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Reliability and validity of the Chinese version of the Readiness for Hospital Discharge Scale—Parent Form in parents of preterm infants

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ABSTRACT

Background: The Readiness for Hospital Discharge Scale (RHDS)—Parent Form shows satisfactory reliability and validity to assess the readiness of parents to take care of their children discharged from hospitals in Western countries. However, the reliability and validity of this instrument has not been evaluated in Chinese populations.
Objectives: Evaluate the psychometric features of the RHDS—Parent Form among Chinese parents of preterm infants.
Methods: The RHDS—Parent Form was translated into a Chinese version following an international instrument translation guideline. A total of 168 parents with preterm infants were recruited from the neonatal intensive care units of two tertiary-level hospitals in China. The internal consistency of this measure was assessed using the Cronbach's α coefficient; confirmatory factor analysis was conducted to evaluate the construct validity; and Pearson correlation coefficient was used to report the convergent validity.
Results: The Chinese version of RHDS (C-RHDS)—Parent Form included 22 items with 4 subscales, accounting for 56.71% of the total variance. The C-RHDS—Parent Form and its subscales showed good reliability (Cronbach's α values 0.78—0.92). This measure and its subscales showed positive correlations with the score of Quality of Discharge Teaching Scale.
Conclusion: The factor structure of C-RHDS—Parent Form is partially consistent with the original English version. Future studies are needed to explore the factors within this measure before it is widely used in Chinese clinical care settings.

1. Introduction

The World Health Organization (WHO) reports that worldwide, one out of 10 infants are born prematurely each year [1]. China has the largest number of preterm infants in the world. Compared to infants born maturely, preterm infants are more susceptible to various health issues [2] and require additional health care in the neonatal intensive care units (NICUs) [3]. Their discharge from the NICUs may lead to a great deal of vulnerability for them and their parents due to shifts in health conditions, family relationships, and parents' ability to follow care plans [4]. Parents may question their ability to engage in the full responsibility of caring for their premature children for the first time without the presence of health care providers [5]. Discharge planning has been reported as a major means for creating a smooth transition from health care settings to the home environment [6] and for preventing hospital readmission [7]. Assessing patient-reported readiness for hospital discharge is regarded as an important part of the hospital discharge process and a potential predictor of post-discharge outcomes [8]. Preterm infants cannot report their readiness, and their developmental stage might contribute to parenting difficulties. Because parents are the primary caregivers of preterm infants after discharge, it is important to assess parents' readiness before their preterm infants' release from the hospital to ensure infant safety and increase health care outcomes at home.

At present, a premature infant's readiness for discharge from the hospital is primarily determined by a set of clinical criteria, as judged by clinicians, without considering parent-reported

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readiness. Studies have found that perceptions of readiness for discharge differ between family members and health care providers [9]. A very limited body of literature exists regarding preparing parents for the discharge of their preterm infants from hospitals. A critical step in improving continuity of care is to develop a reliable and valid instrument that can evaluate parents' readiness for their preterm infants' discharge from NICUs so that necessary interventions can be developed to meet parental needs.

Several measures have been developed to assess patients' or caregivers' readiness for hospital discharge, including the PREPARED Questionnaire [10], the Care Transitions Measure (CTM) [11], the Readiness for Discharge Questionnaire (RDQ) [12], the Post Anesthetic Discharge Scoring System (PADSS) [13], and the Readiness for Hospital Discharge Scale (RHDS)—Parent Form [14,15]. The PREPARED Questionnaire was developed to assess the quality of planning for hospital discharge for elders and their caregivers [10]; the CTM was developed to assess the quality of care transition from patients' perspective (≥18 years old) [11]. Both the PREPARED Questionnaire and the CTM are completed at home by adult patients and/or their caregivers after hospital discharge [10,11]. The RDQ was developed to assess discharge readiness for patients with schizophrenia [12] and the PADSS was created to assess post-anesthetic recovery [13]. Both the RDQ and the PADSS are completed by health care providers on the day of patients' discharge [12,13]. All four of these measures have good reliability and validity [10–13], but none of them was designed to assess parental readiness for discharge of their hospitalized children.

