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Validity and Reliability of Family Beliefs Inventory Related to a Child's Hospital Discharge

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Abstract

Background and Purpose: To ensure that hospitalized chronically ill children and their families are willing to be discharged, family nursing care based on family beliefs is important. While an accurate assessment of the types and intensity of family beliefs is necessary, a scale has yet to be developed. The purpose of this study was to develop the Family Beliefs Inventory Related to a Child's Hospital Discharge and examine its validity and reliability. **Methods:** A five-point Likert-scale inventory was constructed based on 35 family beliefs identified in a previous study that influences the decision to discharge a chronically ill child. A questionnaire survey was conducted targeting families (fathers and mothers) of hospitalized children with chronic illnesses. **Results:** Valid responses were obtained from 185 individuals from 112 families. Following item analysis, construct validity was confirmed through exploratory factor analysis, resulting in a scale consisting of 23 items and four factors. Criterion-related validity was confirmed through correlation with the lifestyle scale. A Good-Poor analysis revealed significant differences for discriminant validity. The Cronbach's alpha coefficient for the entire scale was 0.726, confirming internal consistency. The intraclass correlation coefficient using the test-retest method was 0.826, confirming test-retest reliability. **Conclusions:** The novel inventory has good psychometric properties and can be utilized in family nursing in decisions regarding discharge of chronically ill children.

Keywords

Chronically Ill Child, Discharge, Family Nursing, Family Beliefs, Family Beliefs Inventory Related to a Children's Hospital Discharge

1. Introduction

In recent years, advances in medical technology have led to an increase in the number of children who survive health crises with chronic illnesses and disabilities. In Japan, efforts are being made to shorten the duration of hospital stays and shift care to the community. However, due to the increasing sophistication of medical care required by chronically ill children and the diminishing of family caregiving capacity owing to the trend toward nuclear families, some families do not wish to care for their children at home [1]. Nevertheless, few facilities exist for severely disabled children, and home care is often the only option. Home care following unwilling discharge from hospital does not last long, and cases of child abuse, stemming from the burden of child care, have been reported [2]. Therefore, in order for chronically ill children and their families to be discharged from hospital as desired and for them to realize a better life during home care, it is important to provide family nursing care that is consistent with the family's beliefs. Families recognize the need for home care and make decisions about whether or not to discharge their chronically ill children based on such beliefs [3].

Previous research [4] has identified 35 family/family member beliefs that are likely to influence the decision to discharge a chronically ill child. Some family/family member beliefs lead to a positive perception of discharge, others to a negative perception. Some beliefs can be either positive or negative according to the situation, and there are core beliefs that are not directly linked to either positive or negative perceptions. There are various family/family member beliefs regarding the event of discharge, and the balance between their type and intensity affects whether the situation will be perceived positively or negatively.

Family nursing focusing on family beliefs can lead to a positive overall outcome by changing negative beliefs, and changing beliefs that can be either positive or negative into beliefs that lead to a positive perception, and by strengthening beliefs that lead to a positive perception. To achieve this, it is necessary to accurately assess the type and intensity of family/family member beliefs. People live their lives largely unaware of their own beliefs, and are sometimes completely unaware of them [5]. It is therefore difficult for family members to discuss their own beliefs. Furthermore, while beliefs are at the root of distress [6], Japanese people tend to avoid expressing distress due to the widespread perception that quiet forbearance is a virtue [7]. This may also discourage obtaining information about deep-seated beliefs.

Furthermore, while early discharge support has been recommended in recent years, it is difficult to discuss family beliefs until a trusting relationship between nurses and families has been fully established. Just as families and family members have beliefs, nurses also have beliefs, and conversations between families and nurses are influenced by nurses' beliefs. Therefore a self-administered questionnaire is an effective way to assess family/family member beliefs that influence decisions regarding the hospital discharge of chronically ill children. This questionnaire makes it possible to obtain information about difficult-to-discuss beliefs

without being influenced by relationships of trust with nurses or nurses' beliefs.

