Family sense of coherence and quality of life

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Abstract

Purpose The purpose of this study was to examine the relationships between family sense of coherence, social support, stress, quality of life and depressive symptoms among Chinese pregnant women.

Methods A cross-sectional design was used. A convenience sample of 267 Chinese pregnant women was recruited at the antenatal clinic and completed the Family Sense of Coherence Scale, Medical Outcomes Study Social Support Survey, Social Readjustment Rating Scale, Medical Outcome Study Short Form 12-Item Health Survey and General Health Questionnaire. Path analysis was employed.

Results Family sense of coherence and social support had a direct impact on the mental health component of quality of life and depressive symptoms during pregnancy. Family sense of coherence also mediated the effect of stress on quality of life and depressive symptoms.

Conclusions The study provides evidence that family sense of coherence and social support play a significant role in promoting quality of life and reducing depressive symptoms during the transition to motherhood. Culturally competent healthcare should be developed to strengthen women's family sense of coherence and foster social support to combat the stress of new motherhood, thereby promoting quality of life during that period of their lives.

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Introduction

The transition to motherhood is a time of psychological stress that poses critical adaptation challenges for new mothers [1]. Although many women are able to adjust effectively to the demands of parenting and are satisfied with their maternal role, there is evidence that new mothers experience a high level of stress, which affects their quality of life and renders them vulnerable to perinatal depression [2, 3]. Quality of life and, more specifically, health-related quality of life is a multi-dimensional concept which refers to an individual's perception of general well-being and the extent of role fulfilment across various physical, psychological and social domains [4]. In a survey of 1,809 pregnant women in the United States, Hass et al. [5] found that women reported lower physical functioning and poorer perceptions of health during pregnancy compared to their pre-pregnancy state. Physiological changes that occur in pregnancy are likely to contribute to the decline in physical health status. The presence of psychological distress may further limit physical and mental functioning during pregnancy [6–8]. In their longitudinal study of 200 pregnant women in the United States, Setse et al. [8] found that alterations in depressive symptomatology had a substantial effect on quality of life during pregnancy and after delivery. Depressive symptoms can be highly prevalent during pregnancy [2, 3]. In a recent review of 86 studies across Asian countries, depression was found to affect 20 % of pregnant women [3]. In Hong Kong, 10–22 % of Chinese women were reported suffering from depression during

pregnancy [9–11]. The impacts of poor quality of life and prenatal depression on the family can be long lasting. Lower physical and social functioning in pregnancy has been linked to an increased risk of preterm birth [12]. Prenatal depression has been recognized as a risk factor for postnatal depression which can disrupt mother–infant relationships and ultimately affect the psychosocial development of the child [3, 13]. In a meta-analysis of 29 studies across diverse countries and cultures, depression during pregnancy was found to increase the risks of preterm birth, low birth weight and intrauterine growth restriction [14]. Considering the long-term impacts of prenatal depression on the family and its close relationship with quality of life, it is important to understand the process of maternal adaptation and to develop effective interventions to empower women in negotiating their lives under the stressful demands of motherhood and thus to achieve a better quality of life.

The conceptual framework (Fig. 1) supporting the research is underpinned by Antonovsky's Salutogenic Model which focuses on the strengths of individuals and their capacity for successful adjustment to life stressors [16]. Antonovsky [16] proposed that the human response to psychosocial stressors is based on the mobilization of generalized resistance resources, and the ability to use these resources is depended on one's sense of coherence. Sense of coherence is a global orientation that one has a pervasive, enduring though dynamic feeling of confidence that the stimuli deriving from one's internal and external environments are structured and predictable (comprehensible), resources are available to meet the demands (manageable), and the demands are meaningful challenges, worthy of overcoming (meaningful) [16]. Such orientation enables individual to effectively mobilize resources to cope with a variety of stressors and promote healthy well-being [43].

