Developing a Family Function Questionnaire for Families with Developmentally Delayed Children

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The purpose of this study was to develop a "Family Function Questionnaire for Families with Developmentally Delayed Children". The questionnaire was created by sampling 300 parents with developmentally delayed children. Initially, families and early intervention services were observed and a qualitative interview with the child's family was conducted. The researchers created a family function database reflecting these steps and by referral to relevant literature. The final version of the questionnaire consisted of 42 items in 11 categories: cohesion, education, problem solving, affective involvement, independence, action participation, family support, recreation, rules implementation, collaboration, and financial management. The questionnaire had a Cronbach's α of 0.9326.

Key Words: questionnaire development, family function, developmental delay, early intervention service
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The presence of a developmentally delayed child can be a long-term source of emotional and economic pressure on a family. Coping with and accepting the reality of a developmentally delayed child can be an arduous and lengthy process. In addition, it may adversely affect the overall running of the household and other family functions. Among the difficulties faced by families of mentally or physically challenged children are the provisions of long-term care, physical and emotional threats to the primary caregivers, medical difficulties, educational barriers, economic problems, and the extra burden of repeated communication with professional case workers [1–4].

Effective early intervention requires a combination of services that directly affect the child's development and indirectly help families provide support for their children [5]. Early intervention seeks to help the child, reduce risks associated with the disability, help families face the problems and circumstances of special children, and empower the care providers with the knowledge and skills they need to face and understand situations they may confront [6]. For a social worker engaged in early intervention, it is vital to accurately evaluate family functions, understand the family's available resources, and identify the required assistance for each family to reach its potential.

Consequently, this type of intervention strategy needs to be family-centered while prioritizing cultural aspects. The present study recognizes the importance of the family in early intervention, and treats the "family" as the basis for its actual model. In other words, the child is not the sole focus of consideration.

Our goal was to design a questionnaire to correctly assess the needs of developmentally delayed children and their families.

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Materials and Methods

Testing site

The research targets for pre-testing were the parents of developmentally challenged children who were receiving clinical treatments from the "United Appraisal Center for Families with Developmentally Delayed Children" at Kaohsiung Medical University Hospital. Direct interviews and mailed questionnaires were used to collect data. Thirty-five questionnaires were sent out. Of the questionnaires that were returned, 20 were judged to be valid for use and 11 respondents were contacted and interviewed.

The questionnaires consisted of 300 questions chosen from 332 submissions from seven medical departments and agencies providing early intervention service.

Research tools

The number of questions was cut to 274 after it was decided to use nine variables on the family function questionnaire. A pre-test was then conducted, using the reliability analysis method to inspect the question bank and to eliminate questions that were judged inappropriate. The 83 questions that remained after the pre-test were subjected to another round of scrutiny by expert evaluators who eliminated an additional 19 items.

The response to each of the 64 questions took the form of a Likert quantitative measurement, involving a scale of 1–4 (1 = disagree completely; 2 = disagree; 3 = agree; 4 = agree completely).

Questions related to respondent information and family function measurements included items concerning care and protection (n = 5), education (n = 6), socialization (n = 5), emotional maintenance (n = 5), communication (n = 9), recreation (n = 6), problem-solving (n = 6), economics (n = 7), and family empowerment (n = 15).

Research methodology

Data were gathered using on-the-spot answering and submission, telephone interviews, and mailed questionnaires.

Results

Pre-test results of the Family Function Questionnaire framework

The pre-test phase of the project evaluated the questionnaire and excluded items that were judged to be unreliable. One exclusion criterion was the requirement for the inclusion of ordinary and special (developmentally delayed) problems for the situational setting of each variable. The other exclusion criterion concerned the value of Cronbach's α for each variable (0.80). If it was judged that there were too many questions for a given variable, Cronbach's α was raised to 0.85 and the questions that fell below this rating were removed. If Cronbach's α was below 0.80 for a given variable, those questions with values nearest to the target 0.80 were kept during the selection process.

As shown in Table 1, Cronbach's α analysis on the 83 questions was 0.9552.

The evaluation of the 83 questions that remained after the pre-test phase involved asking experts to evaluate the appropriateness and importance of each item. The experts

Table 1. Cronbach's α analysis on the bank of 274 questions

Variable	Pre-elimination		Post-elimination	
	Items	α	Items	α
Care and protection	33	0.7900	9	0.8340
Education	41	0.8222	9	0.8670
Socialization	21	0.6430	8	0.7068
Emotional maintenance	21	0.8083	8	0.9021
Communication	38	0.6404	11	0.8512
Recreation	22	0.7366	7	0.8131
Problem-solving	25	0.5666	7	0.8183
Economics	31	0.6132	8	0.7921
Family empowerment	42	0.7779	16	0.9099
Total	274	0.9445	83	0.9552

Expert inspection of results in the Family Function Questionnaire Framework.

included senior social work counselors involved in early intervention services, social work academics, child psychologists, child psychiatrists, and pediatricians. Each expert focused on the appropriateness and importance of each item.

