Boundary ambiguity,coping patterns and depression in mothers caring for children with epilepsy in Taiwan

Pei-Fan Mua, Hsun-Chih Kuo, Kai-Ping Chang

Institute of Clinical Nursing, National Yang-Ming University, P.O. Box 13-247, Taipei, Taiwan, ROC
National Chengchi University, Taipei, Taiwan, ROC
Doctor of Department of Pediatric, Taipei Veterans General Hospital, Taipei, Taiwan, ROC

Abstract

A descriptive correlational study was designed to examine the relationships between boundary ambiguity,coping strategies and depression in mothers caring for children with epilepsy. A total of 316 mothers were recruited from three medical centers in Taiwan. A pilot study established the reliability and validity of the Chinese language version of the Coping Health Inventory for Parents (CHIP). Results showed that boundary ambiguity was negatively associated with the total score by CHIP for family coping patterns I and II. In addition,family coping patterns I,II,and III were negatively associated with depression in the mothers. These results provide insight into family stress management strategies that are unique to these mothers and are associated with the relationships between boundary ambiguity, family coping patterns and outcome. The results also suggest methods to improve family centered nursing intervention, which may help mothers to establish effective interactions with their epileptic children as well as develop for them effective coping patterns to manage family stress.

1. Introduction

In Taiwan,epilepsy is referred to as the ''sudden craziness'' (''yan-dan-fun'') and this helps to perpetuate the stigma of epilepsy. Although for 70–80% of patients, the disease is successfully controlled using medicine, the negative social stigma of epilepsy along with uncertainty of the effect of the disease on a child's developmental status contribute to long-term family stress and impact on family roles and functions as well as parental coping patterns and outcomes (Austin et al.,2002 ; Mu et al., 2001; Seidenberg and Berent,1992).

A family unable to identify with members of the family system and unable to clarify their roles are subject to unrealistic expectations and cannot reorganize. Thus ,such families remain in limbo and experience family boundary ambiguity (Boss,1988). Epilepsy is a fragmented illness and polysemic in nature. A seizure can be frightening and potentially damaging to the brain, allowing epilepsy to create uncertainty about a child's developmental processes and behavior (Fossum and Mason,1986 ; Oostrom et al.,2001). A family having a child with epilepsy subjects itself to self-regulation in order to organize their roles and rules, and attempts to develop consistent patterns of interaction (Austin et al.,1998 ; Hoare and Hussell,1995).

Most studies about families dealing with a child with epilepsy focus on the developmental issues of the child (Lendt et al.,2000),paternal coping strategies (Austin and McDermott,1988 ; Mattie-Luksic et al.,2000),the child's reactions (Austin and Dunn 2000; Austin et al., 2001; Chen et al.,2001 ; Shore et al.,2002),and family functioning (Mu et al.,2001). Few studies have focused on the relationships between the mother's perceptions of family boundary ambiguities, the family coping patterns and the maternal mental health.

2. Study background

Boundary ambiguity is defined as the form and function of family boundaries, role assignments, and

rules determining who is inside and outside of the family system (Boss,1988). A child with epilepsy creates ambiguity in family boundaries because of the unpredictable nature of the seizures as well as the uncertain developmental status of the child. Western and Chinese studies indicate that the boundary ambiguity level is significantly related to the primary caregiver's ability to contribute to the family's coping abilities (Buehler and Pasley,2000 ; Mu et al.,2001 ; Tomlinson et al.,1999). One study has reported that boundary ambiguity is able to predict maternal depression in families caring for an epileptic child in Taiwan (Mu et al.,2001). However, a gap remains in our knowledge of this area and this is concerned the association between maternal coping patterns and mother's experience of depression symptoms in relation to maternal perceptions of family boundary ambiguity.