According to Antonovsky [37], the concept of sense of coherence can be applied at an individual as well as family level. Family sense of coherence refers to the family's global belief that the environment is comprehensible (structured, predictable and explicable), manageable (resources are available to meet demands) and meaningful (demands are challenges and worthy of investment) [17]. During the transition to motherhood, family sense of coherence represents the extent to which women see their family worldview as coherent [25]. Family sense of coherence has been identified as a significant factor in shaping and modifying the individual sense of coherence [20, 37]. In a local study of 184 Chinese mothers, a strong correlation was found between women's sense of coherence and their sense of family coherence [20]. In the Chinese society which is influenced strongly by the Confucian tradition, the family is regarded as an irreducible unit rather than an individual, and family members are expected to be involved with other member's lives [44]. Thus, childbearing is a developmental transition involving not only the women, but also their partners and the whole family [2, 20]. Antonovsky [37] contended that "in the face of collective stressors, the strength of the collective sense of coherence is often decisive in tension management" (p. 179). Given that childbearing is a developmental stage in the family life cycle affecting the whole family system and the Chinese value the family as the basic unit of life and resource for support [44], it is therefore important to look beyond sense of coherence at an individual level to sense of coherence in the family as a potential resource for women in dealing with the stress of motherhood.

According to Antonovsky and Sourani [17], a strong sense of family coherence provides the motivational, perceptual, and behavioural basis for successful resolution of the physical and emotional demands posed by parental stressors, thus, promoting a good quality of life and minimizing the risk of depression. For example, Lustig and Akey [18] conducted a survey of 116 American families with mentally retarded children and found that family sense of coherence predicted positive family adaptation significantly, accounting for 7 % of the variance. In Anderson's [19] study of 78 American families with a sick family

Fig. 1 Theoretical relationships between study variables
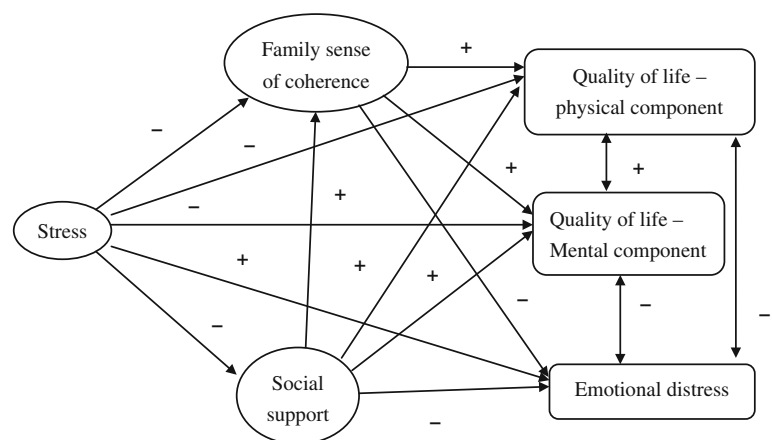
member, family sense of coherence was a strong predictor of quality of life, accounting for over 30 % of the variance, and a mediator in reducing the impact of stress on the quality of family life. In a local survey of 128 Chinese pregnant women, those with a stronger sense of family coherence were found to have a lower level of anxiety and better family functioning [20]. These findings provide evidence that family sense of coherence has the potential to influence the women's adjustment to stressors, thus promoting positive adaptation and well-being during the transition to motherhood.

Antonovsky [16] further claimed that generalized resistance resources are crucial in the development of family sense of coherence. Generalized resistance resources include the characteristics of the person, a group or an environment that facilitate handling of tensions, which involve most importantly social support [16]. Social support is defined as the level of perceived support in four domains: emotional, tangible, affectionate and positive social interaction [22]. The availability of social support leads to life experiences that promote the development of a strong sense of family coherence [16] and may further enhance women's ability to deal with stressors during pregnancy, thus preventing them from becoming depressed [1, 15, 21]. Social support from family members, friends and healthcare professionals has been shown to be an important resource in women's adaptation during childbearing [1, 21]. Lau [21] conducted a survey of 1,527 Chinese pregnant women and found that those with poor social support were more vulnerable to stress and depression. In a local study of 184 Chinese mothers, Ngai et al. [1] also found a positive relationship between social support and depression in the perinatal period. These findings suggest a potential stress-buffering effect of social support in promoting women's adaptation and well-being during childbearing.

