Published in final edited form as:

J Clin Nurs. 2018 August ; 27(15-16): 3205–3224. doi:10.1111/jocn.14500.

Family Functioning in the Context of an Adult Family Member with Illness: A Concept Analysis

Yingzi Zhang, MS, PhD [student]

University of Wisconsin-Madison, School of Nursing, Madison, Wisconsin, USA

Abstract

Aim—To describe and explain how the concept of family functioning has been used in the targeted sample of health literature on adult family members with illness.

Background—Understanding the influence of illness on family functioning is central to the provision of patient- and family-centered care. There is lack of consistency in utilizing family functioning which creates confusion about the concept and can interfere with theory development in nursing science. A clear conceptual definition of attributes of family functioning based on concept analysis could act as a guide in the development of instruments to assess family functioning, the design of family-based interventions, and their application in clinical practice.

Design—Concept analysis

Data sources—Academic Search Premier, ProQuest Research Library, Family & Society Studies Worldwide, PsychoInfo, SocINDEX, PubMed and CINAHL databases were searched within the last 20 years (1997 – Dec. 2016) using the terms “family function*” and “patient”. Studies of pediatric patients and non-English articles were excluded.

Method—Rodgers' evolutionary perspective

Results—The findings suggest that family functioning in the context of illness is defined as how well family members communicate with each other, fulfill family roles, accept family routines and procedures, cope with and adjust to family stress, and relate to each other.

Conclusion—Further research is needed to inform nurses' practice when assessing families or providing patient- and family-centered interventions to support family functioning across different sociocultural and political contexts. Further identification and evaluation of antecedents and consequences regarding family functioning from a nursing perspective.

Relevance to clinical practice—Having a comprehensive understanding of the attributes, antecedents and consequences of ineffective family functioning can facilitate healthcare providers' ability to identify strengths and potential targets to improve family functioning among their clients.

Keywords

Family Functioning; Concept Analysis; Adult Patient; Patient- and Family-centered Care

Introduction

Illness management is complex and takes place in various settings (i.e., home, hospital, community facility). Regardless of setting, the context of illness management includes family and may impact family functioning. The illness affects not only the patient, but also imposes changes in the whole family system (Northouse, 2012). Family members may be asked to provide physical and psychological care (e.g., assistance with daily meals, medications, physical activity, and emotional coping) to support the patients' illness recovery and management. The role family plays in adult family members' illness experience had been examined in adult patients with a variety of medical conditions, such as cancer, mental health issues, and other chronic illnesses (Friedmann et al., 1997; Mahrer-Imhof et al., 2013; Ozono et al., 2005); and has been studied in Western and non-Western cultures, by nurse- and non-nurse investigators (Geurtsen, van Heugten, Meijer, Martina, & Geurts, 2011; Wang & Zhao, 2012). In current health literature, family functioning is one of the main concepts explored with respect to the role of family in illness, and how illness impacts the family system (Çuhadar, Sava, Ünal, & Gökpınar, 2015; Khattak, 2007; Furgal et al., 2009).

Family functioning has been widely discussed in nursing practice, education, and research. In practice, family functioning is an essential component of patient and family centered care (PFCC). The Joint Commission in the United States (2010) has incorporated tenets of PFCC into their standards and requirements for health care organization performance. These strategies encourage the delivery of health care "...that is grounded in mutually beneficial partnerships among health care providers, patients, and families" (The Joint Commission, 2010, page 1). Patient- and family-centered care is valued and highlighted in clinical practice to support families and enhance family functioning during difficult times (Feinberg, 2012). Nurse researchers have developed theories regarding family functioning in the context of illness. For example, the Calgary Family Assessment and Intervention Model has been widely utilized as a theoretical underpinning for examining family functioning in nursing education, research, and family care (Leahey & Wright, 2016). Nurse researchers have also developed and tested instruments to measure family functioning, such as Feetham's Family Functioning Scale (Roberts & Feetham, 1982), Survey of Family Environment (Hohashi & Honda, 2012), and Family Functioning, Health and Social Support questionnaire (Åstedt-Kurki, Tarkka, Paavilainen, & Lehti, 2002).

The term "family functioning" has been used frequently in the context of health research. Previous literature suggests that effective family functioning results when the family members play their respective roles, successfully perform practical tasks, and maintain relationships within and beyond the family context (Çuhadar et al., 2015; Åstedt-Kurki, Tarkka, Rikala, Lehti, & Paavilainen, 2009). However, the conceptual and operational definitions of family functioning differ across studies, which limits the ability to compare and synthesize findings regarding the concept. For example, across three studies of families

of an adult patient with cancer or in palliative care, family functioning was conceptually defined as the daily processes families engage in to achieve goals and to support family members' health and development (Kühne et al., 2013); as a resiliency factor equivalent to family flexibility (Lim & Ashing-Giwa, 2012); or the concept was not defined (Schuler et al., 2014). Operational definitions included the Family Assessment Device (FAD), which assesses problem solving, communication, roles, affective involvement, affective responsiveness, and general functioning; the Family Relationships Index, which assesses cohesiveness, expressiveness, and conflict resolution; and the Family Adaptability and Cohesion Evaluation Scales-III (FACES-III), which measures adaptability and cohesion (Kühne et al., 2013; Lim & Ashing-Giwa, 2012; Schuler et al., 2014). Some similarities (e.g., roles, adaptability, communication/expressiveness, cohesion) and some differences (e.g., conflict resolving vs. behavior control) are evident in the conceptual and operational definitions used by these three research teams. This lack of consistency creates confusion about the concept and can interfere with theory development in nursing science. A clear conceptual definition of attributes of family functioning based on concept analysis could act as a guide in the development of instruments to assess family functioning, the design of family-based interventions, and their application in clinical practice.

Purpose

Although several health researchers have used the term, no concept analysis of family functioning in the context of an adult family member with illness is currently available. This concept analysis is necessary to clarify and distinguish attributes or characteristics of the concept from those of other related or surrogate concepts found in family-centered health research. By nature, the concept of family functioning is context-dependent. Families with different cultural, social and political backgrounds may have different perspectives on the composition and meaning of family. For the purpose of this analysis, family is used in the traditional sense: as blood related or legally adopted, in nuclear and/or extended families. The context of illness includes an adult family member with any acute or chronic illness receiving medical or rehabilitative care in any setting including a hospital, community care facility, home, or transitioning across care settings. Subsequent use of the term “patient” is meant to be inclusive of adult family members with illness, regardless of settings (home, community, or care facility).

Methods

Rodgers' Method

Rodgers evolutionary concept analysis was selected as the method for this study. Concept analysis provides a method by which one can “define the concept of interest in terms of its critical attributes or ‘essence,’ which typically is presented as a set of conditions that are both necessary and sufficient to delineate the domain and boundaries of the concept” (Rodgers, 2000, p. 77). Rodgers described concepts as abstract ideas that are influenced by “socialization and public interaction” (Rodgers, 2000, p. 78). Given that family functioning is context dependent, adopting an evolutionary perspective to concept analysis, as proposed by Rodgers (2000), is beneficial in clarifying and advancing understanding of the concept. Rodgers' method includes six steps: (1) identify the concept of interest and associated

expressions; (2) identify and select the appropriate setting and samples for data collection; (3) collect relevant data to identify attributes, contextual basis including interdisciplinary, sociocultural, and temporal (antecedents, consequences) variations, surrogate terms, and related concepts; (4) analyze and summarize data regarding characteristics of the concept; (5) identify an exemplar of the concept, if appropriate; and (6) identify implications and hypotheses for further development of the concept.

Search Strategy and Data source

Academic Search Premier, ProQuest Research Library (including PsychInfo), Family & Society Studies Worldwide, SocINDEX, PubMed, and CINAHL were searched using the terms “family function*” and “patient”. “Illness” was not included based on the assumption that the term “patient” implied some health condition. Terms used interchangeably with family functioning were not identified in advance because exploration of surrogate terms is a step in the concept analysis process. The search was restricted to those papers published within the last 20 years (1997 – Dec. 2016) with “family functioning” as the main concept, “patient” in the abstract, and “adult” (18 years old) age group. A span of 20 years was selected for this analysis because the historical shifts in the way Americans define family that began in the late 1960s have stabilized since 1990 (Roberts, 2008). Articles involving pediatric or normal populations, articles without a focus on family functioning, letters to editor, editorial commentary, published abstracts, and non-English report were excluded.