Take and McCubbin (2002) defined family coping as a process through which families manage excessive demands and depleted resources, while realizing that changes are necessary to restore functional stability and family well being. Burr and Klein (1994) identified family coping as a processes of family adaptation that involves coping strategies within the family and the community. Family coping involves managing several dimensions of family life simultaneously. Five domains have been identified: (1) the successful maintenance of communication and family organization; (2) the promotion of member independence and self-esteem; (3) the maintenance of the family bounds of coherence and unity; (4) the maintenance and development of social supports for transactions with the community, and (5) the maintenance of effects that control the impact of the stressor and the amount of change within the   family unit. McCubbin et al. (1983) studied children with cystic fibrosis and identified three types of parental coping patterns: (1) the maintenance of family integration, optimism and cooperation; (2) the maintenance of self-esteem and social and psychological support, and (3) an understanding through communication with healthcare providers and observation of other children with similar health problems. Family coping strategies are associated with the adaptation of families to children with developmental disabilities or a chronic illness (Auslander et al.,1993 ; Failla and Jones,1991). However, the efficiency of coping strategies and the effect of such strategies on the ability of mothers to cope with a child having an illness with a social stigma, such as epilepsy, are still unknown.

Depression is a primary emotional reaction of caregivers of family members having a chronic illness (Hatton et al.,1995) and serves as psychological outcome for caregivers (McCubbin et al.,1983 ; Patterson, 1988). Families involving children with a physical or mental disease such as epilepsy may experience chronic sorrow and uncertainty about the child's treatment outcome. When incongruence exists between the psychological and physical presence of the ill child within the family system, ambiguity about the family boundaries becomes a problem (Boss et al.,19 88; Mu et al.,20 01). In situations where family boundaries are ambiguous, mothers manage stress by being, in turn, strongly bounded with or detached from their children, trying to understand their children's behavior, feeling uncertainty about their parenting style, and developing unrealistic expectations of their children. Development of effective coping patterns allows mothers of epileptic children to release stress and improve family functioning.

Chinese families focus on male children. Few studies have investigated the effect of gender on parental adjustment to a child's illness (Eiser et al.,1992). Some reports indicate that a child's mental state may complicate the child's condition and affect the mother's ability to adjust to the child's stress (Taainla et al.,2002 ; Weiss,2002). The amount of time that has elapsed since diagnosis affects the development of stable coping patterns and the mother's adaptation outcome. Studies have shown that mothers experience extremely high stress levels in the first two months of a child's treatment for a malignancy (Mu et al.,2001),which is similar to what occurs in a family in the initial months after a child is diagnosed with a seizure disorder, when the entire family becomes destabilized (Shore et al.,1 998). Another factor influencing a mother's degree of depression is educational level. Previous studies report that the primary caregiver's educational level represents a knowledge base and affects his or her ability to adapt to change (Mu et al.,2 001). Thus, this study investigated the influence of demographic variables, boundary ambiguity and coping patterns on the depression level of mothers with a child diagnosed with a seizure disorder.

2.1. Aim

This study addressed the following research questions:

(1) What is the effect of the child's sex, the mother's level of education, the child's mental status and the time of diagnosis on the mother's experience of depression?
(2) What are the relationships for mothers between boundary ambiguity, coping patterns and depression

level?

3. Methods

3.1. Design

A descriptive co-relational design was used for this study. The convenience sample consisted of 316 mothers recruited from three medical centers in Taiwan. All subjects were living with a child who was receiving treatment or regular monitoring at the clinic for epilepsy and had been diagnosed at least two months previously.

3.2. Sample

Most (95.6%) of the 316 mothers were married. The duration of marriage ranged from 1 to 30 years (mean=12.9,SD=5.5). Mean maternal age was 36.8 years (SD= 6.2, range: 16.6–56.8). Mean paternal age was 39.8 years (SD= 7.1, range: 17.6–70.0). Among 309 fathers, most (n=302; 97.7%) of the fathers were employed, while only 41.5% of the mothers were employed. The highest educational level attained was graduate was school for 13.1% of the fathers and college for 23.7% of the mothers. One hundred fifteen (36.4%) of the families were extended families and 184 (58.2%) were nuclear families. Table 1 shows the demographic data of the families in the study.