Although the concept of sense of coherence has been studied extensively in diverse population groups and in families with chronic illness and children with disabilities [23, 24], there is a paucity of research on family sense of coherence during maternal transition, particularly in a Chinese population. The family sense of coherence can be viewed as a perceptual family resistance resource to the impact of stress and motherhood on the family and thus may mediate the relationship between pregnancy demands and maternal well-being. We therefore expect that strong family sense of coherence will be significantly and positively related to quality of life and negatively related to stress and depressive symptoms during maternal transition. Given that family sense of coherence is a global family orientation that resources are available to them to meet environmental demands [23], we expected that a high level of social support would promote the development of a strong family sense of coherence. We also expected that social support would be significantly and positively related

to quality of life and negatively related to stress and depressive symptoms. Understanding the role of family sense of coherence in the context of Chinese motherhood would contribute to the development of culturally appropriate interventions and help to promote the positive adaptation and well-being of the whole family. Thus, the aims of this study were: (a) to investigate the relationships between family sense of coherence, social support, stress, quality of life and depressive symptoms in first-time Chinese childbearing women and (b) to determine whether family sense of coherence mediated the effect of stress on quality of life and depressive symptoms.

Methods

Design and participants

A cross-sectional design was used. A convenience sample of 267 childbearing women attending the antenatal clinic in a regional hospital was recruited between January and May 2011. The sample inclusion criteria consisted of childbearing women who were 18 years of age or above, Hong Kong residents, able to speak and read Chinese and without a past or family history of psychiatric illness. The sample size was based on 200 people being required to achieve a power of .80 in testing mediation (Hoyle and Kenny 1999), with an attrition rate of 25 %.

Measures

The Family Sense of Coherence Scale (FSOC) is a 26-item measure assessing the degree to which the family views the environment as comprehensible, manageable and meaningful [17]. A short form consisting of 12 items (FSOC-S) has been developed with good internal consistency (Cronbach's α = .81) [25]. Each item is scored on a 7-point scale and total scores range from 7 to 84, with higher scores indicating stronger family perception of the coherence of family life. The Chinese version of the FSOC-S has been validated with a sample of Hong Kong Chinese childbearing couples. Reported internal consistency was .83, and test–retest reliability .75. Significant correlations with measures of sense of coherence, social support and anxiety demonstrated construct validity [20]. The internal consistency of the present study was .87.

The Medical Outcomes Study Social Support Survey (MOS-SSS) is a 20-item instrument, with one item assessing the support network and 19 measuring the availability of social support in four domains: emotional, tangible, affectionate and positive social interaction [22]. Each item is rated on a 5-point Likert scale, with total scores ranging from 0 to 100. The Chinese version of the MOS-SSS has

demonstrated a high internal consistency of .98 and two-week test–retest reliability of .84. Validity has been supported by significant correlations with measures of the Multidimensional Perceived Social Support Survey and the Hospital Anxiety and Depression Scale [26]. The internal consistency for the present study was .96.

The Social Readjustment Rating Scale (SRRS) refers to 43 significant life events. Responses of 'yes' or 'no' for each event are used to indicate whether that event has occurred or not in the past 12 months, and a number of 'life-change units' is assigned to each event [27]. The higher the value, the more readjustment is required and the more stressful the event. Respondents were also asked to rate the perceived stressfulness of each event experienced on a 5-point Likert scale, a higher score indicating a perception of more stress. The Chinese version of the SRRS has been modified to include 39 significant life events and validated among Hong Kong Chinese parents [28].