Zotero was used to organize the citations retrieved and delete duplicates, resulting in a total of 767 records. I screened all titles and excluded 158 records that were not relevant; I then read abstracts of the remaining 609 articles and identified 359 records that met inclusion criteria. A total of 253 records were published within the last 20 years: 46 by nurse authors (first or corresponding author) and 207 by non-nurses. Rodgers (2000) recommended that at least 20% of the total population should be sampled for concept analysis; $n=51$ in this case. Given the fact that papers by nurse authors comprised a small proportion of all articles, I oversampled them (selecting 40% rather than 20% of nursing articles) to ensure that results included nursing's conceptualization of “family functioning” in the context of an adult family member with illness. Records were sorted by publication date from oldest to newest, within categories of nursing and non-nursing publications. A random number table generated by SPSS 22.0 (NY: IBM Corp.) was used to identify and select $n=18$ articles from nurse authors, and $n=33$ articles from non-nurse authors (See flow diagram in Figure 1).

Data Abstraction

I read the full text of each article and abstracted data to a review matrix. The review matrix was organized with a column for each characteristic specified by Rodgers' method: (1) attributes, (2) contextual basis of family functioning including interdisciplinary, sociocultural, and temporal (antecedents and consequences) variations, (3) surrogate terms and concepts related to family functioning, and (4) reviewer notes regarding related theory, conceptual and operational definitions, and use of family functioning. Attributes were identified as terms used by the authors in explaining the meaning of family functioning or describing measurement of the concept. Interdisciplinary and sociocultural context were identified in the text as the authors' discipline and the social, political, and cultural context of

the study setting/environment. Temporal antecedents were identified in the text as factors noted to happen before or predict family functioning. Temporal consequences were identified in the text as factors noted to happen after or as a result of family functioning. Related concepts were identified in the text as terms that shared some attributes with family functioning. Surrogate terms were identified in the text as terms used interchangeably with family functioning. Other information was abstracted with quotes to illustrate definitions and use of the concept of family functioning. A second investigator reviewed a subset of articles and initial entries to the review matrix, and provided feedback and suggestions to refine data abstraction.

Analysis and Summary of Concept Characteristics

Data were analyzed by reviewing all the entries in a particular column. The main themes were noted across entries (Table 1). Results presented below summarize these themes.

Results

The selected publications included 47 quantitative studies (42 research articles and 5 dissertations), one qualitative study, one case study, and two narrative literature reviews. One literature review described interventions to support family functioning among mothers with high-risk pregnancies needing treatment or hospitalization (Martin-Arafeh, Watson, & Baird, 1999). The other review summarized evidence supporting nursing activities for the Nursing Intervention Classification, “Family Integrity Promotion” (Van Horn & Kautz, 2007). Neither review overlapped with the purpose of the current concept analysis.

Defining Attributes

Identification of attributes represents the primary interest of concept analysis. The attributes constitute a definition of the concept and make it possible to “identify situations that fall under the concept” (Rodgers, 2000, p. 91). Five attributes of family functioning were identified in the publications reviewed, including sense of cohesion, role fulfillment, problem solving, behavior control, and communication (Table 1).

Sense of cohesion was identified as an attribute of family functioning in 45 studies reviewed (e.g. Abilés et al., 2010; Ebrahimzadeh & Rajabi, 2007; Li et al., 2009). It referred to how family members perceive their bonds with other family members and the degree of commitment, help, and support that family members provide for one another (Bearslee et al., 2007; Saunders, 1997; Van Horn & Kautz, 2007). The individual's ability to find a balance between being emotionally involved with other family members and being independent from the family system was the central of sense of cohesion (Wisotsky et al., 2006, Abilés et al., 2011; Weinstock et al., 2013). In addition, cohesion was the basis of developing relationships with one another, as well as how family members interact and support each other to accomplish family tasks (Furgał et al., 2009; Krawetz et al., 2001, Beardslee et al., 2007).

Role fulfillment—The attribute of role fulfillment was identified in 33 of the reviewed studies (e.g. Chiang, Chen, Dai, & Ho, 2012; Khattak et al., 2007; Uehara, Kawashima,

Goto, Tasaki, & Someya, 2001). It referred to the recurrent patterns of behavior that achieve family functions and meet an individual's and family's needs (Brennan, 2000). Each family member had many roles depending on the subsystem within which they were functioning (Scionti, 2001). For example, one can be husband within the marital subsystem while also father in the parent-child subsystem (King et al., 2001; Krawetz et al., 2001; Knauth, 2000). The foci of family role fulfillment were on responsibilities for specific functions, such as provision of food, clothing, and money to family members (Chenhall, 1998; Li et al., 2009, Martin-Arafeh et al., 1999), and behaviors individuals engage in to fulfill their roles (King et al., 2001; Furgał et al., 2009, Chien et al., 2004). The literature reviewed indicated that the added demands of caregiving disrupt usual patterns of family life (Mercer et al., 1999; Geurtsen et al., 2011). Therefore, in order to meet family members' needs, family roles were negotiated and responsibilities were reallocated among family members (Van Horn & Kautz, 2007, Ozono et al., 2005; Furgał et al., 2009, Li, Lin, Ji, Sun, & Rotheram-Borus, 2009; Jiang et al., 2015, Çuhadar et al., 2015).

Problem solving—Thirty out of the 51 reviewed studies identified problem solving as an attribute of family functioning (e.g., Beardslee, Wright, Gladstone, & Forbes, 2007; Vera et al., 2015, Zhao et al., 2010). Problem solving concerned the family's ability to identify challenges, develop new knowledge or values, and resolve instrumental or affective problems and conflicts so that effective functioning was maintained or achieved (Chenhall, 1998; Chiang et al., 2012; O'Farrell et al., 2000). Problem solving was perceived as one of the most important indicators of family functioning and resources available to the family (Van Horn & Kautz, 2007). When an ongoing problem was unresolved, family functioning was threatened; the family might utilize available resources to find solutions, such as seeking advice from extended family or social network, reallocating family members' responsibilities, and creating new family routines (Mahrer-Imhof et al., 2013; Tammentie, Paavilainen, Tarkka, & Astedt-Kurki, 2009; Tramonti et al., 2014).

Behavior control—Of the 51 reviewed studies, 26 identified behavior control as an attribute of family functioning in the context of illness (e.g., Astedt-Kurki et al., 2009; Heru & Ryan, 2004; van der Poel & Greeff, 2003). It referred to the extent to which a set of standards, rules, and procedures guided family life (Weinstock, Wenzel, Munroe, & Miller, 2013). When facing an illness, families clarified and / or altered the rules and standards to adjust to the stressor (Jiang et al., 2015). Families developed standards of acceptable behavior to maintain stable family functioning in response to different situations, such as when a family member was experiencing physical or mental health issues, or when socializing within or outside of the immediate family (Çuhadar et al., 2015, Krawetz et al., 2001; Zhao, Yang, & Phillips, 2010). Researchers evaluated the degree of flexibility in reorganizing family rules and routines to determine the family adjustment to stress and response to developmental needs (Mahrer-Imhof et al., 2013; Jiang et al., 2015; Tramonti, Barsanti, Bongioanni, Bogliolo, & Rossi, 2014).

Communication—Twenty-five out of the 51 reviewed studies identified communication as a defining attribute of family functioning (e.g., Carnes, 2000; King et al., 2001; Wang & Zhao, 2012). Communication was defined as the transmission of information; exchange of

feelings and thoughts; and the way family members express themselves (Furğal et al., 2009; Chien, Norman, & Thompson, 2004). The reviewed literature focused primarily on verbal communication due to methodological difficulties in measuring non-verbal communication (Ozono et al., 2005; Krawetz et al., 2001). Affective and instrumental communication were prevalent (e.g., Chenhall, 1998; Simoneau & Miklowitz, 2001; Martin-Arafeh et al., 1999). Affective communication was described as the exchange of information related to feelings and emotional experiences (Latham, Sowell, Phillips, & Murdaugh, 2001). Instrumental communication was described as the exchange of information related to everyday life (Brennan, 2000). Although there was overlap between the two types of communication, some researchers found that families exhibited difficulties with affective communication while functioning well with instrumental communication (Chenhall, 1998; Scionti, 2001). Families experienced problems with communication when facing illness and made changes in communication patterns or content to adapt to the illness experience and successfully complete day-to-day tasks, such as discussion about caregiving, or encouraging the expression of feelings between patients and family members (Çuhadar et al., 2015; Heru & Ryan, 2004; O'Farrell, Murray, & Hotz, 2000).

The five attributes of family functioning were interrelated; none existed independently (Geurtsen et al., 2011; Krawetz et al., 2001; Weinstock et al., 2013). For example, problem solving required absorption of new information and adjusting family rules and family roles (behavior control, role fulfillment). To negotiate role changes among family members and establish new family routines or rules, clear and effective communication was desirable. The process of coping with illness (problem solving) may strengthen the emotional bond among family members (sense of cohesion).