The mean age of the 316 children was 9.4 years (SD=4.9, range: 0.6–19.0). More than half (57.6%) of the children were male. Based on the classification of seizure as proposed by International League Against Epilepsy (1981), most of the children were diagnosed with generalized seizures (n=150; 47.47%) or partial seizures (n=124; 39.24%). The mean number of years elapsed since diagnosis was 2.5 (SD=1.2; range: 0.2–15.9). Of the children,130 (41.1%) had had at least once seizure attack in the 2 months before data collection and 186 (58.9%) had had no seizure attack in 2 months before data collection. Medication was still been taken by 96.2% of the children who had been prescribed such (n=186). A small majority (57%) of the children suffered from no mental retardation. The demographic data for the children is shown in Table 2.

3.3. Measures

3.3.1. Boundary ambiguity scale—for children with illnesses

The boundary ambiguity scale for children with a chronic illness (Mu et al.,2001) is a 12-item self-report instrument. The boundary ambiguity scale for parents with chronically ill children was derived from the concept of boundary ambiguity (Boss,1988),literature review, and results of previous qualitative studies concerning the experiences of parents whose children were admitted to the PICU (Mu,1999 ; Mu and Tomlinson,1997) or whose children developed a malignancy or epilepsy (Mu et al.,2001 ; Mu,2003).

Table 1
Demographic data for study subjects ($N=316$)

Item	f	P
Marital status		
Married	302	95.6
Divorced	4	1.3
Separate	3	0.9
Widowed	3	0.9
Single	3	0.9
Cohabit	1	0.3
Length of marriage (years)	mean $= 12.9$, SD $= 5.5$, range:1.0–30.0	
Father's age (years)	mean $= 39.8$, SD $= 7.1$, range:17.6–70.0	
17–29	19	6.1
30–39	148	47.9
40–49	127	41.1
>50	15	4.9
Mother's age (years)	mean $= 36.8$, SD $= 6.2$, range: 16.6–56.8	
16–29	36	11.4
30–39	185	58.5
40–49	89	28.2
>50	6	1.9
Father employed		
Yes	302	97.7
No	7	2.3
Mother employed		
Yes	131	41.5
No	185	58.5
Father's education		
Elementary school	32	10.4
Junior high school	53	17.1
High school	122	39.5
College	61	19.7
Graduate school	41	13.3
Mother's education		
Elementary school	54	17.1
Junior high school	59	18.7
High school	128	40.5
College	75	23.7
Family type		
Extended family	115	36.4
Nuclear family	184	58.2
Other	17	5.4

The scale represents the level of family boundary ambiguity for a family with a chronically ill child. A higher score represents a worse perception by the parents of the family boundary ambiguity related to the ill child. The structure of the scale included two factors: the parents' psychological involvement with the child and the child's role and position in the family. Each item was rated on a 4-point Likert scale ranging from strongly disagree (1) to strongly agree (4).

Table 2
Demographic Data of Children (N=316)

Item	f	P
Child's age (yrs)	M= 9.43, SD= 4.85, Range: 0.6–19.0	
0–3	53	16.8
4–7	82	26.0
8–12	92	29.1
13–15	57	18.0
16–20	32	10.1
Child's sex		
Male	182	57.6
Female	134	42.4
Type of seizures		
Partial (focal, local) seizures (N=124)		
Simple partial seizures	29	9.2
Complex partial seizures	62	19.6
With impairment of consciousness at onset	1	0.3
Partial seizures evolving into secondarily generalized seizures	32	10.1
Generalized seizures (N=150)		
Absence seizures	9	2.8
Myoclonic seizures	25	7.9
Clonic seizures	23	7.3
Tonic seizures	16	5.1
Tonic-clonic seizures	43	13.6
Atonic seizures	3	0.9
Others	31	9.8
Unclassified epileptic seizures	34	10.8
Missing from the system	8	2.5
Treatment phases (yrs) M=2.53, SD=1.24, Range: 0–15.9		
0–1	92	29.1
1.1–3	79	25.0
3.1–6	59	18.7
6.1–12	75	23.7
12.1–15	9	2.8
15.1–20	2	0.6
Child suffering from mental retardation		
Yes	136	43.0
No	180	57.0

