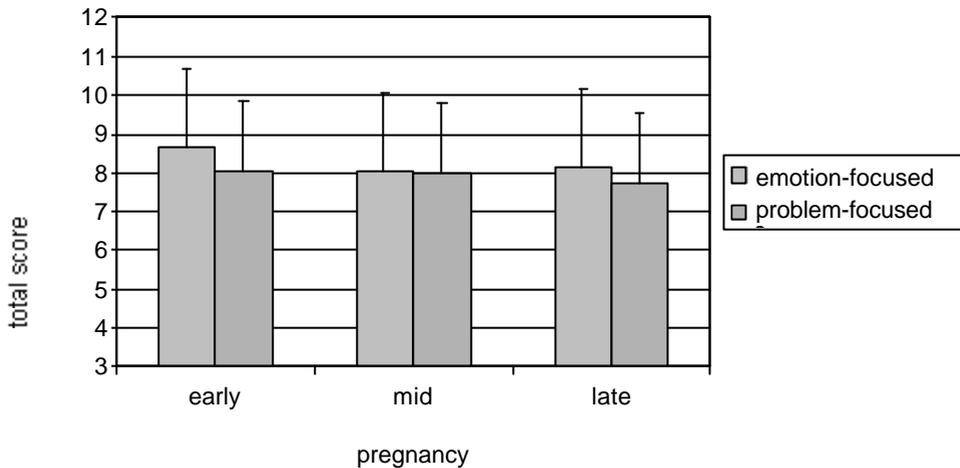
ANOVA with repeated measures, two within-subject factors (time and coping style) and polynomial contrasts was performed to examine the changes in mean scores of both emotion-focused coping and problem-focused coping from early to late pregnancy. These results are graphically presented in Figure 5.2. A significant main effect was found for the factor time ( $F(2,172)=10.51$ ,  $df=2$ ,  $p<.0005$ ). Univariate analyses showed that emotion-focused coping changed over time ( $F(2,172)=11.75$ ,  $df=2$ ,  $p<.005$ ) with highest scores in early pregnancy as compared to mid and late pregnancy. The scores derived in mid and late pregnancy did not differ significantly. Problem-focused coping also changed over time ( $F(2,172)=4.76$ ,  $df=2$ ,  $p=.010$ ) with highest scores during early and mid pregnancy as compared to late pregnancy. Scores in early and mid pregnancy were comparable. Thus, scores on both emotion- and problem-focused coping styles were decreased in the last part of pregnancy, although the decrease in scores was rather small. A significant main effect of the factor 'coping style' was not found. However, a significant interaction effect of time by coping style was found ( $F(2,172)=5.43$ ,  $df=2$ ,  $p<.005$ ). Post hoc analyses (t-tests) showed that in early pregnancy women used emotion-focused coping more frequently than problem-focused coping ( $t= 4.22$ ,  $df= 230$ ,  $p<.0005$ ). In mid pregnancy both coping strategies were used equally frequently. In late pregnancy, emotion-focused coping was slightly favored, although this difference was not significant ( $t= 1.81$ ,  $df= 170$ ,  $p=.07$ ).

A difference score was calculated in each period of pregnancy by subtracting the score on

problem-focused coping from the score of emotion-focused coping. A negative difference score of a subject reflected that problem-focused coping was favored, whereas a positive difference score reflected that emotion-focused coping was preferred. The frequencies of these differences scores were then calculated. In early pregnancy, 33.2 % of women preferred problem-focused coping, 48.4 % preferred emotion-focused coping and 18.4 % used both coping styles in equal amounts. In mid pregnancy, 41.7 % of women preferred problem-focused coping, 38.9 % preferred emotion-focused coping and 19.4 % used both coping styles in equal amounts.

In late pregnancy, 33.3 % of women preferred problem-focused coping, 46.4 % preferred emotion-focused coping and 20.1 % used both coping styles in equal amounts.

Figure 5.2. Changes in coping scores in the course of gestation. The error bars reflect the standard deviations.



#### 5.4.4 Correlates of coping style

Significant positive correlation coefficients were found between emotion-focused coping style and educational level ( $r=.29, p < .001$ ), age of the mother ( $r=.20, p=.003$ ), primary appraisal of her pregnancy ( $r=.16, p=.036$ ), and external locus of control ( $r=.19, p=.05$ ). Significant negative correlation coefficients were found between emotion-focused coping and neuroticism ( $r= -.22, p=.021$ ), internal locus of control ( $r= -.31, p=.001$ ), and depression (only in mid pregnancy;  $r= -.17, p=.012$ ). For problem-focused coping, positive correlates were also educational level ( $r=.21, p=.002$ ), primary appraisal of the pregnancy (only in early pregnancy;  $r=.15, p=.041$ ), and depression (only in mid pregnancy;  $r = .24, p=.001$ ). No negative correlates of problem-focused coping were found.