Contextual Basis

Rodgers (2000) described the contextual basis of a concept as the disciplinary and sociocultural milieus and temporal context for application of the concept. Themes related to context identified in the articles are summarized in Table 1 in the categories of “disciplinary,” “sociocultural,” and “temporal” context.

Disciplinary context—The concept of family functioning when an adult family member is facing illness was studied in the context of various disciplines. Selected articles represented publications by first authors from psychology (n = 18), nursing (n = 18), medicine (n = 5), rehabilitation (n = 5), public health (n = 2), family studies (n = 2), and dietetics (n = 1).

Sociocultural context—In the literature reviewed, studies were conducted in various countries, including the United States (n = 19), Finland (n = 6), China (n = 6), Spain (n = 4), Canada (n = 3), Japan (n = 2), and others (n = 1 each). Several studies described the sociocultural context of the sample, including ethnic cultures [African American (Latham et al., 2001), Chinese culture (Chien et al., 2004; Jiang et al., 2015), and Japanese culture (Ozono et al., 2005)], and social characteristics [low socioeconomic status (Latham et al., 2001; Li et al., 2009), cultural gender roles (Morales-Asencio et al., 2008), culture of war/

violence (Ebrahimzadeh & Rajabi, 2007; Milenkovi , Simonovi , Stankovi , & Samardži , 2013)]. None of the reviewed literature provided political context.

Temporal Context (Antecedents and Consequences)

Antecedents: Antecedents to family functioning fell into three general categories: (1) patient-related factors, (2) family member-related factors, and (3) family-unit related factors. In the category of patient-related factors, there were demographic characteristics, psychological/behavioral factors, and medical factors. Demographic characteristics included education (Li et al., 2009), and sex (Kristjanson, Leis, Koop, Carrière & Mueller, 1997). Psychological/behavioral factors included problem behavior (Saunders, 1997), dysfunctional coping (Latham et al., 2001), and perceived poor physical or psychological health (Scionti, 2001; Vera et al., 2015). Medical factors included psychiatric diagnoses (Friedmann et al., 1997; Milenkovi et al., 2013; Wändell, Brorsson, & Aberg, 1998; Weinstock et al., 2013), medical diagnoses (Li et al., 2009; van der Peol & Greeff, 2003), and health events such as falls (Vera et al., 2015) and hospitalizations (Van Horn & Kautz, 2007). Family member-related factors included demographic characteristics such as age, education (Kristjanson, et al., 1997), family role (Krawetz et al., 2001; Knauth, 2000; Scionti, 2001)], psychological factors such as psychological distress (O'Farrell et al., 2000; Saunders, 1997), and factors related to resources and demands including social support (Carnes, 2000; Chien et al., 2004; Yu, Wang, He, Liang, & Zhou, 2015), financial security (Carnes, 2000), caregiving demands (Heru & Ryan, 2004; Yu et al., 2015), and premorbid relationship quality (Carnes, 2000). Some family unit-related factors influenced family functioning, including family demographic factors [e.g., “empty nesters” (Wang & Zhao, 2012)], and factors related to resources and demands [e.g., a telehealth care transition intervention (Chiang et al., 2012), group support and information (Beardslee et al., 2007), and the birth of a new family member (Tammentie et al., 2009)].

Consequences: In most of the literature reviewed, family functioning was analyzed as the primary outcome variable, with few subsequent secondary outcomes (consequences) described. Consequences of family functioning were summarized as psychological and medical outcomes. Psychological outcomes of family functioning included patient or family member quality of life (Li et al., 2009), satisfaction with rehabilitation progress (Clark & Smith, 1998), perceived body size distortion and body dissatisfaction (Benninghoven, Tetsch, Kunzendorf, & Jantschek, 2007), coping (Tramonti et al., 2014; Cuhadar et al., 2015), and motivation for childbearing in HIV infected women (Latham et al., 2001), parental competence (Knauth, 2000), depression (King et al., 2001), anxiety (Ozono et al., 2005), and caregiving burden (Tramonti et al., 2014; Yu et al., 2015). Medical outcomes of family functioning included clinician-family therapeutic alliance (Sherer et al., 2007), patient re-hospitalization (Mercer et al., 1999), and changes in family members' health (Astedt-Kurki, Lehti, Tarkka, & Paavilainen, 2004) (Table 1).

Related Concepts

Three related concepts were identified in the literature reviewed, including family resiliency, family relationship, and family coping. Each “bear some relationship to the concept of interest but do not share the same set of attributes” (Rodgers, 2000, p. 92). Family resiliency

was defined as the ability to develop adaptive coping strategies when a family member is facing illness (Heru & Ryan, 2004). Family resiliency as a strength facilitates and offsets difficulties in maintaining family functioning (Heru & Ryan, 2004). Family relationship referred to relatedness or connection by various methods (i.e. blood, marriage) and included relationships among immediate family members, relationships between the family and extended family, and relationships between family and broader units, such as one's community or church (Chiang et al., 2012). The quality of a family relationship may affect the level of bonding and emotional connection, and communication among family members, which influence overall family functioning (Li et al., 2009; Knauth, 2003). Family coping was defined as the family's effort and utilization of resources in response to problems or difficulties (Saunders, 1997). Literature described the process of family coping and use of resources to maintain family functioning (Table 1).

Surrogate Terms

Four surrogate terms were identified in the text of the articles reviewed, and used interchangeably with "family functioning". These terms were family adaptation (Carnes, 2000; Saunders, 1997), family environment (Clark & Smith, 1998; Simoneau & Miklowitz, 2001; Weinstock et al., 2013), family integrity (Van Horn & Kautz, 2007), and family dynamics (Mercer et al., 1999; Krawetz et al., 2001; Furgal et al., 2009; Geurtsen et al., 2011; Vera et al., 2015) (Table 1).

Discussion

This is the first concept analysis of family functioning in the context of adult family members with illness. The findings of this concept analysis may improve conceptual clarity and can be used to enhance family-centered research and practice. Based on the most prevalent attributes of family functioning identified in this concept analysis, family functioning is defined as family members' ability to maintain cohesive relationships with one another, fulfill family roles, cope with family problems, adjust to new family routines and procedures, and effectively communicate with each other. This definition represents the core components of family functioning, and aligns with previous models of family functioning, such as McMaster Model of Family Functioning and Process Model of Family Functioning (Epstein, Bishop & Levin, 1978; Steinhauer, Santa-Barbara, & Skinner, 1984). The definition of family functioning identified here, is consistent with literature suggesting that family functioning is the outcome of family efforts to maintain a level of balance, harmony, and coherence when facing family stress (McCubbin & McCubbin, 1988). Similar attributes were identified in the McMaster and Process Models including fulfillment of family roles, direct and clear communication, adaptive family rules, routines and standards, and close emotional bonding to meet developmental and situational needs (Epstein et al., 1978; Steinhauer et al., 1984). This concept analysis contributed to the existing models by summarizing the antecedents and consequences of family functioning evidenced in current literature.

The concept of family functioning in the context of illness was of interest in several disciplines. In this review, the most frequent among them were psychology, nursing, and

medicine. The attributes were similar across disciplines. From oversampled nursing literature, in addition to some commonly used measurements (e.g. FAD), Åstedt-Kurki (2002) developed the Family Functioning, Health and Social Support (FAFHES) questionnaire, which was used to assess the association between social support received by families and family health and family functioning. This measure was designed to assess results of family functioning displayed, not to assess the process of how a family achieves such functioning. Much of the literature reviewed reflected family functioning from the perspectives of psychologists and in the context of family therapy. The challenges that families face and their willingness to discuss these issues in family counseling for mental health or social functioning are relevant to psych/mental health nurses, but may be somewhat different than challenges encountered in the context of an adult family member with physical/medical illness. Understanding the different needs of different patient populations may help us to provide the most relevant support and resources. For instance, the nurse-lead family conversations with family members guided by the family system nursing framework that focused on illness, treatment, and well-being were useful to families involved in stroke care in Sweden (Östlund, Bäckström, Saveman, Lindh, & Sundin, 2016). With regard to familial care for a person with mental illness, family members expressed that they needed help in identifying and managing patient's disruptive behavior, improving family cohesion, and maintaining family routines (Iseselo, Kajula, & Yahya-Malima, 2016). More nursing research is needed to explore if and how family functioning differs when facing physical health challenges as opposed to behavioral or psychosocial dysfunction outside of physical/medical illness. This knowledge could help nurses to better identify and treat salient issues for families facing different types of illness.