Furthermore, because there are no absolute standards for the intensity of beliefs held, a subjective numerical assessment scale can be used to measure the intensity to which each individual holds their most important beliefs. This information is important for determining family nursing priorities. No assessment scale, however, currently exists for measuring such beliefs.

The purpose of this study was to develop a self-report assessment scale, the Family Beliefs Inventory Related to a Child's Hospital Discharge (FBI/Child's Hospital Discharge), to assess the type and intensity of family/family member beliefs that influence the decision-making process regarding the discharge of a chronically ill child, and to examine its validity and reliability.

2. Methods

2.1. Operational Definition of Terms

Family member beliefs are defined as "the way family members perceive things," and family beliefs are defined as "the individual family member beliefs shared by all family members through the mutual interaction of the family member beliefs and family dynamics" [3]. Family/family member beliefs are defined as "the union of family beliefs and family member beliefs (beliefs included in at least one of family beliefs and family member beliefs)." Belief intensity is "the degree to which a belief is entrenched." Chronically ill children are defined as "children under 18 years of age with an ill condition expected to last for three months or longer at the time of diagnosis, and also including those with disabilities" [8].

2.2. Drafting the FBI/Child's Hospital Discharge Questionnaire

2.2.1. Draft Items and Content Validity Review

The 35 family/family member beliefs identified in previous research [4] were used as questions for the FBI/Child's Hospital Discharge questionnaire, and the phrasing was carefully considered to ensure that the content would be easily understood by respondents. Seven family nursing researchers reviewed the questionnaire items to determine whether or not they were able to express the constructs, thereby enhancing content validity [9].

The draft questionnaire included 11 beliefs that lead to a positive perception of discharge (henceforth, "positive beliefs"); 12 beliefs that lead to a negative perception (henceforth, "negative beliefs"); six beliefs that can be either positive or negative depending on the situation (henceforth, "positive/negative variable beliefs"); and six core beliefs that are not directly linked to perceptions (henceforth, "core beliefs"). Regarding positive/negative variable beliefs, we added a supplementary question to determine whether the current situation indicated a move toward either discharge or continued hospitalization.

2.2.2. Scoring Method

In belief assessment, whether or not a belief is held, and if so, the intensity of that belief is considered important. To reflect this, a four-point Likert scale (0: not ap-

plicable; 1: somewhat applicable; 2: applicable; and 3: very applicable) was applied. Positive beliefs and core beliefs were scored as-is, while negative beliefs were reversed and scored. For positive/negative variable beliefs, if the reply to the supplementary question indicated a move toward hospital discharge, the score was scored as-is, while if the reply to the supplementary question indicated a continued hospitalization, the score was reversed and scored. The total score for the entire scale represents the degree to which the parent positively perceived the discharge of a chronically ill child.

2.2.3. Preliminary Survey

To examine the contents for possibly inappropriate aspects in the wording or order of the questionnaire and so on, we conducted a preliminary survey with the cooperation of 19 families of chronically ill children hospitalized in the pediatric wards of two hospitals that cooperated with the study. We obtained responses to the FBI/Child's Hospital Discharge from 23 individuals (four fathers and 19 mothers).

The appropriate time required to complete a psychological scale, including instructions, is approximately 15 to 30 minutes for completion of all questions [10]. The average time required to complete the FBI/Child's Hospital Discharge questionnaire was 17.7 minutes (SD = 6.3, range 10 to 30 minutes), and we determined that this length of time was adequate.

Furthermore, 10 of the 23 individuals (1 father and 9 mothers) were interviewed after completing the FBI/Child's Hospital Discharge to obtain their opinions on questions that were difficult to understand or that caused psychological distress. Based on these opinions, the FBI/Child's Hospital Discharge was revised (Table 1). For example, the original draft used the phrase "applicable," but because beliefs inquire about one's feelings, it was changed to "I think so." There were five items with responses that tended toward number 3 (very applicable). Therefore we decided to expand the Likert scale items from 4 points to 5 (0: I never thought about it/I don't think so; 1: I think so, rather than not; 2: I think so just a little; 3: I think so; and 4: I think so strongly).