The scale has high internal consistency, with a reliability coefficient of 0.72 to 0.79 and construct validity (Mu et al.,2001). The reliability coefficient for the use of the tool in this study was 0.78. Principal components analysis (varimax raw rotation) revealed three factors, a result consistent with the theoretical framework of boundary ambiguity for children with illness, which consists of two main factors: parent's psychological involvement with the child and the child's role and position in the family. The first factor consists of 6 items (item numbers 1,4, 5,8, 10,and 12); the second factor consists of 7 items and included two themes: social life (item numbers 2,3,5, and 6) and family life (item numbers 7,9, and 11). In the

principal components analysis (varimax raw rotation),an Eigen-value of 3.85 for factor I explained 32.08% of the variance; within factor II, an Eigen-value of 1.68 for factor II-1 accounted for an additional 13.99% of the variance, and Eigen value of 1.03 for factor II-2 accounted for an additional 8.6% of the variance. The factor loadings were 2.7 for factor I,2.3 for factor II-1, and 1.6 for factor II-2,which are considered acceptable (Zhan and Shen,1994 ; Salyer,1996). The communalities (extraction principal components, rotation varimax raw, N=316) are shown in Table 3.

Table 3
Communalities (extraction principal components, rotation varimax raw ($N = 316$)

Item no.	Abbreviated items	Factor I	Factor II	
			Family life	Social life
01	Feel guilty when leaving the child alone	0.472		
02	Organize life		0.750	
03	Make a new friend		0.764	
04	Concern about the child	0.739		
05	Have no time for self		0.758	
06	Expectations of their child		0.490	
07	Not sure how much to do for child			0.704
08	Make child the first priority	0.663		
09	Family does not agree with me doing things for the child			0.628
10	Worry about the child	0.658		
11	Do not look like my child			0.673
12	Think about the child	0.761		

PIa: Parent's psychological involvement with the child: 1, 4, 5, 8, 10, 12.
PIb: The child's role and position in the family.
PIb-1: Toward mother or families' social life: 2, 3, 5, 6.
PIb-2: Toward mother or families' family life: 7, 9, 11.

3.3.2. Coping Health Inventory for Parents (CHIP)

The Coping Health Inventory for Parents (McCubbin et al.,1996),which is a 45-item,self-report questionnaire rated on a 3-point Likert scale, was used to assess parental coping patterns for children with an illness. Parents reported the helpfulness of each coping behavior. CHIP consists of three patterns: Pattern I pertains to maintaining family integration, cooperation, and an optimistic view of the situation; pattern II focuses on maintaining psychological stability, self-esteem, and social support; pattern III deals with understanding the healthcare situation through consultation with healthcare professionals. CHIP has a high internal consistency and adequate construct validity across diverse samples in Western cultures (McCubbin and Thompson,1991).

A pilot study established the reliability and validity of the Chinese version of CHIP. The instrument was processed by double translation. Three family studies experts and two pediatric nurses in Taiwan evaluated the accuracy of the translations and the relevance of the instrument using a 3-point Likert scale. Results indicated a very high agreement on the validity of the items. The internal reliability of CHIP was established through 190 randomly chosen parents whose children were admitted to a hospital for medical-surgical health problems. In the pilot study, the coefficient alpha was 0.94 for the total scale of CHIP,0.90 for coping pattern I,0.87 for coping pattern II and 0.82 for coping pattern III. In Taiwan, another study showed that the coefficient alpha for the total CHIP scale was 0.94 and 0.91 for factor I,0.89 for factor II,and 0.82 for factor III (Mu, 2001).