Antecedents of family functioning were noted in most of the studies reviewed, and these frequently fell into the categories of demographic characteristics, psychological/behavioral factors, and medical factors related to the patients, family members, and family units. Similarly, consequences of family functioning were categorized into psychological and medical outcomes. In general, good family functioning predicted desirable medical and psychosocial health outcomes. From a biopsychosocial perspective, one may expect that an individual's and family's characteristics including background (e.g. demographic), medical condition, psychological status (e.g. distress), and social structure (e.g., family characteristics) influence family functioning. Nurses should pay attention to these various characteristics as targets for intervention and support of family functioning.

Family resiliency, family relationships, and family coping were identified as related concepts. Family functioning shared some attributes with family resiliency, such as emotional bonding and communication skills (Heru & Ryan, 2004). Family coping, which was defined as the utilization of resources in response to family stress, shared the attribute of problem-solving with family functioning (Carnes, 2000; Saunders, 1997). In addition, family relationship shared the attributes of communication and cohesion with family functioning (Li et al., 2009; Knauth, 2000). Nursing interventions addressing family resiliency, family coping, and family relationship may help to enhance some aspects of family functioning. Nurse researchers need to select concepts cautiously and provide clear conceptual definitions to avoid misuse of comparable terms.

With regard to surrogate terms, the use of family adaptation as a surrogate for family functioning is supported in McCubbin's Resiliency Model of Family Stress, Adjustment, and Adaptation (Saunders, 1997). The term "family environment" was also used interchangeably with family functioning (Simoneau & Miklowitz, 2001; Weinstock et al., 2013); however, its equivalence with family functioning is questionable. There are many different views and definitions of family environment among scholars. For example, Wong (1998) defined family environment as having three components: human capital (a cognitive environment for children's learning), financial or physical capital (resources to aid achievement), and social capital (interpersonal relationships). Yet Moos and Moos (1986) identified two dimensions of personal growth and development (i.e., independence, achievement orientation, moral religious orientation), and family structure maintenance and change (i.e., organization, control, rules and procedures) that were distinct from other studies. From this study's perspective, family environment is a broader term that includes not only family functioning, but also other family-related components, such as family physical environment, socioeconomic status, and culture. Family integrity was also used as a surrogate term (Van Horn & Kautz, 2007), but is arguably not equivalent to family functioning. Family integrity was noted as a surrogate term in only one of the reviewed studies. In the Nursing Outcomes Classification (Moorhead, Johnson, Maas, & Swanson, 2012), family integrity is defined as family cohesion or unity, which was identified as an attribute of family functioning in the current review. Consequently, it is important for family researchers to cautiously select terms and related measurements and to use consistent key words to categorize publications and increase visibility in future literature searches.

This concept analysis contributes to the literature by attempting to enhance conceptual clarity of family functioning in the context of an adult family member with illness; however, some limitations should be noted. The concept analysis was conducted by a single author. The use of a team approach to review, data extraction and syntheses would provide greater evidence of rigor. The articles reviewed were limited to those published in the English language, which narrows the scope of the data analyzed. The small number of publications from disciplines other than psychology may call into question the applicability of the new concept definition to contexts other than mental health concerns. Given the heterogeneity of the study settings and samples, it is difficult to draw any conclusion about consensus on what "optimal" family functioning in the context of illness would be. Most of the literature reviewed did not mention the sociocultural or political context of family functioning, although a few provided some information about how families of particular sociocultural contexts functioned in the face of illness (Ozono et al., 2005, Jiang et al., 2015). The proposed definition of family functioning was based largely on conceptualizations from Western studies. Further research is needed to inform nurses' practice when assessing families or providing family-centered interventions to support family functioning across different sociocultural and political contexts. Finally, there were few papers addressing family functioning when a patient had an acute illness. The relationship of family functioning to acute condition should be examined further.

Conclusion

The findings of this concept analysis provide an overview of how family functioning in the context of adult chronic illness is conceptualized in a targeted sample of the health literature. Most of the reviewed studies used cross-sectional descriptive designs to explore the antecedents and consequences of family functioning. Also, few studies focused on interventions that could improve family functioning. It is important to conduct more longitudinal follow-up studies and intervention studies to gain a better understanding of the modifiable antecedents of family functioning. For example, future nursing research could target antecedent variables, such as providing social support or managing psychological distress in both patients and their caregivers as interventions to improve family functioning. Being aware of related concepts and surrogate terms will help researchers to differentiate among similar concepts and promote clear and consistent usage of the concept across studies to help with synthesizing evidence.

Relevance to clinical practice

Family functioning is a multi-dimensional, context-bound concept. Having a comprehensive understanding of the attributes, antecedents and consequences of family functioning can facilitate healthcare providers' ability to identify strengths and potential targets to improve family functioning among their clients. Nurses would engage in initial conversations with patients and family members about their perceptions of family cohesion, family roles changes, problem-solving skills, family routines, and communication which are impacted by illness. In order to bring an understanding of patients and their family's concerns and needs when a family member is ill, it would be necessary to engage in multi-disciplinary collaboration with professionals such as social workers, psychologists, and family therapists to promote patient- and family-centered care. For instance, nurses may recognize signs of poor communication among patients and their family members. In response, nurses could provide communication strategies or refer families to appropriate counseling or social work services. Similarly, nurses may better recognize anticipated changes caused by illness that may initiate alterations in family functioning. For example, nurses may identify increases in patient or caregiver illness-related distress levels and provide emotional support to minimize potential disruption in family functioning.

Acknowledgments

The author would like to thank the Kwekkeboom research group for feedback on earlier versions of the manuscript. I thank Dr. Kwekkeboom and Dr. Audrey Tluceck for their insightful feedback and suggestions.

The work was conducted as part of my PhD training at the University of Wisconsin - Madison, under the supervision of Dr. Kristine Kwekkeboom. My training is supported by an NIH-funded Research Assistant position on Dr. Kwekkeboom's National Institute of Nursing Research award number R01NR013468. The content is solely the responsibility of the author and does not necessarily represent the official views of the National Institutes of Health.

References

- Abilés V, Rodríguez-Ruiz S, Abilés J, Mellado C, García A, Pérez de la Cruz A, Fernández-Santaella MC. Psychological characteristics of morbidly obese candidates for bariatric surgery. *Obesity Surgery*. 2010; 20(2):161–167. DOI: 10.1007/s11695-008-9726-1 [PubMed: 18958537]