Table 1. Draft of items for FBI/Child's Hospital Discharge.

Item Number	Content	Belief Classification[a]
1	We must go along with the doctor's instructions.	PN
2	We presume to have trust in the doctor when selecting a method of treatment or other recommendations.	PN
3	Consider the child's condition above all, and should make the best choice.	PN
4	It might be dangerous unless my child's daily care and condition management are not attended to at a hospital.	N
5	The hospital environment is familiar for my child and family.	N
6	A hospital is a place for recovery or improvement from sickness or disabilities.	PN
7	Hospitalization impacts negatively on my child's development and mental health.	P

Continued

8	My child's hospitalization places a burden on our family life.	P
9	It is difficult for children to become familiar with the education or nursing facility due to discrimination or bias regarding the child's sickness or disabilities.	N
10	Without the understanding of society, living is difficult for the child and family.	N
11	Even if my child is sick or disabled, it is best for him or her to attend an educational institution or childcare facility such as a local school (including a special needs school).	P
12	It is natural to expect that a child be born healthy.	N
13	A family is an entity that lives together.	P
14	Children should be raised at home by the parents themselves.	P
15	Children's wishes and hopes should be respected.	PN
16	There is no other choice but to devote one's best efforts for the hospitalized child.	PN
17	Even a child with sickness or disabilities can live as part of the family.	P
18	Being able to live as a family with children is a fortunate thing.	C
19	Life at home is for the benefit of the children.	P
20	I wish live the same life as a family not having a sick or disabled child.	P
21	Care for the child after discharge can be performed by the family.	P
22	Even if a child is sick or has disabilities, the main role in raising the child should be borne by the mother at home.	P
23	Raising a child with sickness or disabilities is very difficult.	N
24	The family's power has limitations when it comes to raising a child with sickness or disabilities.	N
25	I am unable to decide whether or not to continue raising my sick or disabled child into the future.	N
26	Affairs that concern a family will be managed by the family.	P
27	When the child is discharged, the family will not be able to live in the manner that it wishes.	N
28	I cannot further add to the burdens on my family by having my child discharged from the hospital.	N
29	Home care (home life for a family during a child's hospitalization) requires support from outside.	N
30	Home care (living at home with my hospitalized child) is likely to result in a lack of support.	N
31	The family seeks happiness.	C
32	The family is important.	C
33	For a family, having a child creates a loving existence.	C
34	There is meaning in human life.	C
35	It was my child's fate to become ill.	C

[a]C = Core beliefs, P = Positive beliefs, N = Negative beliefs, PN = Positive/negative variable beliefs.

2.3. Research Method

2.3.1. Survey Participants

The survey participants were families (fathers and mothers) of chronically ill chil-

dren hospitalized in the pediatric departments of four hospitals that cooperated with the research. The researchers personally distributed two copies of the questionnaire to each family, one for the father and one for the mother. The subjects for the test-retest method were families of chronically ill children who were expected to be hospitalized for at least two weeks at the time of distribution of the questionnaire, as participants were asked to complete questionnaires at two-week intervals [11].

2.3.2. Data Collection

The questionnaire consisted of questions regarding family demographics, the FBI/Child's Hospital Discharge, and the lifestyle scale [12].

The questions regarding family demographics investigated the respondent's gender and age, the child's type of chronic illness, the length of hospitalization, and so on.

The lifestyle scale measures a person's lifestyle, or in other words, a person's proactive and creative attitude toward life as they live in relation to society and others. It can be said to measure an individual's values toward themselves and society, and its validity and reliability have been confirmed [12]. The questionnaire consists of 28 items and asks participants to respond on a 5-point Likert scale (1) not at all applicable; 2) occasionally applicable; 3) sometimes applicable; 4) often applicable; and 5) always applicable). The total score represents a score for proactive/positive lifestyle. Because no scale exists measuring the same construct as the FBI/Child's Hospital Discharge, we used the lifestyle scale to measure positive perceptions of a concept similar to beliefs in order to confirm criterion-related validity.