To examine if any of these personality factors could predict the score on emotion- or

problem-focused coping in a multivariate model, a set of stepwise multiple regression analyses was performed. These results are presented in table 5.1. The results showed that for emotion-focused coping in *early pregnancy*, internal locus of control (13 %; Beta = -.33) and educational level (9 %; Beta= .29) explained significant parts of the variance. In *mid pregnancy*, educational level (17%; Beta= .39), maternal age (5%; Beta= .20), and depression (4%; Beta = -.28) explained part of the variance, whereas in *late pregnancy*, educational level (18%; Beta= .38), and age (5%; Beta= .24) accounted for some variance of emotion-focused coping. For problem-focused coping, only educational level was found to explain part of the variance in *early and mid pregnancy* (6 % and 8 %; Beta's .23 and .28, respectively). In addition to the variance explained by educational level (16%; Beta= .36), secondary appraisal, that is, the appraised uncontrollableness of the course of pregnancy, contributed for 7 % (Beta= -.26) of the explained variance of problem-focused coping in *late pregnancy*. This latter effect was negative, i.e., women who regarded their pregnancy as uncontrollable, have lower scores on problem-focused coping. Likewise, in early pregnancy a negative effect of internal locus of control on emotion-focused coping was found, whereas in mid pregnancy prenatal depression resulted in decreased levels of emotion-focused coping.

Dependent variable	Predictors	R <sup>2</sup>	DR <sup>2</sup>	F	Beta	Significance
<u>Emotion-focused coping</u>	<i>Early pregnancy</i>					
	X <sub>1</sub> = Internal locus of control	.13	.13	12.87	-.33	.0006
	X <sub>2</sub> = Educational level	.22	.09	11.49	.29	.004
	<i>Mid pregnancy</i>					
	X <sub>1</sub> = Educational level	.17	.17	17.88	.39	.0001
	X <sub>2</sub> = Maternal age	.22	.05	12.29	.20	.03
	X <sub>3</sub> = Depression	.26	.04	9.98	-.28	.04
	<i>Late pregnancy</i>					
	X <sub>1</sub> = Educational level	.18	.18	14.43	.38	.001
X <sub>2</sub> = Maternal age	.23	.05	9.89	.24	.04	
<u>Problem-focused coping</u>	<i>Early pregnancy</i>					
	X <sub>1</sub> = Educational level	.06	.06	4.80	.23	.03
	<i>Mid pregnancy</i>					
	X <sub>1</sub> = Educational level	.08	.08	6.68	.28	.01
	<i>Late pregnancy</i>					
	X <sub>1</sub> = Educational level	.16	.16	12.73	.36	.002
X <sub>2</sub> = Secondary appraisal	.23	.07	9.58	-.26	.04	

**Table 5.1** Results of multiple regression analyses

### 5.4.5 Profile of women using emotion-focused coping in early pregnancy

The results suggested that almost 50% of the women prefer to use emotion-focused coping in early pregnancy. Moreover, the personality factors predicting a higher score on this coping strategy reveal that older women who were better educated and had less depressive symptoms use emotion-focused coping more frequently than younger, less educated women suffering from more depressive symptoms. Therefore, we performed exploratory analyses by means of t-tests to get an indication of the general psychological profile of women using emotion-focused coping. Two groups were formed based on a median split method.

Results of these t-tests showed that women scoring above the median on emotion-focused coping differed from women scoring below the median on several aspects; neuroticism (36.1 versus 48.4,  $p=.006$ ), state-anxiety (30.6 versus 33.8,  $p=.005$ ) and trait-anxiety (33.6 versus 36.5,  $p=.033$ ). Thus, women who used emotion-focused coping more frequently were less anxious and neurotic as compared to women who used this coping style less often. In addition, exploratory analysis showed that the amount of perceived stress was lower in women with a rather high emotion-focused coping style when compared to women with a low amount of emotion-focused coping (26.6 versus 29.4,  $p=.001$ ).

### 5.4.6 Effect of coping style on pregnancy complaints

Correlation coefficients between emotion-, and problem-focused coping scores and a total score on pregnancy complaints in mid- and late pregnancy were calculated. Emotion-focused coping in early pregnancy was negatively related to pregnancy complaints in late pregnancy ( $r = -.23$ ,  $p < .05$ ). In mid-pregnancy emotion-focused coping was negatively related to pregnancy complaints in mid and late pregnancy ( $r = -.17$ ,  $p < .05$  and  $r = -.23$ ,  $p < .05$ , respectively), whereas problem-focused coping in mid pregnancy was positively related to pregnancy complaints in mid pregnancy ( $r = .25$ ,  $p < .005$ ).