The Medical Outcomes Study Short Form 12-Item Health Survey (SF-12) is a shorter version of the Medical Outcomes Study Short Form 36-item Health Survey (SF-36) which is a generic health-related quality of life instrument [29]. It measures eight health-related concepts: physical functioning (2 items), role limitations due to physical health problems (2 items), bodily pain (1 item), general health perceptions (1 item), vitality, energy or fatigue (1 item), social functioning (1 item), role limitations due to emotional problems (2 items) and general mental health (2 items). The scale yields the Physical Component Score (PSC) addressing the physical function, role-physical, bodily and general health aspects, and the Mental Component Score (MCS) addressing the vitality, social functioning, role-emotional and mental health aspects. The response to each item is weighted separately by the PCS and MCS regression coefficient and then summed to give standard SF-12 PCS and MCS scores, respectively. Scores for each component range from 0 to 100, with 50 an average. Higher scores indicate better quality of life. The Chinese version of SF-12 explained 82 and 89 % of the variance of the SF-36 PCS and MCS scores in a sample of Hong Kong Chinese adults [30]. The internal consistencies of the PCS and MCS for the present study were .72 and .74, respectively.

The General Health Questionnaire (GHQ) is a 12-item instrument used to assess psychological and physical symptoms [31]. Each item is rated on a four-point scale, with total scores ranging from 0 to 36. The higher the score, the more distressed the respondent. The Chinese version of the GHQ has been widely used with pregnant women and has good psychometric properties. Internal consistencies range from .76 to .81. It shows satisfactory concurrent validity with the Beck Depression Inventory and Edinburgh Postnatal Depression Scale [32–34]. The internal consistency for the present study was .84.

Procedure

Ethical approval was obtained from the Institutional Review Board of the University of Hong Kong and the Hospital Authority Clinical Research Ethics Committees in the study hospital. The research team determined the eligibility of women from their antenatal records and approached women at the antenatal clinics who met the inclusion criteria. The purpose and procedures of the study were explained to the women and those who agreed to participate signed a written informed consent ($N = 267$, 86 %). Confidentiality and voluntary participation were ensured. Women were informed that they have the right to withdraw at any time with no consequences to their treatment and perinatal care. Participants were then asked to complete five instruments: FSOC-S, MOS-SSS, SRRS, SF-12, GHQ and a demographic data sheet at the antenatal clinics.

Data analysis

Data were analyzed using the Statistical Package for Social Sciences (SPSS) for Windows, version 18.0. Descriptive statistics were employed to summarize demographic and obstetric characteristics. Pearson's product–moment correlations were conducted to examine the relationships between the study variables. Analysis of Moment Structures (AMOS) 18.0 was used for path analysis. The overall model fit was examined using goodness-of-fit indices. A non-significant chi-square value, a comparative fit index (CFI), a Tucker-Lewis index (TLI), an incremental fit index (IFI) of >0.95 and a root-mean-square of approximation (RMSEA) < 0.05 indicated good mode fit [35]. The hypothesized model (Fig. 1) was tested, followed by modifications to improve the overall model fit. Colinearity was addressed by means of colinearity statistics. Tolerance was greater than 0.10 and variance inflation factors (VIF) less than 10 for all study variables, indicating the absence of colinearity [36]. All study variables met the assumptions of univariate normality.

Results

Characteristics of the participants

The mean age of the participants was 32.0 years (SD = 4.4), and over 99 % had at least a secondary school education. The majority were employed (81 %) and the median monthly household income was HK$32,727 (US$4,196). The participants were thus predominantly well-educated middle-class women. Their demographic and obstetric characteristics are presented in Table 1.

Relationships between study variables

Means and standard deviations of the study variables are presented in Table 2 and the correlations between the variables in Table 3. Stronger family sense of coherence correlated significantly with a higher level of social support, greater quality of life (mental health component), less stress and less depressive symptoms during pregnancy. Age ($r = 0.16$, $p < 0.5$) and income ($\chi^2 = 23.7$, $p < 0.001$) were found to have significant correlations with family sense of coherence, with older women and those with higher family income reported greater family sense of coherence. No significant correlation was found between education and family sense of coherence (Table 4).