As a result, the 64 questions that were retained covered the nine variables described in Materials and Methods.

Results of formal testing in the family function questionnaire framework

Item analysis

The results of the item analysis enabled the elimination of questions based upon a poor appraisal degree (standard deviation, peak degree, partial status, and terminal T inspection). A question that was positive for three of the four criteria was considered poor and/or unsuitable for factoral analysis. A total of 15 questions were eliminated; consequently, 49 questions were retained after the item analysis.

Factor analysis

Factor analysis resulted in a Kaiser-Meyer-Olkin (KMO) value of 0.884, meaning that the results were agreeable to factoral analysis. The principal-axes method that was used for the analysis selected factors with a characteristic value larger than one. The method used the rotation factor Equamax to conduct positive shifting to extract factors (the factor burden was 0.4).

Forty-two questions within the nine factors (Table 2) were retained after the factoral analysis. After shifting, the symbolic value of each factor was larger than 2.226 and the factoral burden was between 0.401 and 0.754. The variable quantity ratios are shown in Table 2. These results indicated that the study already had basic framework validity. The number of factors after this analysis increased to 11.

Reliability analysis

In the internal consistency inspection (Table 3), Cronbach's α for each factor ranged from 0.4534 to 0.8313. Cronbach's α for the entire questionnaire was 0.9326.

Factors and their definitions

Factors and their definitions are summarized in Table 4.

Discussion

As shown in Table 5 [7–15], indications are that the present questionnaire is comparable to previous questionnaires in terms of the number of questions and, therefore, a suitable study vehicle. Furthermore, the overall Cronbach's α value of 0.9326 is consistent with the questionnaire's credibility. In terms of assessing family function, focus will ordinarily be placed on the form, relationship, and interaction of the families [16]. The McMaster model focuses on the development of families and their ability to maintain coping abilities [10]. Risk adaptability capacity has been addressed in the Shiao Quantitative Table, using the frameworks of system theory, ABCX theory, and family health model [14]. The family function questionnaire of the FACES series uses family cohesion and adaptability to assess family function [7]. FES is a tool that assesses family function from several factors [12]. It includes the three major aspects of family relationships, individual growth, and system maintenance. Finally, the family support quantitative table designed by Chou et al evaluates family function from the standpoint of

Table 2. Factoral analysis

Factor							Eigenvalues	% of variance	Cumulative %
Cohesion	0.607	0.582	0.537	0.481	0.416	0.401	3.155	6.440	6.440
Education	0.754	0.628	0.537	0.436	0.408		3.046	6.216	12.655
Problem-solving	0.612	0.602	0.579	0.542	0.535	0.499	3.030	6.184	18.839
Affective involvement	0.711	0.652	0.571	0.452			2.978	6.078	24.917
Independence	0.747	0.570	0.538	0.533	0.468		2.874	5.866	30.783
Action participation	0.725	0.598	0.551	0.518			2.867	5.851	36.633
Family support	0.686	0.683	0.521				2.813	5.741	42.374
Recreation	0.650	0.589					2.755	5.623	47.997
Rules implementation	0.650	0.589	0.573				2.694	5.498	53.495
Collaboration	0.802	0.589					2.504	5.111	58.606
Financial management	0.789	0.739					2.451	5.002	63.607

Table 3. Cronbach's α analysis on the research tools

Factor	Items	α
Cohesion	6	0.8313
Education	5	0.8235
Problem-solving	6	0.7889
Affective involvement	3	0.7391
Independence	5	0.7970
Action participation	4	0.7287
Family support	4	0.7160
Recreation	2	0.6027
Rules implementation	3	0.6743
Collaboration	2	0.4534
Financial management	2	0.6183
Total	42	0.9326

the support provided by husband and wife, parents, in-laws, other family members, friends, colleagues, neighbors, babysitters, and professional personnel [15].

In contrast to these prior models, the major points emphasized by the present assessment questionnaire are different. The family function questionnaire of this study was primarily established on functional theory; it tries to study family function from an overall perspective. But, because the literature is equivocal on the value of the various approaches to this issue, we focused on family function, with a clear definition of the essence of each factor. Our hope was to evaluate family function from a new perspective.