- Åstedt-Kurki P, Lehti K, Tarkka MT, Paavilainen E. Determinants of perceived health in families of patients with heart disease. *Journal of Advanced Nursing*. 2004; 48(2):115–123. DOI: 10.1111/j.1365-2648.2004.03178.x [PubMed: 15369491]
- Åstedt-Kurki P, Tarkka MT, Paavilainen E, Lehti K. Development and testing of a family nursing scale. *Western Journal of Nursing Research*. 2002; 24(5):567–579. [PubMed: 12148836]
- Åstedt-Kurki P, Tarkka MT, Rikala MR, Lehti K, Paavilainen E. Further testing of a family nursing instrument (FAFHES). *International Journal of Nursing Studies*. 2009; 46(3):350–359. DOI: 10.1016/j.ijnurstu.2008.01.008 [PubMed: 18329649]
- Beardslee WR, Wright EJ, Gladstone TRG, Forbes P. Long-term effects from a randomized trial of two public health preventive interventions for parental depression. *Journal of Family Psychology*. 2007; 21(4):703–713. DOI: 10.1037/0893-3200.21.4.703 [PubMed: 18179342]
- Benninghoven D, Tetsch N, Kunzendorf S, Jantschek G. Body image in patients with eating disorders and their mothers, and the role of family functioning. *Comprehensive Psychiatry*. 2007; 48(2):118–123. DOI: 10.1016/j.comppsy.2006.08.003 [PubMed: 17292701]
- Brennan SM. The relationship of intellectual, psychiatric, and family system functioning to interpersonal and vocational adjustment in adults with medically intractable temporal lobe epilepsy. 2000 Retrieved from PsycINFO. (619570457; 2000-95018-402).
- Carnes SL. Family adaptation to brain injury: An investigation of coping, family functioning, and psychological distress. 2000 Retrieved from PsycINFO. (619709197; 2001-95005-049).
- Chenhall PJ. Family functioning and marital satisfaction reported by women with fibromyalgia, their spouses, and control groups. 1998 Retrieved from PsycINFO. (619442545; 1999-95008-010).
- Chiang LC, Chen WC, Dai YT, Ho YL. The effectiveness of telehealth care on caregiver burden, mastery of stress, and family function among family caregivers of heart failure patients: a quasi-experimental study. *International Journal of Nursing Studies*. 2012; 49(10):1230–1242. DOI: 10.1016/j.ijnurstu.2012.04.013 [PubMed: 22633448]
- Chien WT, Norman I, Thompson DR. A randomized controlled trial of a mutual support group for family caregivers of patients with schizophrenia. *International Journal of Nursing Studies*. 2004; 41(6):637–649. DOI: 10.1016/j.ijnurstu.2004.01.010 [PubMed: 15240088]
- Clark MS, Smith DS. Factors contributing to patient satisfaction with rehabilitation following stroke. *International Journal of Rehabilitation Research*. 1998; 21(2):143–154. [PubMed: 9924677]
- Çuhadar D, Sava H, Ünal A, Gökpinar F. Family Functionality and Coping Attitudes of Patients with Bipolar Disorder. *Journal of Religion & Health*. 2015; 54(5):1731–1746. DOI: 10.1007/s10943-014-9919-y [PubMed: 25086849]
- Ebrahimzadeh MH, Rajabi MT. Long-term outcomes of patients undergoing war-related amputations of the foot and ankle. *The Journal of Foot and Ankle Surgery*. 2007; 46(6):429–433. DOI: 10.1053/j.jfas.2007.08.011 [PubMed: 17980838]
- Epstein NB, Bishop DS, Levin S. The McMaster Model of Family Functioning. *Journal of Marital and Family Therapy*. 1978; 4(4):19–31. DOI: 10.1111/j.1752-0606.1978.tb00537.x
- Feinberg LF. Moving Toward Person- and Family-Centered Care. *Public Policy & Aging Report*. 2012; 24(3):97–101. DOI: 10.1093/ppar/pru027
- Furgał M, Nowobilski R, Pulka G, Polczyk R, De Barbaro B, Nizankowska-Mogilnicka E, Szczeklik A. Dyspnea is related to family functioning in adult asthmatics. *Journal of Asthma*. 2009; 46(3):280–283. DOI: 10.1080/02770900802660964 [PubMed: 19373637]
- Friedmann MS, McDermut WH, Solomon DA, Ryan CE, Keitner GI, Miller IW. Family functioning and mental illness: a comparison of psychiatric and nonclinical families. *Family Process*. 1997; 36(4):357–367. [PubMed: 9543657]
- Geurtsen GJ, van Heugten CM, Meijer R, Martina JD, Geurts ACH. Prospective study of a community reintegration programme for patients with acquired chronic brain injury: effects on caregivers' emotional burden and family functioning. *Brain Injury*. 2011; 25(7–8):691–697. DOI: 10.3109/02699052.2011.574675 [PubMed: 21561295]
- Hautsalo K, Rantanen A, Åstedt-Kurki P. Family functioning, health and social support assessed by aged home care clients and their family members. *Journal of Clinical Nursing*. 2013; 22(19/20):2953–2963. DOI: 10.1111/j.1365-2702.2012.04335.x [PubMed: 23228118]

- Heru AM, Ryan CE. Burden, reward and family functioning of caregivers for relatives with mood disorders: 1-year follow-up. *Journal of Affective Disorders*. 2004; 83(2–3):221–225. DOI: 10.1016/j.jad.2004.04.013 [PubMed: 15555717]
- Hohashi N, Honda J. Development and testing of the Survey of Family Environment (SFE): A novel instrument to measure family functioning and needs for family support. *Journal of Nursing Measurement*. 2012; 20(3):212–229. DOI: 10.1891/1061-3749.20.3.212 [PubMed: 23362558]
- Iseselo MK, Kajula L, Yahya-Malima KI. The psychosocial problems of families caring for relatives with mental illnesses and their coping strategies: a qualitative urban based study in Dar es Salaam, Tanzania. *BMC Psychiatry*. 2016; 16doi: 10.1186/s12888-016-0857-y
- Jiang H, Wang L, Zhang Q, Liu D, Ding J, Lei Z, et al. Pan F. Family functioning, marital satisfaction and social support in hemodialysis patients and their spouses. *Stress and Health*. 2015; 31(2):166–174. DOI: 10.1002/smi.2541 [PubMed: 24470353]
- Khattak. Sociodemographic features, affective symptoms and family functioning in hospitalized patients with dissociative disorder (convulsion type). *The Journal of the Pakistan Medical Association*. 2007; 57(1):23–26. [PubMed: 17319415]
- King RB, Carlson CE, Shade-Zeldow Y, Bares KK, Roth EJ, Heinemann AW. Transition to home care after stroke: depression, physical health, and adaptive processes in support persons. *Research in Nursing & Health*. 2001; 24(4):307–323. [PubMed: 11746061]
- Knauth DG. Predictors of parental sense of competence for the couple during the transition to parenthood. *Research in Nursing & Health*. 2000; 23(6):496–509. DOI: 10.1002/1098-240X(200012)23:6<496::AID-NUR8>3.0.CO;2-1 [PubMed: 11130608]
- Krawetz P, Fleisher W, Pillay N, Staley D, Arnett J, Maher J. Family functioning in subjects with pseudoseizures and epilepsy. *The Journal of Nervous and Mental Disease*. 2001; 189(1):38–43. [PubMed: 11206663]
- Kristjanson LJ, Leis A, Koop PM, Carrière KC, Mueller B. Family members' care expectations, care perceptions, and satisfaction with advanced cancer care: results of a multi-site pilot study. *Journal of Palliative Care*. 1997; 13(4):5–13.
- Kühne F, Krattenmacher T, Bergelt C, Beierlein V, Herzog W, v Klitzing K, et al. Möller B. “There is still so much ahead of us”—Family functioning in families of palliative cancer patients. *Families, Systems, & Health*. 2013; 31(2):181–193. DOI: 10.1037/a0032274
- Latham BC, Sowell RL, Phillips KD, Murdaugh C. Family functioning and motivation for childbearing among HIV-infected women at increased risk for pregnancy. *Journal of Family Nursing*. 2001; 7(4):345–370.
- Leahey M, Wright LM. Application of the Calgary Family Assessment and Intervention Models: Reflections on the reciprocity between the personal and the professional. *Journal of Family Nursing*. 2016; 22(4):450–459. DOI: 10.1177/1074840716667972 [PubMed: 27619397]
- Li L, Lin C, Ji G, Sun S, Rotheram-Borus MJ. Parents living with HIV in China: family functioning and quality of life. *Journal of Child & Family Studies*. 2009; 18(1):93–101. [PubMed: 19890449]
- Lim J, Ashing-Giwa KT. Is family functioning and communication associated with health-related quality of life for Chinese- and Korean-American breast cancer survivors? *Quality of Life Research*. 2012; 22(6):1319–1329. DOI: 10.1007/s11136-012-0247-y [PubMed: 22875219]
- Mahrer-Imhof R, Jaggi S, Bonomo A, Hediger H, Eggenschwiler P, Krämer G, Oberholzer E. Quality of life in adult patients with epilepsy and their family members. *Seizure*. 2013; 22(2):128–135. DOI: 10.1016/j.seizure.2012.11.012 [PubMed: 23273809]
- Martin-Arafeh JM, Watson CL, Baird SM. Promoting family-centered care in high risk pregnancy. *The Journal of Perinatal & Neonatal Nursing*. 1999; 13(1):27–42.
- McCubbin HI, McCubbin MA. Typologies of resilient families: Emerging roles of social class and ethnicity. *Family Relations*. 1988; 37(3):247–254. DOI: 10.2307/584557
- Mercer GT, Molinari V, Kunik ME, Orengo CA, Snow L, Rezabek P. Rehospitalization of older psychiatric inpatients: an investigation of predictors. *The Gerontologist*. 1999; 39(5):591–598. [PubMed: 10568083]
- Milenkovi T, Simonovi M, Stankovi M, Samardži L. Disturbed family functioning in patients suffering from posttraumatic stress disorder. *Med Glas (Zenica)*. 2013; 10(1):120–125. [PubMed: 23348173]