2.4. Analytical Method

All statistical analyses were performed using IBM SPSS Statistics Ver. 28 (IBM Corp.), and a two-tailed value of $p < 0.05$ was used to indicate statistical significance.

Item analysis confirmed the ceiling effect and floor effect, and items were selected based on an item-total correlation test. Subsequently, exploratory factor analysis was performed to remove items with factor loadings of 0.35 or less and items with factor loadings of 0.35 or greater on two or more factors [13], and the scale was constructed accordingly. Construct validity was examined by determining whether the factor structure was consistent with the construct concept.

Criterion-related validity was examined by calculating the Pearson product-moment correlation coefficient with the lifestyle scale. After confirming the normality of the scale's total score, discriminant validity was examined by performing a Good-Poor analysis of the total scores, using the mean total score as the standard, dividing the scores into a high-scoring G group and a low-scoring P group [14].

Internal consistency reliability was evaluated using Cronbach's alpha coeffi-

cient, where a value of 0.70 - 0.95 is considered to indicate acceptable internal consistency [15]. Test-retest reliability was examined by calculating the intraclass correlation coefficient between the first and second responses obtained using the test-retest method [16]. Regarding correlation coefficients, $0 \le r < 0.2$ and $-0.2 < r \le 0$ are considered to be almost no correlation, $0.2 \le r < 0.4$ and $-0.4 < r \le -0.2$ are considered to be weak correlation, $0.4 \le r < 0.7$ and $-0.7 < r \le -0.4$ are considered to be moderate correlation, $0.7 \le r < 1$ and $-1 < r \le -0.7$ are considered to be strong correlation, and $r = 1$ and $r = -1$ are considered to be perfect correlation [17].

2.5. Ethical Considerations

This study was conducted after obtaining approval from the institutional review boards of the affiliated university and the cooperating hospitals. Survey participants were informed of the purpose and methods of the study, the risks and benefits of participation, the confidentiality of their data, and the voluntary nature of their participation. Informed consent in writing was obtained from interviewees. For the questionnaire survey, the return of the anonymous questionnaire indicated the respondent's consent to participate.

3. Results

3.1. Participant Characteristics

820 questionnaires were distributed to 410 families, and responses were received from 185 individuals. Because there may have been cases of single-parent families, the response rate cannot be accurately calculated. Participant demographics are shown in Table 2. Of the 185 individuals, 77 were fathers and 108 were mothers. The mean age was 37.7 (SD = 5.9), and the mean length of marriage was 8.8 years (SD = 5.3). The mean age of children with chronic illnesses was 4.6 (SD = 4.7), and the most commonly cited illness were congenital malformations, deformations and chromosomal abnormalities (81 individuals).

3.2. Item Analysis

3.2.1. Descriptive Statistics

Table 3 shows the descriptive statistics for each item. In the core belief some items had high mean values and exhibited a ceiling effect. However, because core beliefs are characterized by their high universality, we determined that they were necessary as scale items to avoid overlooking individuals who would give low scores, and therefore did not exclude them.

3.2.2. Item-Total Correlation Analysis

Table 3 shows the results of the corrected item-total correlation. Items 7, 8, and 12 had negative corrected item-total correlations, and item 20 had a low correlation with the overall score. These four items were excluded, resulting in a total of 31 items.

Table 2. Participant demographics ($n = 185$).

Gender ($n = 185$)	Father Mother	77 (41.6%) 108 (58.4%)
Age ($n = 183$)	Mean	37.7 years, SD = 5.9, range 23 - 55
Years married ($n = 173$)	Mean	8.8 years, SD = 5.3, range 0 - 25
Family structure ($n = 166$)	Nuclear family Extended family	151 (91.0%) 15 (9.0%)
Age of child with chronic illness ($n = 176$)	Mean	4.6 years, SD = 4.7, range 0 - 17
Length of hospitalization for child with chronic illness ($n = 175$)	Mean	93.8 days, SD = 145.7, range 1 - 1110
Diseases of children with chronic illnesses ($n = 172$)	Congenital malformations, deformations and chromosomal abnormalities	81 (47.1%)
	Neoplasms	42 (24.4%)
	Diseases of the circulatory system	9 (5.2%)
	Diseases of the genitourinary system	9 (5.2%)
	Others	31 (18.0%)

Note: Items not receiving responses were excluded from the analysis.