The hypothesized model yielded an inadequate fit. Non-significant paths, including the direct effect of family sense of coherence and social support on the physical component of quality of life, the direct effect of stress on social support and the relation between physical and mental components of quality of life, were removed from the model. The modified model (Fig. 2) provided a good fit for the data (χ^2 [4] = .78, $p = .94$, GFI = .99; CFI = 1.00, TLI = 1.00, IFI = 1.00, RMSEA = .00), with all individual paths significant at $p < .05$. The results showed that family sense of coherence and social support had a direct effect on the mental health component of quality of life and depressive symptoms, but not on the physical component of quality of life. Family sense of coherence also mediated the effect of

Table 1 Demographic characteristics of the participants ($n = 267$)

Variables	n (%)
Age (years), M (SD)	32.0 (4.4)
Education level	
Primary	1 (0.4)
Secondary	97 (36.3)
Tertiary	35 (13.1)
University or above	134 (50.2)
Employment status	
Unemployed	51 (19.1)
Employed	216 (80.9)
Monthly household income	
<HK$10,000	23 (8.6)
HK$10,000–20,000	41 (15.4)
HK$20,001–30,000	56 (21.0)
HK$30,001–40,000	50 (18.7)
HK$40,001–50,000	36 (13.5)
>HK$50,000	61 (22.8)
Gestation	
1st trimester	32 (12.0)
2nd trimester	134 (50.2)
3rd trimester	101 (37.8)

Table 2 Means and SD of study variables ($n = 267$)

Variables	M (SD)
PCS	43.3 (7.9)
MCS	48.2 (8.7)
GHQ	24.1 (4.8)
FSOC	64.6 (9.4)
MOS-SSS	74.4 (14.6)
SRRS	231.7 (146.5)

PCS physical component scale of quality of life (SF-12), *MCS* mental component scale of quality of life (SF-12), *GHQ* general health questionnaire, *FSOC* family sense of coherence scale, *MOS-SSS* medical outcomes study social support survey, *SRRS* social readjustment rating scale

stress on the mental health component of quality of life and depressive symptoms. Social support had a direct effect on family sense of coherence. Stress had direct effects on both the physical and mental health components of quality of life. The final model accounted for 15 and 18 % of the variance in the mental health component of quality of life and depressive symptoms, respectively.

Discussion

The study provides evidence that family sense of coherence and social support facilitate positive adaptation during pregnancy by promoting women's quality of life and emotional well-being. Family sense of coherence also mediates the relationship between stress in the mental health component of quality of life and depressive symptoms among Chinese women during the transition to motherhood. The mean scores of the family sense of coherence for Chinese childbearing women were comparatively higher than those reported for high-school pupils in Israel [25]. Antonovsky [37] believed that the sense of coherence would be built up from experience during childhood and adolescence and become stable in adulthood. The greater life experience and older age of women in this study may be a possible factor contributing to a higher level of family sense of coherence. Furthermore, bearing a child may strengthen the meaningfulness of women's lives and enhance their sense of family coherence.

The direct effect of family sense of coherence on quality of life and depressive symptoms, and its mediating role between stress in quality of life and depressive symptoms are consistent with the salutogenic framework and previous studies that family sense of coherence may serve as a stress-resisting resource, providing the prerequisite for a good quality of life [19, 23]. Women with a high family sense of coherence are believed to consider stressors during pregnancy as challenges rather than threats [37]. Such

Table 3 Pearson's correlations between study variables ($n = 267$)