- Moorhead S, Johnson M, Maas ML, Swanson E. Nursing Outcomes Classification (NOC): Measurement of Health Outcomes. 5th. St. Louis, Mo: Mosby; 2012.
- Morales-Asencio JM, Gonzalo-Jiménez E, Martín-Santos FJ, Morilla-Herrera JC, Celdráan-Mañas M, Carrasco AM, et al. Toral-López I. Effectiveness of a nurse-led case management home care model in primary health care. A quasi-experimental, controlled, multi-centre study. *BMC Health Services Research*. 2008; 8:193.doi: 10.1186/1472-6963-8-193 [PubMed: 18811927]
- Olson DH, Sprenkle DH, Russell CS. Circumplex model of marital and family systems: I. Cohesion and adaptability dimensions, family types, and clinical applications. *Family Process*. 1979; 18(1): 3–28. [PubMed: 437067]
- O'Farrell P, Murray J, Hotz SB. Psychologic distress among spouses of patients undergoing cardiac rehabilitation. *Heart & Lung*. 2000; 29(2):97–104. [PubMed: 10739485]
- Östlund U, Bäckström B, Saveman BI, Lindh V, Sundin K. A Family Systems Nursing Approach for Families Following a Stroke: Family Health Conversations. *Journal of Family Nursing*. 2016; 22(2):148–171. DOI: 10.1177/1074840716642790 [PubMed: 27090511]
- Ozono S, Saeki T, Inoue S, Mantani T, Okamura H, Yamawaki S. Family functioning and psychological distress among Japanese breast cancer patients and families. *Supportive Care in Cancer*. 2005; 13(12):1044–1050. DOI: 10.1007/s00520-005-0816-5 [PubMed: 15864661]
- Roberts CS, Feetham SL. Assessing family functioning across three areas of relationships. *Nursing Research*. 1982; 31(4):231–235. [PubMed: 6920663]
- Roberts S. Most Children Still Live in Two-Parent Homes, Census Bureau Reports. 2008. Retrieved from: <http://www.nytimes.com/2008/02/21/us/21census.html>
- Rodgers BL. Concept analysis: An evolutionary view. In: Rodgers BL, Knafl KA, editors *Concept developing in nursing: Foundations, techniques, and applications*. Philadelphia, PA: Saunders; 2000. 77–102.
- Rodríguez Martín A, Novalbos Ruiz JP, Martínez Nieto JM, Escobar Jiménez L, Castro de Haro AL. Characteristics of eating disorders in a university hospital-based Spanish population. *European Journal of Clinical Nutrition*. 2005; 59(3):459–462. DOI: 10.1038/sj.ejcn.1602095 [PubMed: 15674311]
- Saunders JC. Family functioning in families providing care for a family member with schizophrenia. 1997 Retrieved from PsycINFO. (619374272; 1998-95008-173).
- Scionti LA. An investigation into individuals with eating disorders and their perceptions of family functioning, depression, and seasonal affective disorder in an outpatient population. 2001 Retrieved from PsycINFO. (619726068; 2001-95016-065).
- Schuler TA, Zaider TI, Li Y, Hichenberg S, Masterson M, Kissane DW. Typology of perceived family functioning in an American sample of patients with advanced cancer. *Journal of Pain and Symptom Management*. 2014; 48(2):281–288. DOI: 10.1016/j.jpainsymman.2013.09.013 [PubMed: 24766739]
- Sherer M, Evans CC, Leverenz J, Stouter J, Irby JW, Lee JE, Yablon SA. Therapeutic alliance in post-acute brain injury rehabilitation: predictors of strength of alliance and impact of alliance on outcome. *Brain Injury*. 2007; 21(7):663–672. DOI: 10.1080/02699050701481589 [PubMed: 17653940]
- Simoneau TL, Miklowitz DJ. Integrating psychiatric illness into healthy family functioning: The family psychoeducational treatment of a patient with bipolar disorder. In: McDaniel SH, Lusteran DD, Philpot CL, editors *Casebook for integrating family therapy: An ecosystemic approach*. American Psychological Association; Washington, DC: 2001. 359–372.
- Steinhauer PD, Santa-Barbara J, Skinner H. The process model of family functioning. *Canadian Journal of Psychiatry*. 1984; 29(2):77–88. [PubMed: 6722715]
- Tammentie T, Paavilainen E, Tarkka MT, Astedt-Kurki P. Families' experiences of interaction with the public health nurse at the child health clinic in connection with mother's post-natal depression. *Journal of Psychiatric and Mental Health Nursing*. 2009; 16(8):716–724. DOI: 10.1111/j.1365-2850.2009.01448.x [PubMed: 19744061]
- The Joint Commission. *Advancing Effective Communication, Cultural Competence, and Patient- and Family-Centered Care: A Roadmap for Hospitals*. Oakbrook Terrace, IL: The Joint Commission; 2010.

- Tramonti F, Barsanti I, Bongioanni P, Bogliolo C, Rossi B. A permanent emergency: a longitudinal study on families coping with amyotrophic lateral sclerosis. *Families, Systems & Health*. 2014; 32(3):271–279. DOI: 10.1037/fsh0000032
- Uehara T, Kawashima Y, Goto M, Tasaki SI, Someya T. Psychoeducation for the families of patients with eating disorders and changes in expressed emotion: A preliminary study. *Comprehensive Psychiatry*. 2001; 42(2):132–138. DOI: 10.1053/comp.2001.21215 [PubMed: 11244149]
- van der Poel A, Greeff AP. The influence of coronary bypass graft surgery on the marital relationship and family functioning of the patient. *Journal of Sex & Marital Therapy*. 2003; 29(1):61–77. [PubMed: 12519669]
- Van Horn ER, Kautz D. Promotion of family integrity in the acute care setting: a review of the literature. *Dimensions of Critical Care Nursing: DCCN*. 2007; 26(3):101–107–109. DOI: 10.1097/01.DCC.0000267803.64734.c1 [PubMed: 17440292]
- Vera I, Lucchese R, Yaeko Kyosen Nakatani A, Pagotto V, Alves Montefusco SR, Sadoyama G. Family functionality in oldest old household residents. *Revista Brasileira de Enfermagem*. 2015; 68(1):61–68. DOI: 10.1590/0034-7167.2015680110i [PubMed: 25946497]
- Wändell PE, Brorsson B, Aberg H. Quality of life among diabetic patients in Swedish primary health care and in the general population: comparison between 1992 and 1995. *Quality of Life Research*. 1998; 7(8):751–760. [PubMed: 10097623]
- Wang J, Zhao X. Family functioning, social support, and quality of life for Chinese empty nest older people with depression. *International Journal of Geriatric Psychiatry*. 2012; 27(11):1204–1206. DOI: 10.1002/gps.2832 [PubMed: 23042110]
- Weinstock LM, Wenzel SJ, Munroe MK, Miller IW. Concordance between patient and family reports of family functioning in bipolar I disorder and major depressive disorder. *Journal of Nervous and Mental Disease*. 2013; 201(5):377–383. DOI: 10.1097/NMD.0b013e31828e1041 [PubMed: 23588224]
- Wisotsky W, Dancyger I, Fornari V, Swencionis C, Fisher M, Schneider M, Wisotsky W. Is perceived family dysfunction related to comorbid psychopathology? A study at an eating disorder day treatment program. *International Journal of Adolescent Medicine and Health*. 2006; 18(2):235–244. [PubMed: 16894862]
- Wong RSK. Multidimensional influences of family environment in education: The Case of socialist Czechoslovakia. *Sociology of Education*. 1998; 71(1):1–22. DOI: 10.2307/2673219
- Yu H, Wang X, He R, Liang R, Zhou L. Measuring the caregiver burden of caring for community-residing people with Alzheimer's disease. *PloS One*. 2015; 10(7):e0132168.doi: 10.1371/journal.pone.0132168 [PubMed: 26154626]
- Zhao P, Yang R, Phillips MR. Age-specific characteristics of serious suicide attempters in China. *Suicide & Life-Threatening Behavior*. 2010; 40(4):383–393. DOI: 10.1521/suli.2010.40.4.383 [PubMed: 20822365]

Summary statement**‘What does this paper contribute to the wider global clinical community?’**

- The identification of attributes of family functioning can serve as a guide in development of relevant family assessment in clinic setting.
- By exploring studies from non-nursing disciplines, this paper provides implications for nursing practice and research in the future.