Table 3. Descriptive statistics and corrected item-total correlation for each item ($n = 178$).

Item number in Table 1	Mean	SD	Variance	Min	Max	Corrected item-total correlation
1	1.70	1.34	1.79	0	4	0.335
2	1.53	1.56	2.44	0	4	0.348
3	1.68	1.91	3.66	0	4	0.414
4	2.07	1.45	2.11	0	4	0.277
5	2.53	1.31	1.72	0	4	0.175
6	1.45	1.44	2.06	0	4	0.360
7	1.31	1.21	1.46	0	4	−0.042
8	2.78	1.29	1.67	0	4	−0.064
9	2.63	1.42	2.00	0	4	0.165
10	3.09	1.23	1.50	0	4	0.285
11	2.38	1.43	2.05	0	4	0.208
12	2.89	1.38	1.91	0	4	−0.087
13	3.36	1.04	1.07	0	4	0.254
14	2.86	1.15	1.31	0	4	0.294
15	3.29	0.79	0.63	1	4	0.263
16	1.65	1.78	3.16	0	4	0.416
17	3.30	1.04	1.08	0	4	0.179
18	3.83	0.51	0.26	0	4	0.310
19	3.57	0.76	0.58	0	4	0.446

Continued

20	2.78	1.51	2.28	0	4	0.038
21	2.94	1.13	1.27	0	4	0.452
22	1.36	1.35	1.83	0	4	0.341
23	1.29	1.36	1.85	0	4	0.124
24	1.86	1.52	2.30	0	4	0.074
25	3.57	0.94	0.89	0	4	0.251
26	1.67	1.38	1.90	0	4	0.215
27	3.74	0.80	0.63	0	4	0.363
28	3.70	0.75	0.56	0	4	0.160
29	1.86	1.50	2.23	0	4	0.311
30	3.33	1.13	1.27	0	4	0.216
31	3.59	0.75	0.56	0	4	0.183
32	3.88	0.41	0.16	1	4	0.251
33	3.90	0.45	0.20	0	4	0.289
34	3.58	1.07	1.14	0	4	0.086
35	1.21	1.47	2.17	0	4	0.192

3.3. Validity Analysis

3.3.1. Construct Validity

Exploratory factor analysis was performed on the 31-item factor, using maximum likelihood estimation as the extraction method and Oblimin method with Kaiser's normalization as the rotation method. Based on the scree plot, Table 4 shows the results with a four-factor structure, with eight items showing low factor loadings (below 0.35) on all factors. Therefore, excluding these eight items, the remaining 23 items were adopted as the FBI/Child's Hospital Discharge scale, consisting of four subscales.

The first factor consisted of universal core beliefs such as "The family is important" and "For a family, having a child creates a loving existence." The second factor consisted of positive/negative variable beliefs, where perceptions of discharge fluctuated between positive and negative depending on the situation, such as "We must go along with the doctor's instructions" and "There is no other choice but to devote one's best efforts for the hospitalized child." The third factor consisted of negative beliefs that led to a negative perception of discharge, such as "Without the understanding of society, living is difficult for the child and family" and "When the child is discharged, the family will not be able to live in the manner that it wishes." The fourth factor consisted of positive beliefs that led to a positive perception toward discharge, such as "Affairs that concern a family will be managed by the family" and "Children should be raised at home by the parents themselves."

As described above, the FBI/Child's Hospital Discharge was composed of 23

items across four factors. Based on the Kolmogorov-Smirnov test and histogram, we determined that the total score had a normal distribution (Z = 0.062, p = 0.200).

Table 4. Factor loadings for the FBI/Child's Hospital Discharge questionnaire (n = 178).