The RHDS—Parent Form was developed to measure parent-perceived readiness for hospital discharge of children (0–18years old) on the day of discharge [14,15]. This scale has 29 items, which are covered by five subscales: child personal status, parent personal status, knowledge, coping ability, and expected support [15]. This measure has adequate psychometric properties and has been widely used in Western countries [14,15]. Assessing parental readiness before infants' discharge can provide insights regarding how to promote a smooth transition from hospital to home care and improve health care outcomes at home. Studies have reported that a higher quality of discharge teaching can heighten parents' readiness for hospital discharge and lead to fewer parent coping difficulties at home [16]. As the only available measure to assess parental readiness on the day of infants' discharge, the RHDS—Parent Form has not been evaluated for use in Chinese populations. The purpose of this study was to evaluate the reliability and validity of the RHDS—Parent Form among parents of preterm infants in China.

2. Methods

2.1. Participants

A convenience sampling method was used to select parents with preterm infants who were hospitalized in the NICUs of two tertiary hospitals in Wuhan, China. Eligible parents were required to be ages ≥18 years and to have finished grade 8 or above. In addition, they had to be identified as parents who would become primary caregivers of preterm infants discharged to home. Parents were excluded if their preterm infants needed surgery, were diagnosed with congenital abnormalities, were abandoned, readmitted, or deceased.

In the instrument development and testing process, approximately 5–10 samples are needed per item and the needed samples per item decrease with an increasing sample size [17]. In this study, the estimated sample size should range between 145 and 290 with respect to a total of 29 items in the RHDS—Parent Form. A total of 168 parents were recruited for this study.

2.2. Instrument

2.2.1. RHDS—Parent Form

The 29-item RHDS—Parent Form was originally built to measure parental readiness for hospitalized children's (0–18years old) discharge [14,15]. These items are grouped into five subscales: parent personal status, child personal status, knowledge, coping ability, and expected support. Child and parent personal status describes, respectively, both a child's and a parent's physical-emotional state before discharge; knowledge represents parental perceptions of information needed to address their concerns and answer their questions after discharge; coping ability refers to parent-perceived abilities to take care of their children at home; and expected support means the emotional and instrumental support that should be available after discharge. Each item uses an 11—point response option with anchors “not at all” at the beginning and “totally” at the end. The total score ranges from 0 to 290. A higher total score indicates a better parent readiness for hospital discharge. Cronbach's α values ranged from 0.70 to 0.86 for the total scale and its subscales [15]. The confirmatory factor analysis (CFA) has demonstrated satisfactory psychometric status [i.e., Lisrel Goodness of Fit Index (GFI) = 0.79; standardized root mean residuals (SRMR) = 0.10; root mean square error of approximation (RMSEA) = 0.10; and standardized absolute residuals = 0.07] [14].

2.2.2. Quality of Discharge Teaching Scale (QDTS)—Parent Form

The QDTS—Parent Form was developed to assess how parents perceived the teaching ability of their children's nurses [15]. This instrument consists of 18 items under 2 subscales: content received subscale and delivery subscale. The 6-item content received subscale addresses the quality of the education received for discharge preparation, and the 12-item delivery subscale assesses the nurses' skills when presenting discharge information. Each item uses an 11-point response option with anchors “not at all” at the beginning and “totally” at the end. The total score of the QDTS—Parent Form ranges from 0 to 180. A higher total score indicates better overall discharge instruction. The Cronbach's α coefficient is 0.88 for the total scale and 0.78 and 0.88 for content received and content delivery subscales, respectively [15]. There is no Chinese version of QDTS—Parent Form available. It was translated into Chinese along with the RHDS—Parent Form according to the instrument translation guideline [18]. In this study, the Cronbach's α coefficient was 0.82 for the total scale and 0.86 and 0.88 respectively for the content received and content delivery subscales.

2.3. Instrument translation and pilot test procedure

2.3.1. Translation

After obtaining permission to translate and evaluate the RHDS—Parent Form from the original developer, the transcultural adaptation of the RHDS—Parent Form was conducted based on a standard translation guideline recommended by Wild et al. [18]. Two bilingual nursing researchers who had clinical and research experience but were not familiar with the original RHDS—Parent Form independently translated the English version of RHDS—Parent Form into two separate Chinese versions (forward translation). A forward-translated RHDS—Parent Form was finalized after both forward-translators reached an agreement. Two other bilingual experts not familiar with the original measure independently translated the forward-translated RHDS—Parent Form back to two separate English versions (back-translation). One final back-translated RHDS—Parent Form was developed after a consensus was reached between both back-translators. Finally, the proof-reading of the back-translated version (in English) of RHDS—Parent Form was checked against the original English instrument by the

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