Figure 1. Flowchart of literature searching

Table 1

Matrix of abstracted data in reviewed literature

Author (year)	Country	Discipline	Sociocultural context	Sample (patient's health condition)	Attributes *	Antecedents	Consequences	Related concept	Surrogate terms
Abilés et al. (2010)	Spain	Dietetics		Patients with morbidly obese having bariatric surgery	Communication (e.g. <i>the way family discusses and shares</i>), cohesion (e.g. <i>help, support, love</i>)				
Astedt-Kurki et al. (2002)	Finland	Nursing		Family members of patients with heart disease	Behavior control (e.g. <i>shared activities within the family</i>), cohesion (e.g. <i>emotional ties</i>)				
Astedt-Kurki et al. (2004)	Finland	Nursing		Family members of patients with heart disease	Behavior control (e.g. <i>shared activities within the family</i>), cohesion (e.g. <i>emotional ties</i>)		Family health		
Astedt-Kurki et al. (2009)	Finland	Nursing		Family members of patients with heart disease	Behavior control (e.g. <i>shared activities within the family</i>), cohesion (e.g. <i>emotional ties</i>)				
Beardslee et al. (2007)	US	Psychology		Parents with depression	Communication (e.g. <i>expressiveness</i>), problem solving (e.g. <i>manage conflict</i>), cohesion (e.g. <i>cohesion</i>)				
Benninghoven et al. (2007)	Germany	Medicine		Patients with eating disorders and their mothers	Communication (e.g. <i>express emotions</i>), role fulfillment (e.g. <i>role performance</i>), behavior control (e.g. <i>rules</i>), cohesion (e.g. <i>degree of coherence</i>)		Patients' perceived body size distortion and body dissatisfaction		
Brennan (2000)	US	Nursing		Patients with medically intractable temporal lobe epilepsy	Communication (e.g. <i>interaction among family members</i>), role fulfillment (e.g. <i>various roles</i>), behavior control (e.g. <i>rules</i>), problem solving (e.g. <i>manage conflict</i>), cohesion (e.g. <i>support</i>)				Family adaptation
Cames (2000)	US	Family studies		Family members of patients with brain injury	Communication (e.g. <i>affection expression</i>) <u>cohesion</u> (e.g. <i>degree of commitment</i>)	Social support, financial security, premorbid relationship quality			
Chenhall (1998)	US	Psychology		Women with fibromyalgia and their partners	Communication (e.g. <i>instrumental & affective expression and exchange</i>), role fulfillment (e.g. <i>repetitive pattern of behavior</i>), behavior control (e.g. <i>rules, standard</i>), problem solving (e.g. <i>providing food, money, and clothing to family members</i>), <u>cohesion</u> (e.g. <i>affective involvement</i>)				
Chiang (2012)	China	Nursing		Patients with heart failure and their family caregivers	Role fulfillment (e.g. <i>role mastery</i>), <u>problem solving</u> (e.g. <i>manage</i>)	Telehealth transitional care intervention		Family relationship	

Author (year)	Country	Discipline	Sociocultural context	Sample (patient's health condition)	Attributes*	Antecedents	Consequences	Related concept	Surrogate terms
Chien et al. (2004)	China	Nursing	Cultural beliefs about filial responsibility and social stigma of mental health issues	Family caregivers of patients with schizophrenia	<i>emotional problems and financial problems</i>), <u>cohesion</u> (e.g. <i>emotion closeness</i>) <u>Communication</u> (e.g. express feelings), <u>role fulfillment</u> (e.g. <i>caregiving role</i>), <u>behavior control</u> (e.g. <i>behavior control</i>), <u>problem solving</u> (e.g. <i>alternatives to solve problems</i>), <u>cohesion</u> (e.g. <i>kinship and cohesiveness with family</i>)	Mutual support group			
Clark & Smith (1998)	Australia	Rehabilitation		Stroke survivors	<u>Role fulfillment</u> (e.g. <i>caregiving during the rehabilitation</i>), <u>cohesion</u> (e.g. <i>support, encouragement</i>)		Satisfaction with rehabilitation progress		Family environment
Cuhadar et al. (2015)	Turkey	Nursing		Patients with bipolar disorder	<u>Communication</u> (e.g. <i>direct communication</i>), <u>role fulfillment</u> (e.g. <i>fulfill expected roles</i>), <u>behavior control</u> (e.g. <i>rules</i>), <u>problem solving</u> (e.g. <i>making changes in roles/rules suited to patient's needs</i>)		Coping strategy		
Ebrahimzadeh & Rajabi (2007)	US	Medicine	Iran-Iraq War	Patients with lower extremity amputations as a result of war	<u>Cohesion</u> (e.g. <i>having marriage, if have children</i>)				
Friedmann et al. (1997)	US	Psychology		Patients with psychiatric disorders	<u>Communication</u> (e.g. <i>clear and direct communication, emotional expression</i>), <u>role fulfillment</u> (e.g. <i>established patterns of behavior, behavior control</i> (e.g. <i>standards of behavior</i>), <u>problem solving</u> (e.g. <i>resolve problems within and outside the family</i>), <u>cohesion</u> (e.g. <i>affective involvement</i>)	Patient in acute phase of a psychiatric disorder			
Furgal et al. (2009)	Poland	Family studies		Patients with asthma	<u>Communication</u> (e.g. <i>efficient communication</i>), <u>role fulfillment</u> (<i>perform a variety of roles</i>), <u>cohesion</u> (e.g. <i>emotional bonding</i>)				Family dynamics
Geurtsen et al. (2011)	Netherland s	Rehabilitatio n		Caregivers of patients in a community reintegration program	<u>Communication</u> (e.g. <i>emotional expression</i>), <u>role fulfillment</u> (e.g. <i>caregiver role</i>), <u>behavior control</u> (e.g. <i>standards</i>), <u>problem solving</u> (e.g. <i>problem-solving</i>), <u>cohesion</u> (e.g. <i>affective involvement</i>)				family dynamics
Hautsalo et al. (2013)	Finland	Nursing		Aged patients and their family members	<u>Behavior control</u> (e.g. <i>shared activities within the family</i>), <u>cohesion</u> (e.g. <i>emotional ties</i>)				

Author (year)	Country	Discipline	Sociocultural context	Sample (patient's health condition)	Attributes*	Antecedents	Consequences	Related concept	Surrogate terms
Herr & Ryan (2004)	US	Psychology		Relatives of patients with bipolar disorder/ major depression	Communication (e.g. <u>emotional expression</u>), role fulfillment (e.g. <u>caregiving role</u>), behavior control (e.g. <u>standards</u>), problem solving (e.g. <u>develop adaptive skills</u>), cohesion (e.g. <u>empathy involvement</u>)	Caregivers of patients with bipolar disorder vs. depression		Family resilience	
Jiang et al. (2015)	China	Psychology	Cultural belief that instrumental support is more useful than affective helpful	Patients on hemodialysis and their spouses	Role fulfillment (e.g. <u>flexibility in roles</u>), behavior control (e.g. <u>rules</u>), cohesion (e.g. <u>emotional bonds</u>)				
Khattak (2007)	Pakistan	Psychology		Patients with dissociative disorders	Communication(e.g. <u>communication</u>),role fulfillment (e.g. <u>define roles</u>), problem solving (e.g. <u>manage conflict</u>)				
King et al. (2001)	US	Rehabilitatio n		Stroke survivors and their primary support persons (PSP)	Problem solving (e.g. <u>handling communication impairment</u>), role fulfillment (e.g. <u>caregiving role, managing multiple roles</u>)	PSP depression			
Knauth (2000)	US	Nursing		Patients and their partners from high-risk hospital maternity units	Role fulfillment (<u>roles within family subsystem</u>), problem solving (e.g. <u>making positive changes in response to complex environment</u>)	Parent role	Parental competence	Family relationship	
Kravetz et al. (2001)	Canada	Psychology		Patients with pseudoseizures and their families	Communication (e.g. <u>verbal expression</u>), role fulfillment (e.g. <u>role related duties within the family</u>), behavior control (e.g. <u>boundary, rules</u>), problem solving (e.g. <u>conflict resolution</u>), <u>cohesion</u> (e.g. support)	Family role being first degree relative			Family dynamics
Kristjanson et al. (1997)	Canada	Nursing		Family member of advanced cancer patients	Communication (e.g. <u>communication pattern</u>), role fulfillment (e.g. <u>role delineation</u>), behavior control (e.g. <u>behavior control</u>), problem solving (e.g. <u>manage conflict</u>), cohesion (e.g. <u>affective involvement</u>)	Family member's age & education, patient sex			
Latham et al. (2001)	US	Nursing	Single, very young, low income, AA	HIV infected women	Communication (e.g. <u>expression affection</u>), problem solving (e.g. <u>cope with life problems and adverse event</u>), cohesion (e.g. <u>commitment, support from extended family</u>)	History of drug use, history of verbal violence, patient education, life satisfaction, coping (avoidance, seeking social support)	Motivation for childbearing		
Li et al. (2009)	China	Medicine	Poor rural counties	Parents with HIV	Role fulfillment (e.g. <u>parents providing financial stability</u>), problem solving (e.g. <u>manage</u>	HIV status; patient's education level	Quality of life	Family relationship	