3.3.3. Beck Depression Inventory (BDI)

The beck depression inventory (BDI) is a 21-item instrument for measuring the cognitive, affective, motivational and neuro-vegetative symptoms of depression in adults. The BDI was derived from clinical observations about the attitudes and the symptoms frequently displayed by depressed psychiatric patients but infrequently by non-depressed psychiatric patients (Beck et al.,1979). The BDI possesses high internal consistency reliability (alpha=0.86) and moderate validity with the physician ratings of depressive symptoms (Beck et al.,1997). The Chinese version of the BDI has well-established internal consistency (Cronbach's alpha=0.88) and construct validity (Ko et al.,1996 ; Mu et al.,2001). Each item of the scale was scored using four self-assessment statements. Each statement was scored from 0 to 3,with the total score ranging from 0 to 63. In this study, a Chinese version of the BDI having a reliability coefficient of 0.88 was used.

3.4. Ethical considerations

Approval by the Research Review Boards of three hospitals was obtained prior to data collection. Primary care physicians at an epilepsy day-clinic reviewed patient charts to select potential subjects who met study criteria. Well-trained research assistants explained the purpose of the study and invited mothers to participate into the study. Mothers who agreed to participate signed a consent form; the mothers' rights of self-determination and privacy were respected. Thirty (9%) of the mothers who were asked to take part in this research declined to participate. Participants completed a general family information form and the three instruments anonymously, which were returned to the research assistants directly or by mail.

4. Results

4.1. Description of the subjects and univariate analysis of major variables

Descriptive statistics were computed for mother's perception of boundary ambiguity, coping strategies and depression (see Table 4). The mean score for the study sample on boundary ambiguity was 30.2 (SD=4.6) with a range of 13–43. These results represent a lower maternal boundary ambiguity score compared to the score obtained earlier from 100 Taiwanese mothers (mean=33.0,SD =4.8) whose children developed a malignancy (Mu et al.,20 02). The mean total CHIP score was 81.6 (SD=20.6) with a range of 23.8 to 131.1, which is lower than that reported by McCubbin et al. (1996) for a diabetes mellitus study (mean=82.0, SD=18.7). The mean scores were 38.7 (SD=9.3; range: 9.8–57.0) for coping pattern I of CHIP,26 .4 (SD=9.4; range: 5.8–53.0) for coping pattern II, and 16.2 (SD=4.4; range: 3.7–24.0) for coping pattern III. The means scores for coping patterns I and II were lower than those reported by McCubbin et al. (mean=39.8,SD =8.4; mean=28.3,SD=8.5),while the score for coping pattern III was higher than that reported by McCubbin et al. (mean=13.9,S D=4.8). The mean score on the Beck depression scale was 8.9 (SD=9.0; range: 0–45).

Table 4

Mean and standard deviations for mother's perception of boundary ambiguity, coping strategies, and depression (N=316)

Variables	Mean	SD
1. Boundary ambiguity	30.2	4.6
2. Coping strategies	81.6	20.6
A. Pattern I: Maintaining family integration, cooperation, and an optimistic view of situation	38.7	9.3
B. Pattern II: Maintaining social support, self-esteem, and psychological well-being	26.4	9.4
C. Pattern III: Understanding the medical situation through communication with other parents and medical staff	16.2	4.4
3. Depression	8.9	9.0

Table 5

Relationship between the child's sex and child's mental retardation with family type and maternal depression (N=316)

Dependent variable	Independent variable Mother's depression			
	Mean	SD	t	p
Child's sex				
Male	9.01	9.17		
Female	8.72	8.78	0.28	0.784
Child's mental retardation				
Yes	19.90	10.10		
No	7.51	7.83	−3.11	0.002
Family type				
Nuclear family	9.24	9.47		
Extended family	8.66	8.51	0.52	0.597