Factor name	Item number in Table 1	Factor 1	Factor 2	Factor 3	Factor 4	Communality
Core beliefs	33	**0.890**	−0.082	0.075	0.011	0.829
	32	**0.855**	−0.107	0.023	0.067	0.786
	18	**0.657**	−0.004	0.126	0.213	0.617
	31	**0.470**	−0.025	−0.122	0.157	0.282
	34	**0.420**	0.015	−0.040	−0.049	0.162
Positive/negative variable beliefs	2	0.005	**0.898**	−0.016	−0.056	0.798
	1	0.095	**0.860**	−0.028	−0.150	0.736
	6	−0.001	**0.841**	−0.019	−0.074	0.699
	3	−0.091	**0.801**	−0.019	0.062	0.657
	16	−0.158	**0.686**	−0.108	0.215	0.550
Negative beliefs	24	−0.089	−0.202	**0.628**	0.023	0.416
	23	−0.092	−0.049	**0.614**	−0.039	0.364
	10	0.008	−0.036	**0.554**	0.179	0.370
	27	0.327	0.069	**0.454**	0.053	0.393
	29	−0.095	0.062	**0.436**	0.177	0.238
	9	−0.039	0.071	**0.374**	−0.007	0.144
Positive beliefs	17	0.144	−0.084	−0.086	**0.604**	0.425
	19	0.251	0.074	−0.045	**0.581**	0.500
	22	−0.039	0.058	−0.011	**0.545**	0.294
	21	−0.147	0.072	0.312	**0.515**	0.385
	26	−0.076	−0.069	0.090	**0.466**	0.217
	13	0.276	−0.077	0.100	**0.362**	0.299
	14	0.084	−0.009	0.060	**0.354**	0.162

Note: Factor extraction method: Maximum likelihood estimation, Rotation method: Oblimin method with Kaiser's normalization.

3.3.2. Criterion-Related Validity

The Pearson product-moment correlation coefficient between the lifestyle scale and the total score of the 23-item FBI/Child's Hospital Discharge was 0.202, indicating a weak correlation (Table 5). By subscale, correlations were observed between the total score of core beliefs and the lifestyle scale (r = 0.326) and the total score of positive beliefs and the lifestyle scale (r = 0.316).

Table 5. Pearson product-moment correlation coefficients between the FBI/Child's Hospital Discharge and lifestyle scales ($n = 183$).

	Overall score	Core beliefs	Positive beliefs	Negative beliefs	Positive/negative variable beliefs
Pearson product-moment correlation coefficient	0.202*	0.326**	0.034	0.044	0.316**

Note: *$p < 0.05$, **$p < 0.01$.

3.3.3. Discriminant Validity

Based on the mean total score of the 23-item FBI/Child's Hospital Discharge, the subjects were divided into two groups, the high-scoring Group G and the low-scoring Group P. The total score of the FBI/Child's Hospital Discharge was significantly higher in Group G than in Group P (Table 6).

Table 6. Good-to-poor analysis of the FBI/Child's Hospital Discharge questionnaire ($n = 139$).

Mean (SD)		t	p
G group ($n = 94$)	P group ($n = 84$)		
68.5 (5.79)	51.6 (5.41)	−17.67	0.000***

Note: ***$p < 0.001$ (t-test).

3.4. Reliability Assessment

The Cronbach's alpha coefficient for the overall scale was 0.726. For the subscales, core beliefs were 0.711, positive/negative variable beliefs, 0.901, negative beliefs, 0.673, and positive beliefs 0.719 (Table 7).

Table 7. Cronbach's alpha coefficients for the FBI/Child's Hospital Discharge questionnaire ($n = 178$).

	Overall score	Core beliefs	Positive beliefs	Negative beliefs	Positive/negative variable beliefs
Cronbach's alpha coefficient	0.726	0.711	0.719	0.673	0.901

Regarding the test-retest method, 71 families were asked to complete the questionnaire, and 31 returned responses. The test-retest results showed an intraclass correlation coefficient of 0.826 for the total score, and the subscales ranged from 0.622 to 0.887 (Table 8), indicating a moderate to strong correlation.