	1	2	3	4	5	6
1. Quality of life (physical component)	–					
2. Quality of life (mental component)	.05	–				
3. Depressive symptoms	.27**	−.65**	–			
4. Family sense of coherence	.04	.26**	−.38**	–		
5. Social support	.04	.28**	−.27**	.38**	–	
6. Stress	−.19**	−.25**	.22**	−.19**	−.04	–
7. Age	−.07	.18**	−.12	.16**	.02	−.17**

** $p < .01$

Table 4 Kruskal–Wallis test of the relationship between family sense of coherence and education and income ($n = 267$)

Variables	n (%)	Median	χ^2	p
Education level			3.37	.19
Primary and Secondary	98 (36.7)	66.0		
Tertiary	35 (13.1)	65.0		
University or above	134 (50.2)	66.0		
Monthly household income			23.68	<.001
<HK$10,000	23 (8.6)	57.0		
HK$10,000–20,000	41 (15.4)	60.0		
HK$20,001–30,000	56 (21.0)	66.0		
HK$30,001–40,000	50 (18.7)	66.0		
HK$40,001–50,000	36 (13.5)	67.0		
>HK$50,000	61 (22.8)	66.0		

confidence may enable the women to effectively mobilize available resources to cope with the demands of motherhood, thus promoting a good quality of life and reducing depressive symptoms. The findings are in accordance with previous studies that families with strong family sense of coherence are more likely to be well adapted [17], have better quality of life [19] and less emotional disturbance during stressful encounters [25].

The positive association between social support and family sense of coherence suggests that women having poor support resources are more likely to show a decrease

in their family sense of coherence. The findings support Antonovsky's view [38] that the availability of generalized resistance resources such as social support is crucial for building a strong family sense of coherence. Women who perceive that social support is available at their disposal when needed may have a better chance of dealing with the challenges of motherhood, which in turn strengthens their belief that life is comprehensible, manageable and meaningful. On the other hand, perception of poor social support may leave childbearing women feeling that life is difficult to manage and not very meaningful. The result is in accordance with the work of Wickens and Greeff [39], who found a positive relationship between internal and external sources of support and family sense of coherence. Similar to findings from previous study [9], women who perceived having inadequate social support tended to report their general mental health as poor and to report a higher level of depressive symptoms.

In addition to social support, women with higher family income also reported stronger sense of family coherence. Consistent with Antonovsky's view [38], socio-economic status is an important factor in shaping the generalized resistance resources at one's disposal, which in turn, may influence individual's family sense of coherence. It is possible that adequate financial resources may provide women with opportunities that allow more predictability in life experiences during pregnancy, thus leading to greater participation in meaningful pursuits of bearing a child.

Fig. 2 Path model of relationships between study variables
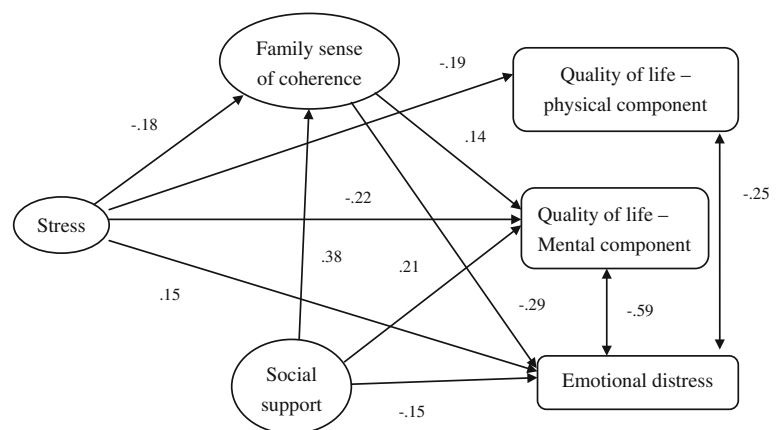
Adequate household income also may contribute to the perception that there are resources at women's disposal to meet demands of new motherhood, thereby enhancing a sense of control and manageability of family life and a stronger sense of family coherence. The finding is consistent with previous study that has found a relationship between economic hardship and low sense of coherence [45]. Education level was not associated with family sense of coherence in Chinese childbearing women. According to Antonovsky [38], the strength of an individual's sense of coherence develops throughout childhood and adolescence and stabilizes at adults around age of 30 years. Given that the majority of Chinese childbearing women in this study were well-educated adults having at least a secondary school education, they might have acquired the necessary knowledge and skills for the development of family sense of coherence, thus, making it difficult to differentiate the impact of education on family sense of coherence.