4.2. Effect of children's and families' characteristics on the mother's experience of depression symptoms

The child's sex (t=0.28, p=0.784) had no significant influence on mother's experience of depression

symptoms. As predicted, the presence of mental retardation in the child had a significant impact on the mother's depression symptoms (t=_3.11, p=0.002). Family type did not significantly affect the depression level of the mother (t=0.52; p=0.597) (see Table 5),but the mother's educational level did significantly affect maternal depression symptoms (see Table 6). Mothers whose highest educational level was elementary school or lower had a significantly higher depression score (mean=10.1; SD=9.2) than did those mothers with a college education (mean=6.1; SD=6.9; t=2.58, p=0.0116). Mothers whose highest educational level was high school also had a significantly higher depression score (mean=10.0; SD=9.3) than did college educated mothers (t=3.32, p=0.001). No correlation was found between the number of years elapsed since diagnosis and mother's depression level (r=_0.029, p=0.619) (see Table 7).

Table 6

Effect of maternal education level on maternal depression (N = 316)

	N	Mean	SD	Comparisons
Mothers' education level				
(1) ⩽Elementary school	49	10.1	9.2	(1)>(4) with $t = 2.58$, df $= 82.8$, $p = 0.0116$
(2) Junior high school	52	9.1	9.9	(2)>(4) with $t = 1.89$, df $= 84.9$, $p = 0.0617$
(3) High school	122	10.0	9.3	(3)>(4) with $t = 3.32$, df $= 184.84$, $p = 0.001$
(4) ⩾College	73	6.1	6.9	

Table 7
Relationship between the duration of the diagnosis phase and the maternal experience of boundary ambiguity, coping strategies, and depression (N = 316)

	X_2	X_3	$X_{3.1}$	$X_{3.2}$	$X_{3.3}$	X_4
X_1	0.013	0.002	0.021	0.015	−0.052	−0.029
X_2	—	−0.177*	−0.181**	−0.140*	−0.083	0.386***
X_3	—	—	0.907***	0.898***	0.828	−0.240***
$X_{3.1}$	—	—	—	0.663***	0.699***	−0.281***
$X_{3.2}$	—	—	—	—	0.636***	−0.155*
$X_{3.3}$	—	—	—	—	—	−0.126*
X_4	—	—	—	—	—	—

Note: *: $p < 0.05$; **: $p < 0.001$; ***: $p < 0.0001$.
X_1: The amount of years elapsed since diagnosis, X_2: Boundary ambiguity, X_3: Family coping strategies (total scores of CHIP), $X_{3.1}$: Coping pattern I, $X_{3.2}$: Coping pattern II, $X_{3.3}$: Coping pattern III, X_4: Depression.

4.3. Relations between boundary ambiguity and coping strategies and depression level of mothers

Pearson correlation matrix was used to examine the relationships between boundary ambiguity, coping strategies and maternal depression. A negative correlation existed between boundary ambiguity and the total CHIP score (r=_0.177, p=0.013). Boundary ambiguity negatively correlated with family coping pattern I (r=_0.181, p=0.007) and coping pattern II (r=_0.140, p=0.043). No association was found between boundary ambiguity and coping pattern III (r=_0.083, p=0.202) (see Table 7). Boundary ambiguity was positively correlated with the mother's experience of depression symptoms (r=0.386; p=0.000). A negative correlation existed between total CHIP score, coping pattern I, coping pattern II, and coping pattern III and the level of maternal depression (r=_0.240, p=0.000; r=_0.281, p=0.000; r=_0.155, p=0.013; r=_0.126, p=0.032,respectively).

5. Discussion

The results of this study provide evidence of maternal stress management while caring for a child with epilepsy within the family structure, and illustrate a mother's unique experience of boundary ambiguity,

efficiency coping strategies and psychological outcome in relation to a family facing an illness with a negative social stigma.