## 5.5 Discussion

With regard to the first aim of the study, two important factors could be found when using the UCL-19 questionnaire in a sample of nulliparous pregnant women. These factors represent emotion-focused coping and problem-focused coping. Each aspect of coping was found to be represented by only three items, which is a major advantage for future practical use. The items of the factor 'avoidance coping' of the UCL-19 had very high error variances in the present sample of pregnant women, and this factor was therefore excluded from the model. When we compare the contents of the emotion- and problem-focused coping factor scores with the various coping strategies represented in the Ways of Coping Questionnaire-Interview of Lazarus & Folkman (1984) it is obvious that only limited aspects of coping were assessed with the UCL-19. In the questionnaire developed by Lazarus and Folkman, more detailed aspects of the concept of emotion-focused coping can be obtained (e.g. 'seeking social support', 'positive reappraisal' etc.). Also, problem-focused aspects of coping were differentiated

in, for instance, 'confrontive coping' and 'planful problem solving'. The items of the factor solution of the UCL-19 resemble 'seeking social support' (emotion-focused coping) and 'planful problem solving' (problem-focused coping). We therefore suggest to examine the validity of the Ways of Coping Questionnaire-Interview in pregnant women in future studies, and to perform confirmatory factor analysis. Moreover, a replication of the factor structure of the UCL-19 in an independent sample of normal risk pregnant women is warranted. Nevertheless, we felt confident in using both factor scores of the UCL-19 in further analyses, since the internal consistency was found to be sufficient and the CFA results showed an excellent fit to the data.

The second purpose of the present study was to examine stability and change in coping strategies used throughout pregnancy. The stability of the factor structure of the UCL-19 turned out to be good. Some changes in total scores on emotion-focused coping style were found in the course of gestation, although the differences in scores from early to late pregnancy are rather small. Early pregnancy appeared to be the period during which most women depend on emotion-focused coping. The event of pregnancy and all its associated expectations and changes for the future represented a situation that pregnant women wanted to discuss with their partner or close friends. Especially in nulliparous women, pregnancy involves many necessary adaptations and involve a novel situation that could give rise to the need to ventilate emotions, since these women have no prior experience with pregnancy. In mid pregnancy, women could be more or less adapted to the changed life situation, thus the need for emotion-focused coping could have been decreased. This is exactly what we found in the present study. Problem-focused coping strategies were also mostly used in early pregnancy with declining scores in the course of gestation. These findings fit well into the concept of coping as a process as described by Lazarus (1999). Overall, however, women favor emotion-focused coping instead of problem-focused coping in this period of pregnancy, although individual differences exist. It is concluded that the coping process in pregnancy showed small temporal variations and since the situational demands during pregnancy are changing, and as a result coping appeared to change as well.

The third aim of the present study was to examine the predictors of coping strategies used throughout pregnancy. In early pregnancy, educational level and internal locus of control were found to predict the score on emotion-focused coping. Women with higher educational level used this coping style more frequently than pregnant women who were less well educated. Women with internal locus of control were found to use less emotion-focused coping. Since these women tend to believe that they are or should be in control of their lives, they probably feel less need to ventilate their emotions with family or close friends. In mid pregnancy, higher educational level, less depressive symptoms and older maternal age predicted higher scores on emotion-focused coping. In late pregnancy, again older age and higher educational level resulted in higher levels of emotion-focused coping. These results suggest that in normal risk pregnancy, highly educated women who have more life-experience because of an older age and who do not suffer from depressive symptomatology employ an emotion-focused coping style. The psychological profile of women using this coping style more frequently throughout pregnancy suggests that these women were less anxious and neurotic and could therefore have a more stable personality. With regard to problem-focused coping, women with higher educational level have higher scores on this coping strategy as compared to women with less education. Other personality factors (such as internal locus of control,

maternal age and primary appraisal) accounted for some variation in emotion-focused coping and only secondary appraisal contributed significantly to a part of the explained total variance of problem-focused coping. In other studies (Lazarus & Folkman, 1984; Lazarus, 1999) it has been found that in situations that are perceived as unchangeable, emotion-focused coping predominated. The findings of the present study show that problem-focused coping declined in these situations, although emotion-focused coping did not increase. Overall, women with higher educational level had higher scores on either coping style. It might be that women who were less well educated used other coping styles, such as avoidance, instead. Since the UCL-19 did not provide a good and reliable factor score of this specific coping style in pregnant women, we were not able to test for this effect. Further research is therefore warranted with regard to other aspects of coping in a normal risk population of pregnant women.

The last aim of this study was to test the effectiveness of emotion- and problem-focused coping on reducing pregnancy related health and psychological complaints. Our results suggest that emotion-focused coping was able to reduce these pregnancy complaints, whereas problem-focused coping in mid pregnancy was associated with more pregnancy complaints. Thus, emotion-focused coping is the most effective coping style for normal risk pregnant women with regard to preventing the occurrence of pregnancy complaints.

The findings of the present study show that coping in pregnancy is a process that changes across time, perhaps due to changing demands. From exploratory analysis it appeared that women high on emotion-focused coping had less perceived stress than women low on this coping score. Since stress in pregnancy has been associated with adverse birth outcome, the role of coping with stressors in pregnancy offers an interesting topic of research. This study shows that an effect of coping on health complaints could be found. Perhaps, coping has an effect on the emotional response to stress provoking factors as well. We will therefore investigate the effectiveness of the coping strategy used by pregnant women and the role of coping as mediator in more detail using longitudinal data of the present project that will include measures of stress provoking factors and distress.

## 5.6 References

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