The mean score for the physical component of quality of life of childbearing women in the present study was comparatively lower than those of the Hong Kong general adult population [30], which probably reflects the physical demands of pregnancy on the women. The findings are consistent with previous studies to the effect that the physical changes accompanying pregnancy can alter women's ability to function in their various roles, ultimately affecting their quality of life [6, 8, 40]. Both the mean scores for the physical and mental components of quality of life of Chinese childbearing women were comparatively lower than those reported in a survey of 451 pregnant women in Canada [40]. The traditional Chinese culture stipulates that pregnant women should follow an array of dietary and behavioural proscriptions, such as no spicy or iced foods, moving heavy objects, climbing up or down, or wearing of high-heeled shoes, in order to maintain the health and safety of the foetus [41]. Lee et al. [41] found that adherence to these traditional taboos seemed to create tension and conflict in the Chinese family, which substantially affect the physical and emotional well-being of childbearing women. It is possible that Chinese women were obliged to conform to the traditional rituals and make substantial changes in their personal lives, which may have led to the perception of poorer quality of life during pregnancy compared with women in Western societies. The negative association between depressive symptoms and quality of life is in line with previous studies that the presence of psychological distress has a substantial impact on women's quality of life during pregnancy [6–8]. Depressive symptoms has been shown to be associated with a decrease in natural killer cell activity and lymphocyte proliferation [42], which can lead to alterations in functioning and affect women's perception of their quality of life.

Although the direction of the relationships between study variables is based on theoretical models, care must be taken in drawing firm conclusions as the data in this survey are cross-sectional in nature, and directionality cannot therefore be inferred. The majority of participants in this study were well educated, of middle socio-economic status and recruited from a university-affiliated hospital, and the results may not therefore be entirely generalizable. Future studies across socio-economic class and in various geographical settings are needed to examine the relative contribution of these factors to family sense of coherence and quality of life during childbearing.

The present findings provide evidence that the quality of life of pregnant women is influenced not only by the intensity of the stressors they experience, but also by their health resources, such as the family sense of coherence concerning their situation and perceived availability of social support. The results of this study contribute to the theoretical development and clinical applications of applying the concept of family sense of coherence to the care of pregnant women. Knowledge of the role of family sense of coherence in maternal adaptation can equip health professionals for developing culturally sensitive care that incorporates the concept of family sense of coherence in program design to assist pregnant women to combat the stress and demands of the maternal role. Intervention strategies could be developed to help women identify their internal and external resources to strengthen their belief that family life is comprehensible, manageable and meaningful, thereby promoting a stronger sense of family coherence. Furthermore, opportunities should be provided for women to interact with other childbearing families at the antenatal classes to foster mutual support and to develop a support network. Women should also be made aware of the availability and utilization of resources for dealing with stressful encounters during pregnancy. Finally, our results show that family sense of coherence and social support are vital resources for better quality of life and emotional well-being. Longitudinal research is needed to examine this relationship more closely across the perinatal period. Further, an intervention study is needed to determine whether family sense of coherence contributes to higher quality of life and lower risk of perinatal depression. In summary, this study contributes to the growing body of literature supporting the salutogenic concept of family sense of coherence as a health resource, influencing quality of life and emotional well-being during the transition to motherhood. The results of this study provide contextual evidence to develop effective interventions focusing on building family sense of coherence and foster social support among pregnant women, thereby promoting a better quality of life and reducing the risk of depression in the perinatal period.

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