The child's sex did not influence maternal depression level. A child experiencing the social stigma of an illness such as epilepsy affects mothers in a similar manner not withstanding the child's sex and this agrees with the results of a previous study investigating a mother's management of a child with a malignancy in Taiwan (Mu et al.,2002). Children who were mentally retarded significantly affected their mothers' depression level, due to the possibility of additional health problems and the social and psychological demands that may possibly develop in the future (Lin et al.,2003 ; Saloviita et al.,2003). These results are consistent with additional reports that indicate a family with a mentally retarded child experiences impacts on parental distress, develops unique family caring functions, and creates specific family demands (Emerson,2003 ; Failla and Jones, 1991). Special caring strategies and domains should be developed to help mothers reduce boundary ambiguity and manage family stress within a family having a child with mental retardation and epilepsy.

The amount of time elapsed since diagnosis may not be an accurate indicator of maternal stress management, because the ability of a mother to cope can be affected by factors such as intrafamily characteristics (personalities, family member perceptions) and interfamily features (family communication styles, problem-solving strategies, family resources).

Mothers with a college education had the lower level of depression compared to mothers who had achieved only an elementary or high school education, indicating that higher education enhances a person's ability to manage such stressful situations. This result indicates that a special concern should be taken regarding strategies and content preparation for appropriate nursing intervention when the mothers involved have only an elementary or high school education.

Boundary ambiguity is a family structure variable which represents the mother's perception of a lack of clarity in the child's role within the family, as well as the realization that they are establishing new and appropriate expectations of the child's roles and tasks within the family, especially the child's self-care competence. Another significant finding of this study is that the mother's experience of boundary ambiguity is positively correlated with depression, suggesting that while mothers experience incongruence between the expected and actual roles of a child and the maintenance of family boundary integrity, the mother experiences great difficulty achieving stress management. This result also indicated that mothers experience significant mental distress when they are uncertain of a child's role and function within the family and thus have an ambiguous parent-child relationship. These results support findings that a mother's mental health is enhanced by family members who have adequate emotional bounds and whose roles and functions are clear to each other (Burr and Klein,1994 ; McCubbin and Dahl,1985).

With regard to reducing boundary ambiguity, nurses should call family meetings to help families to clarify the child's illness and psychosocial abilities and help an understanding of what has happening to the family members. Empowered families, especially the mother, are able to define the child's situation and prognosis thus can clarify the child's roles and functions in the family and the trend of their future development. Once the child's roles and functions in the family are clear and understood by the family, the family stress becomes manageable. Furthermore, it is possible for nurses to assist families to decide on their parenting styles and the appropriate interaction patterns with the child in order to help build the child's self-care ability and to cope with developmental concerns. Helping mothers to restructure their life by, for example, reorganizing family roles and rules or rebuilding the mother's social activities will have a balancing effect on the developments among family members.

Boundary ambiguity was negatively correlated with coping pattern I (maintaining family integration, cooperation, and an optimistic view of the situation) and coping pattern II (maintaining social support, self esteem, and psychological well-being),indicating that the most efficient maternal coping patterns reduced boundary ambiguity by maintaining the family bounds of coherence and unity and family boundary integrity. Furthermore, mothers with an optimistic perspective dealt effectively with the negative social stigma of epilepsy and internally helped their children accept their epilepsy and also established appropriate goals for the children's development and growth. An optimistic perspective on the situation also helped mothers externally to maintain their social interactions with the community and build family resources. The mother's perception of the child's role and position in the family was associated with the child's self-esteem and ability to communicate with society. Maintaining family self esteem and the child's independence are important coping strategies for families who must manage the stress of the social stigma of having a child with epilepsy. In other words, a mother's psychological strength, which allows her to challenge the social stigma of epilepsy, is vital as a means to clarify her child's role and function within the

family. These results help explain why some children with epilepsy are overprotected by their families and therefore experience a slower developmental process than children without a chronic health condition. Nurses should help mothers to reduce boundary ambiguity by focusing on enhanced family cohesion, empowerment of the family's self-esteem, and by the establishment of family support groups to restructure the meaning of child's illness and thus help to reduce social stigma.

