Applied Nursing Research 27 (2014) 87–90

Contents lists available at ScienceDirect

Applied Nursing Research

journal homepage: www.elsevier.com/locate/apnr

Resourcefulness training intervention: A promising approach to improve mental health of mothers with technology-dependent children

Valerie Boebel Toly, PhD, RN, CPNP *, Carol M. Musil, PhD, RN, FAAN, Jaclene A. Zauszniewski, PhD, RN-BC, FAAN

Frances Payne Bolton School of Nursing, Case Western Reserve University, Cleveland, OH 44106, USA

ARTICLE INFO

Article history:
Received 22 October 2013
Accepted 3 November 2013

Keywords:
Technology-dependent
Children
Intervention
Pilot study
Caregivers
Mental health

ABSTRACT

The population of children dependent on medical technology such as mechanical ventilation, feeding tubes, and supplemental oxygen continues to grow in the United States. These children are frequently cared for by their mothers at home following hospital discharge. Research indicates that these mothers are at high risk for negative mental health outcomes that affect both caregiver and care recipient. The purpose of this randomized controlled pilot trial was to determine the feasibility, acceptability, and efficacy of resourcefulness training (RT), a cognitive–behavioral intervention, among mothers of technology-dependent children. RT was found to be a feasible and acceptable intervention with this population during the 6 week study. The effect size in this pilot study demonstrates initial efficacy and indicates areas for strengthening the intervention protocol. RT is a promising intervention that can be employed by pediatric nurses to assist mothers in the home management of technology-dependent children.

1. Introduction

Technology-dependent children—those dependent on medical technology such as mechanical ventilation or feeding tubes—comprise 20% of all pediatric patients discharged from the hospital to home (Feudtner et al., 2005), yet they account for 61% of all healthcare resource use by children (Newacheck & Kim, 2005). This patient population continues to grow as more children benefit from medical technology (Seferian, Lackore, Rahman, Naessens, & Williams, 2006). As a result, more caregiving responsibilities fall to their mothers, who report greater levels of depressive symptoms than do caregivers of Alzheimer's patients (Kuster & Badr, 2006; Mittelman, Roth, Coon, & Haley, 2004; Toly, Musil, & Carl, 2012), yet little research has been conducted with this population. Furthermore, caregiving demands result in physical exhaustion (Kirk & Glendinning, 2004) due to sleep disruption and constant vigilance necessary to monitor the technology, perform treatments, and assess the child's condition (Heaton, Noyes, Sloper, & Shah, 2005). Therefore, mothers of technology-dependent children are at high risk for negative mental health outcomes that affect both caregiver and care-recipient (Brehaut et al., 2011; Cousino & Hazen, 2013; Toly et al., 2012). Research findings indicate that improvement in mental health outcomes of caregivers positively affects care-recipients (Northouse, Williams, Given, & McCorkle, 2012; Rosswurm, Larrabee, & Zhang, 2002).

Trials of psychosocial counseling (Mittelman et al., 2004; Northouse et al., 2012) and in-person (Spijker et al., 2008) or web-based education and support for caregivers (Pierce, Steiner, Khuder, Govoni, & Horn, 2009) have produced mixed results related to depressive symptoms. In contrast, cognitive–behavioral strategies have led to improved mental health (Glueckauf et al., 2012). Resourcefulness training, a cognitive–behavioral intervention, has been shown to facilitate the development of social (help-seeking) and personal (self-help) resourcefulness skills, resulting in improved mental health, and improved care for recipients (Rosswurm et al., 2002; Zauszniewski, Eggenschwiler, Preechawong, Roberts, & Morris, 2006). Informed by Zauszniewski's (2012) resourcefulness theory, teaching the skills constituting personal and social resourcefulness skills is expected to ultimately impact one's resourcefulness and mental health through initial effects on intervening variables, such as negative emotions and depressive cognitions.

1.1. Study purpose

The purpose of this pilot study was to determine the feasibility, acceptability, and efficacy of the resourcefulness training (RT) intervention on mental health outcomes among mothers of technology-dependent children.

2. Methods

2.1. Design

This study is a longitudinal randomized controlled pilot trial with assignment to the RT intervention group (RT with journaling) or the

Conflict of Interest Statement: The authors report no conflict of interest.

* Corresponding author. Tel.: +1 216 368 3082 (office), +1 216 378 9776 (home); fax: +1 216 368 3542.
E-mail addresses: vab@case.edu (V.B. Toly), cmm4@case.edu (C.M. Musil), jaz@case.edu (J.A. Zauszniewski).