Table 8. Intraclass correlation coefficients for the test-retest method ($n = 31$).

	Overall score	Core beliefs	Positive beliefs	Negative beliefs	Positive/negative variable beliefs
Intraclass correlation coefficient	0.826	0.622	0.860	0.887	0.757
p	0.000***	0.000***	0.000***	0.000***	0.000***

Note: ***$p < 0.001$.

4. Discussion

4.1. Validity and Reliability of the FBI/Child's Hospital Discharge

The FBI/Child's Hospital Discharge questionnaire consists of questionnaire items addressing family/family member beliefs that influence the discharge of a chronically ill child, as identified in previous research [4]. Exploratory factor analysis revealed a four-factor structure consistent with core beliefs, positive beliefs, negative beliefs, and positive/negative variable beliefs, confirming construct validity.

Criterion-related validity was determined using the lifestyle scale, which measures positive values. Although the construct is similar in that it measures positive perceptions, it does not fully match the FBI/Child's Hospital Discharge. Given this premise, the weak correlation between the total score of the FBI/Child's Hospital Discharge and the total score of the lifestyle scale is meaningful. Furthermore, among the subscales, the lifestyle scale showed correlations with positive beliefs and core beliefs, but no correlations with negative beliefs or positive/negative variable beliefs. This is thought to be a result consistent with the relationship between the constructs, and confirms criterion-related validity.

The Cronbach's alpha coefficient for FBI/Child's Hospital Discharge was 0.726 for all items, and for the subscales core beliefs, positive beliefs, and positive/negative variable beliefs, was sufficient, with values above 0.7. Although the negative beliefs score for this scale was 0.673, slightly below 0.7, usable internal consistency [18] could be verified.

Furthermore, a Good-Poor analysis dividing participants into a high G group and a low P group, based on the mean total score of FBI/Child's Hospital Discharge, revealed a statistically significant difference, confirming discriminant validity.

Using the test-retest method, moderate to strong correlations were observed, with an overall correlation of 0.826 and subscale correlations ranging from 0.622 to 0.887, confirming test-retest reliability.

The overall score of the FBI/Child's Hospital Discharge had a normal distribution, indicating that the data are unbiased and can be used to examine validity and reliability. The FBI/Child's Hospital Discharge can be used to measure and assess family member beliefs, and it may be possible that family beliefs can be assessed by comparing results between members within the same family.

These findings confirm the validity and reliability of the FBI/Child's Hospital Discharge. By using a self-administered questionnaire, the FBI/Child's Hospital Discharge is an assessment tool that is less affected by nurse beliefs or the trust between nurses and families. Furthermore, by reading the items in order to answer the questionnaire, family members can become aware of their own beliefs that they may not have otherwise been aware of. In order for beliefs to change, it is important for the person in question to be aware of their beliefs [3]. Therefore, it is believed that using this scale will be of great meaning as it provides an opportunity for family members to confront and become aware of their own beliefs.

4.2. Limitations of the Study

In this study, we used the lifestyle scale to examine criterion-related validity. However, we only examined subscales of the FBI/Child's Hospital Discharge that strongly reflected positive perceptions. Therefore, we believe further validation will be necessary, including adding scales measuring negative perceptions. While the FBI/Child's Hospital Discharge measures family member beliefs, the subjects in this study were parents, *i.e.*, adults, and it did not otherwise assess beliefs of the chronically ill child's family members. Future work will require the development of a method for assessing beliefs of the chronically ill child. Furthermore, the Cronbach's alpha coefficient for negative beliefs was 0.673, slightly below 0.7. Future studies using this scale will likely be necessary to confirm the Cronbach's alpha coefficient.

5. Conclusion

The FBI/Child's Hospital Discharge is a scale consisting of 23 items and four factors. Construct validity, criterion-related validity, discriminant validity, internal consistency, and test-retest reliability were confirmed, demonstrating that the scale is valid and reliable.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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