Maternal coping patterns I,II, and III were all negatively associated with the mother's experience of depression symptoms, indicating that maintaining family cohesion and integrity, psychological strength, and effective patterns of medical communication were important coping strategies for reducing the mother's distress and maintaining her mental health.

Family coping strategy I focuses on strengthening family life and relationships, and maintaining a positive parental outlook on life with a chronically ill child. It is associated with family interpersonal relationship dimensions. Families that involve a child with epilepsy must provide long-term care and support for the child as well as manage daily family life. This coping pattern may be critical for successful maternal stress management. Nurses could strengthen the family's positive interaction patterns with the child and create both hope and a positive view of life for such families by discussing how to prepare and manage the potential changes or transitions in the family.

Family coping pattern II focuses on maternal efforts to develop relationships with others, engage in activities that enhance feelings of individual identity and self worth, and manage psychological tension. A family with an epileptic child may feel shame due to the negative social stigma of epilepsy. It is important for families to maintain psychological strength and high self-esteem while they face the challenge of defining epilepsy for the family and deal with the stigma within a social context.
Nurses should act as a role-model to normalize the interaction between child and families. Nurses should create a supportive network for them and arrange self-support groups for the mothers to empower them to have a positive view of illness, help them to learn other strategies to mange social activities ,and to work towards an advocacy that establishes a positive social environment for this vulnerable population.

Family coping pattern III focuses on the parents' relationships with healthcare professionals and other parents of chronically ill children, suggesting that health
professionals have an important role during consultations with families to help the management of health-related stress. Because there is a special trust relationship between patients and health professionals, nurses should provide information related to health promotion and stress management for the families, and assist the family to establish a supportive social network for the child throughout development. Furthermore, case management or a long-term nursing care role should be built into health institutions to provide on-need suggestions and consultations that will allow them to help manage the stress throughout the child's development.

6. Conclusions

This study provides evidence that coping patterns I and II serve as intervention variables that are able to change a mother's perception of her child's role and function within the family as well as provide an adequate knowledge for her to establish an appropriate maternal–child interaction pattern regarding the child's developmental focus. The data also indicate that it is necessary for mothers to help their children establish an ability to carry out independent self-care. For families involving a child with a medical condition that carries a negative social stigma, family cohesion and boundary integrity, the mother's psychological strengths, and an understanding of the child's   condition obtained through communication with healthcare professionals is important coping strategies that allow mothers to manage stress efficiently.

To decrease the degree of the mother's perception of boundary ambiguity, nurses can clarify the child's condition and help families reorganize their roles, functions and interactions patterns with the ill child to maintain family boundary integrity. From a family health prevention perspective, enhancing family boundary integrity and encouraging maternal coping patterns I,II, and III are essential when assessing potential maladaptation of mothers of children who have a medical condition with a social stigma.

7. Limitations and recommendations
Generalization of the results of this study is limited due to the sampling methods. The boundary ambiguity scale for children with a chronic illness may be applicable to other populations but the concurrent validity and convergent validity have yet to be tested. Family coping is a complex phenomenon,

and other individual or dyad relationships or variables might contribute to maternal depression and these should be tested in order to expand our understanding of family coping processes. Additional potential research avenues include: determining whether the discrepancy between mothers' and father's perception of boundary ambiguity affect mothers' coping outcome; determining if a mother's personality affects her ability to utilize coping pattern II (psychological strength),and identifying the nature of the experience of families that face the challenge of the negative social stigma of epilepsy. Furthermore, the results of this study could be tested further by conducting a family centered nursing intervention study that integrates family boundary maintenance and effective coping patterns, including: the clarification of the child's condition (Mu et al.,2001)and the child's roles and tasks in the family; the establishment of appropriate parent–child interaction patterns regarding family boundary integrity; the enhancement of the mother's psychological strengths in the face of the negative social stigma of epilepsy, and the establishment of the mother's sense of mastery related to communication with healthcare professionals and society.

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