0897-1897/$ – see front matter © 2014 Elsevier Inc. All rights reserved.
http://dx.doi.org/10.1016/j.apnr.2013.11.003

control group (journaling only). Data were collected at baseline and 6 weeks post-enrollment. RT includes in-person teaching of eight resourcefulness skills using the acronym RESOURCE to prompt recall of social (help-seeking) and personal (self-help) skills (Zauszniewski, Eggenschwiler et al., 2006; Zauszniewski, Lai et al., 2006). Intervention nurses discussed use of each skill tailored to each mother's specific situation and asked the mother to describe other instances for future skill application. The intervention group received a wallet-sized laminated card and magnet that listed the resourcefulness skills e.g., rely on family and friends, organize daily activities, as a reminder. Mothers in both groups kept a daily journal and received weekly 5–10 minute telephone calls for 4 weeks. The intervention group was to practice and reinforce RT skills by writing in a journal about their use of RT skills while caring for their child. Mothers in the control group wrote about significant events related to their child's care.

2.2. Sample

A convenience sample of mothers who care for their technology-dependent child at home ($n = 22$) was recruited from the pulmonology and gastroenterology clinics at a large midwestern children's hospital. Participants were at least 18 years of age, able to speak and understand English, and the primary female caregiver for a technology-dependent child at home based on the Office of Technology (OTA, 1987) classification (group 1 mechanical ventilation; group 2 intravenous nutrition/medication; group 3 respiratory/nutritional support). Mothers of technology-dependent children with a cancer diagnosis were excluded due to possible grief reactions related to the illness.

2.3. Measures

Outcome (Scale)	Scale Description	Sample Items	Interpretation	Cronbach's α
Negative emotions (Negative Emotions Checklist, NEC) (Zauszniewski, Morris, Preechawong, & Chang, 2004)	10 dichotomous items; scores range 0–10	Sadness Worry Irritability	Higher scores reflect more negative emotions	.76 (previous) .80–.83 (this study)
Depressive cognitions (Depressive Cognitions Scale, DCS) (Zauszniewski, 1995)	8 items (reverse coded); 6-point scale; scores range 0–40	Hopelessness Helplessness Worthlessness	Higher scores reflect more depressive cognitions	.75 (previous) .73–.76 (this study)

2.4. Procedures

2.4.1. Subject screening and recruitment

Approval was obtained from the hospital IRB prior to conduct of this study. Potential participants were identified by staff at the targeted outpatient clinics. A letter describing the study and requesting the mother to contact the researcher was sent to potential participants. The letter also noted that participation is voluntary and that study staff would follow up by telephone if she did not contact the study office in 2 weeks. Study staff contacted mothers to assess eligibility and to invite them to participate. Interested mothers were then scheduled for an appointment in a private place of her choosing such as their home, specialty clinic, or the clinical research unit. Written, informed consent was obtained prior to baseline data collection. Random assignment to groups was made by the sealed envelope method.

2.5. Data collection

Data were collected by structured interview at baseline and by mail for the 6 week follow-up. Other data were collected related to family outcomes; however, this preliminary report describes solely mental health outcomes and demographic sample characteristics. Semi-structured, audio recorded exit interviews were conducted to determine acceptability of study procedures.

2.6. Data analysis

Data were entered into Statistical Package for Social Sciences (SPSS version 19; Somers, NY) and cleaned. Data were analyzed using descriptive statistics to assess demographic characteristics of the sample. Feasibility of the intervention was analyzed using data on recruitment, retention, and completion of study procedures. Content analysis of exit interview transcripts was conducted to determine acceptability of study procedures, and Cohen's d effect sizes were calculated to determine the efficacy of the intervention.

3. Results

3.1. Sample characteristics

The mothers ($n = 22$) were primarily Caucasian (82%), with a mean age of 41.3 years ($SD = 6.9$), and 45% had a yearly family income between $41,000–80,000 (Table 1).

Their technology-dependent children had a mean age of 9.7 years ($SD = 4.5$) and were primarily from OTA Group 3 (68%); dependent on respiratory/nutritional support (Table 2).

3.2. Feasibility

The study response rate was 86.1% with an 89% participation rate. The journaling was completed for the specified 4 weeks by 95.5% of mothers; however, two mothers found the journal too personal to return to study staff. The average number of days mothers journaled was 23.2 days (range 12–28). The most frequently used resourcefulness skills were rely on family and friends, seek professionals and experts, organize daily activities, and use positive self-talk. Telephone contacts were successfully completed per study protocol for 95.5% of mothers and 91% completed all questionnaires at each data collection point. There was subject attrition by two intervention group participants; one participant completed only baseline data but did not respond to follow-up telephone calls or data collection attempts,

Table 1
Sample Characteristics of Mother ($N = 22$).

	n	(%)
Race/Ethnicity		
Hispanic	0	(0)
African Amer.	3	(14)
Caucasian	18	(82)
Asian	1	(4)
Age of Mother		
33–39	8	(36)
40–45	8	(36)
≥46	6	(28)
Family Income		
≤$40 K	5	(23)
$41–$80 K	10	(45)
≥$81 K	7	(32)