Author (year)	Country	Discipline	Sociocultural context	Sample (patient's health condition)	Attributes*	Antecedents	Consequences	Related concept	Surrogate terms
Mahrer-Imhof et al. (2013)	Switzerland	Nursing		Patients with epilepsy	<u>conflict</u> , <u>cohesion</u> (e.g. <i>help, support each other</i>) <u>Role fulfillment</u> (e.g. <i>roles</i>), <u>problem solving</u> (e.g. <i>change rules/roles to respond to situational or developmental needs</i>), <u>behavior control</u> (e.g. <i>rules</i>), <u>cohesion</u> (e.g. <i>emotional bonding</i>)				
Martin-Arafeh et al. (1999)	US	Nursing		Families facing high risk pregnancy	<u>Communication</u> (e.g. <i>interact with each other</i>), <u>role fulfillment</u> (e.g. <i>role of family is to provide caregiving functions</i>) <u>problem solving</u> (e.g. <i>problem-solving technique</i>)				
Mercer et al. (1999)	US	Psychology		Male veterans with mental health diagnoses	<u>Role fulfillment</u> (e.g. <i>caregiving role</i>), <u>cohesion</u> (e.g. <i>engage in patient's treatment</i>)	Rehospitalization			Family dynamics
Milenkovi et al. (2013)	Republic of Serbia	Psychology	Kosovo War	Male war veterans with posttraumatic stress disorder	Role fulfillment (e.g. male subjects' <i>financial strain</i>), <u>cohesion</u> (e.g. <i>marital strain</i>)	Posttraumatic stress disorder			
Morales-Asencio et al. (2008)	Spain	Nursing	Gender (female) expectations for caregiving	Patients and caregivers initiating a home care program	<u>Role fulfillment</u> (e.g. <i>caregiver role</i>)				
O'Farrell et al. (2000)	Canada	Rehabilitation		Patients undergoing cardiac rehabilitation and their spouses	<u>Communication</u> (e.g. <i>express feeling</i>), <u>problem solving</u> (e.g. <i>spouse provides instrumental assistance with medication</i>) <u>cohesion</u> (e.g. <i>support one another</i>)	Distressed spouse			
Ozono et al. (2005)	Japan	Psychology	Rapid urbanization & nuclearization of the family	Patients with breast cancer and their family members	<u>Communication</u> (e.g. <i>nonverbal communication</i>), <u>role fulfillment</u> (e.g. <i>carry out roles</i>), <u>problem solving</u> (e.g. <i>manage conflict</i>), <u>cohesion</u> (e.g. <i>mutual support</i>)	Patient depression, anxiety			
Rodriguez Martín et al. (2005)	Spain	Public health		Patients with eating disorders	<u>Communication</u> (e.g. <i>affection expression</i>), <u>cohesion</u> (e.g. <i>commitment</i>)				
Saunders (1997)	US	Nursing		Family members of schizophrenia patients	<u>Role fulfillment</u> (e.g. <i>caregiver role</i>), <u>behavior control</u> (e.g. <i>boundaries, discipline</i>), <u>cohesion</u> (e.g. <i>emotional bonding</i>)	Psychological distress, patient behavioral problems.		Family coping	Family adaptation
Scionti (2001)	US	Psychology		Women with eating disorders	<u>Communication</u> (e.g. <i>exchange information</i>), <u>role fulfillment</u> (e.g. <i>every member has many roles</i>), <u>behavior control</u> (e.g. <i>interpersonal boundary</i>), <u>problem solving</u> (e.g. <i></i>)	self-reported depression of patient, parent role (farther VS mother)			

Author (year)	Country	Discipline	Sociocultural context	Sample (patient's health condition)	Attributes*	Antecedents	Consequences	Related concept	Surrogate terms
<i>resolve instrumental and affective problem), cohesion (e.g. investment in each other, without losing sense of individuality)</i>									
Sherer et al. (2007)	US	Rehabilitatio n		Patients with traumatic brain injury and their family members	<u>Cohesion</u> (e.g. <i>support</i>)		Clinician-family therapeutic alliance		
Simoneau & Miklowitz (2001)	US	Psychology		Patients with bipolar disorder and their parents	Communication (e.g. <i>established communication pattern</i>), <u>behavior control</u> (e.g. <i>rules</i>), <u>problem solving</u> (e.g. <i>address family conflicts</i>), <u>cohesion</u> (e.g. <i>involved with each other</i>)				Family environment
Tammentie et al. (2009)	Finland	Nursing		Mothers with post-natal depression	Problem solving (e.g. <i>ask for help to respond to new change</i>)	The birth of new family member			
Tramonti et al. (2014)	Italy	Psychology		Patients with amyotrophic lateral sclerosis and their primary caregivers	Role fulfillment (e.g. <i>redefine role</i>), problem solving (e.g. <i>reorganize routine when facing serious disease</i>), <u>behavior control</u> (e.g. <i>rules and routines</i>), <u>cohesion</u> (e.g. <i>emotion bonding</i>)	Caregiver burden; patient's coping strategy			
Uehara et al. (2001)	Japan	Psychology		Patients with eating disorders and their relatives	Role fulfillment (e.g. <i>roles</i>), <u>behavior control</u> (e.g. <i>rules</i>), <u>cohesion</u> (e.g. <i>emotional bonding</i>)				
van der Poel & Greeff (2003)	Republic of South Africa	Psychology		Spouses of patients that had undergone coronary bypass graft (CABG)	Role fulfillment (<i>pattern of behavior</i>), <u>behavior control</u> (e.g. <i>rules</i>), <u>cohesion</u> (e.g. <i>emotional bonding</i>)	Patients with CABG vs orthopedic surgery			
Van Horn & Kautz (2007)	Not specific	Nursing		Family members of a hospitalized adult	Role fulfillment (e.g. <i>allocate responsibility among members</i>), <u>problem solving</u> (e.g. <i>obtain adequate resources to meet family member needs</i>), <u>cohesion</u> (e.g. <i>support and help for one another</i>)	Hospitalization			Family integrity
Vera et al. (2015)	Bazil	Nursing		Older patients with chronic diseases	Communication (e.g. <i>interaction</i>), <u>problem solving</u> (e.g. <i>adapt to stressful situation, managing conflict</i>), <u>cohesion</u> (e.g. <i>support for each other</i>)	Osteoporosis; falls; self-perceived poor health condition			Family dynamics
Wändell et al. (1998)	Sweden	Medicine		Patients with diabetes	Not described	Comorbid psychiatric disease			
Wang & Zhao (2012)	China	Medicine		People with depression and their spouses	<u>Communication</u> (e.g. <i>emotional expression</i>), <u>role fulfillment</u> (e.g. <i>roles</i>), <u>behavior control</u> (e.g. <i>behavior control</i>), <u>problem solving</u>	Empty nest couple with vs. non-empty nester couple			

Author (year)	Country	Discipline	Sociocultural context	Sample (patient's health condition)	Attributes*	Antecedents	Consequences	Related concept	Surrogate terms
Weinstock et al. (2013)	US	Psychology		Patients with bipolar disorder and major depressive disorder	(e.g. <i>resolve problem</i>), <u>cohesion</u> (e.g. <i>affective involvement</i>) <u>Communication</u> (e.g. <i>communicate clearly and directly</i>), <u>role fulfillment</u> (e.g. <i>ability to allocate and accomplish tasks</i>), <u>behavior control</u> (e.g. <i>standards and limits</i>), <u>problem solving</u> (e.g. <i>resolve problem and steps to take</i>), <u>cohesion</u> (e.g. <i>affective involvement</i>)	Patients with bipolar disorder vs major depressive disorder			Family environment
Wisotsky et al. (2006)	US	Psychology		Patients with eating disorders	Role fulfillment (e.g. pattern of behavior), behavior control (e.g. <i>rules</i>), problems solving (e.g. <i>manage conflict</i>), <u>cohesion</u> (e.g. <i>emotional bonding</i>)				
Yu et al. (2015)	China	Public health		Patients with Alzheimer's disease and their caregivers	Problem solving (e.g. <i>using resources for problem solving in family crisis</i>), <u>cohesion</u> (e.g. <i>support, commitment</i>)	Hours of caregiving, patient's cognitive function; social support	Caregiver burden		
Zhao et al. (2010)	China	Psychology		Patients who had attempted suicide	Problem solving (e.g. <i>conflict resolution, ask help from extended family</i>), <u>cohesion</u> (e.g. <i>cohesion</i>)				

*The italic texts in parentheses were examples of quotes from reviewed studies.
The blanks in each cell were characteristics which cannot find in original articles.