There were three factors that affected the drafting of the tool in our study. Two hundred and seventy-four questions

Table 4. Factors and their definitions

Factor	Definition
Cohesion	The closeness of family members and the probability of being involved in entertaining activities.
Education	The ability of family members to instill in teaching developmentally delayed children the basic knowledge and rules in life.
Problem-solving	The ability of family members to provide appropriate solutions to problems.
Affective involvement	The ability of family members to prioritize concerns and to participate in the affairs of the family as a whole.
Independence	The ability of family members to recognize and affirm the unique traits of each member and to support his/her decisions.
Action participation	The aggressive attitude that family members adopt when they participate in activities related to the therapy.
Family support	The ability of family members to mutually help and extend action-based assistance to each other.
Recreation	The recreation and social activities family members indulge in.
Rules implementation	Family members' ability to implement rules and the level of control the family has on the children.
Collaboration	Family members' ability to make consistent decisions and to implement them together.
Financial management	The ability of family members to manage financial affairs properly and to maintain a stable economic situation.

Table 5. Summary of previous questionnaires

Quantitative table name	Object	Items	Cronbach's α
FACES [7]	None appropriate	40	0.83
FFS [8]	Domestic violence, alcoholism and adolescent family	75	0.69
FAM [9]	Whole family members	134	0.93
FAD [10]	Mental health, adolescent, chronic disease family	60	0.72–0.92
F-COPES [11]	None appropriate	30	0.77
FES (FEF) [12]	Adolescent family	27	0.89
F-APGAR [13]	Childbearing family	5	0.83
Evaluatory Quantitative Table on Family Health and Nursing Care [14]	Mental disorders, management support system, and families dealing with alcoholism	34	0.52–0.92
Quantitative Table on Family Support [15]	Early intervention family	83	0.73

were developed. It is possible that this number of questions was too time-consuming for expert evaluation. Additionally, the large number of agencies contributing to the compilation of these questions introduced organizational complexities and pressures to include questions based on an individual organization's priorities.

For this study, there was direct interaction with the families. Although this interaction was helpful, it was necessary to be vigilant for the influence of the social nature of the interviews on the responses obtained.

The present study considered economic function as the greatest concern for families with developmentally delayed children even though it may not be measured in related quantitative tables of family function [17].

"Recreation" emerged as an important family function, which is consistent with previous observations [18,19]. "Cohesion" represents a combination of the original recreation function and an emotional maintenance function. The reason for the renaming is to highlight the fact that family recreation and family interaction have an interwoven relationship. "Collaboration" emphasizes a family's need to be capable of making consistent decisions. The present observations, as well as the participation, cooperation, and special support of both parents, are the most direct forms of support [20].

After the factor analysis, the communication function of the study was divided into three factors: "affective involvement", "family support", and "education" (Table 4). Consequently, the familial communication function cannot be expressed in a single aspect. This is a vital complexity, however, since it is also the major way by which families express concern. It affects the support of family members and children's education.

The present study explored family function from the point of view of empowerment. This concept is based on information from literature and the priority of making families self-reliant. "Family empowerment" was divided into two new factors: "action participation" and "problem-solving", which are defined in Table 4. The observations in this study and others [21] point out that developmentally delayed children still possess the ability to work with professionals in early intervention efforts, and that families need to actively face problems posed by their situations.

Our research originally focused on functions, such as care and protection, socialization, education, and emotional maintenance. However, factor analysis made clear the inability of a grouping of these functions under the umbrella of a single factor. They are connected with each other and with functions from various other factors. It is therefore, as far as a family is concerned, difficult to categorize these functions.

It was by these means that the "Family Function Questionaire for Families with Developmentally Delayed Children" was developed. The questionnaire includes 11 factors, consisting of 42 items with an above-average content validity, construct validity, and reliability.

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發展遲緩孩童家庭功能問卷之建構研究

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本研究之目的為建構完成「發展遲緩孩童家庭功能問卷」，並呈現建構過程，藉以協助個案管理或社會工作者能加以應用在家庭功能評估之實務工作，並提供相關社工研究者對從事問卷編制時之重要參考。本研究為一量化研究，正式施測樣本 300 份，資料分析方式包含因素分析、信度分析、項目分析等，並形成研究結果。本研究的結果包含：1. 建構問卷應有的前置作業：研究者應實際進入與研究對象多所接觸的實務場域；兼顧廣泛地、深入地對研究對象之家庭進行質性訪談；閱讀及整理相關的家庭功能及早期療育文獻與研究，將有助於對發展遲緩孩童家庭及其功能有清楚的、實際的瞭解；2. 建構完成發展遲緩孩童家庭功能問卷，共 42 題，其 Cronbach's α 值為 0.9326；3. 形成並定義發展遲緩孩童家庭的家庭功能，共包括十一項因素：凝聚力、教養、問題解決、情感涉入、獨立性、行動參與、家庭支持、娛樂、規範執行、合作度與財務管理。本研究希望藉由所建構出的發展遲緩孩童家庭功能問卷，將可作為未來在發展遲緩聯合評估中心或個案管理中心於家庭功能評估時重要之參考工具，同時本研究結果也可做為後續有關發展遲緩孩童家庭功能研究的參考。

關鍵詞：問卷編制，家庭功能，發展遲緩，早期療育服務

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