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ORIGINAL PAPER

Feasibility of a Multimedia Program for Parentally Bereaved Children

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Abstract

Background Self-directed multimedia resources that provide psycho-educational information to selected populations have been supported in child health related areas including parenting skills in adults and literacy in children. Comparable programs for use with bereaved children and families have not been adequately developed or empirically examined. Examining usability and satisfaction with such materials is critical, especially when dealing with bereavement.
Objective This study evaluated the feasibility of the multimedia kit "Talk, Listen, Connect III: *When Families Grieve*$^{\text{TM}}$ *(TLC III)*" for use with caregivers and their parentally bereaved children (ages 2–16 years). Primary outcomes included the utilization and overall satisfaction with the *TLC III* kit and the kit's impact on caregiver–child communication. Secondary outcomes, engagement, family coping, and caregiver and child grief also were examined.
Participants Ninety-three caregivers completed pre- and post-viewing questionnaires (59 in the *TLC III* group, 34 in the comparison group).
Results Caregiver's who viewed the *TLC III* kit materials reported greater satisfaction with kit materials and greater impact on family coping with death than did caregivers who viewed the *Ready* kit. No significant differences were found with regard to pre- to post-test changes on any of the primary or secondary outcome measures after controlling for pretest scores.
Conclusions Multimedia programs should be considered as adjuncts or alternatives to traditional therapies and further evaluated for use with parental bereavement; particularly among inaccessible segments of the population. Future studies should consider innovative approaches to examining the effects of such programs on complex problems faced by children.

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Introduction

One in 20 children under 16 years of age, living in the United States, experiences the death of a parent (Haine et al. 2008). For young children in particular, such a loss is distressing and may lead to anxiety, depression, and posttraumatic stress symptoms (Currier et al. 2007; Finkelstein 1988; Reinherz et al. 2000). The death of a parent is also likely to lead to disruptions in the child's care due to the resultant grief of any surviving caregiver; usually a spouse or partner of the deceased. The relationship between the mental health of caregivers and mental health of their children is particularly important in the aftermath of parental death, where poorer adult outcome is associated with poorer child outcome (Saldinger et al. 2004). In the case of parental bereavement, young children must rely on trusted adults in their lives to help them meet the challenges of grief at a time when family members are also grieving (Raveis et al. 1999). As a result, grief-related interventions for young children must directly engage children, and also involve adult caregivers.

Intervention modalities for bereaved children include: traditional therapy, peer counseling, supportive care, or retreats conducted (by professionals of varying specialties) in individual, group, or family formats. Effects of existing interventions for bereaved children have shown mixed results, with greater effects detected among children experiencing severe distress and those closest to the time since their parent's death (Currier et al. 2007). However, children who are not severely distressed may still experience dysfunction or demonstrate impairment. It is unclear to what degree these interventions are appropriate for bereaved children experiencing lower levels of distress, or for families for which grief interventions are difficult to access or not desired (Kazdin and Blase 2011). For these families, alternatives to traditional treatment modalities may be particularly useful (Clay 2011). Self-directed resources that provide effective caregiver guidance, psycho-educational assistance, and highlight children's unique developmental needs, may be seen as welcome alternatives or adjuncts to other therapy modalities (Morawska et al. 2005).

Existing self-directed grief-support resources, including books and online programs, offer useful information, but often lack multi-modal approaches that can simultaneously (1) educate adult caregivers to appropriately support their grieving children, (2) include age-appropriate material for young children, as well as (3) encourage interactions between caregivers and children that foster communication and shared understanding. Self-directed multimedia resources that provide psycho-educational information to selected populations have been supported in a number of other child health related areas, including parenting skills in adults and literacy in children (Sanders and Prinz 2008). To date, comparable programs for use with bereaved children and families have not been adequately developed or empirically examined.

It remains unclear whether children and their families would use a program specifically about death, or whether children would understand the program's message if the content was delivered in an explicit manner. A program that successfully addresses challenging topics such as parental death should engage children and their caregivers in understanding death and help caregivers use honest and clear, yet appropriate language that is neither confusing nor overwhelming to children. For multimedia programs that are intended to be self-directed, usability of program materials is particularly important.

The efficacy of any self-directed program depends on capturing and maintaining users' attention as well as user satisfaction with the materials. Usability and satisfaction with materials is particularly important among bereaved children and children's caretakers because adult caregivers are themselves distressed and difficult to engage following a family member's death (Raveis et al. 1999). Therefore, an evaluation of such materials must address a program's usability, ease of understanding, and user satisfaction with the materials, in addition to the impact of materials on psychosocial outcomes (e.g., communication, grief). Although it is likely to see only small effects on psychosocial outcomes with use of self-directed materials, any effect among an otherwise inaccessible segment of the population is a critical contribution (Kazdin and Blase 2011).

A promising model for evidence-based development of self-directed multimedia resources is the model used by Sesame Workshop© (Creator of Sesame Street©) for educating children. The Sesame Workshop© Model has been developed over 30 years through a collaboration of researchers, educators, and television production teams. This model has been used to develop empirically based educational multimedia programming since 1968 (Palmer and Fisch 2001), often addressing complicated topics such as poverty, diversity, bullying and divorce. As described by Fisch and Truglio (2001), this model involves the use of a detailed curriculum, materials and characters that are appealing to children, instruction that is explicit and concrete, child centered content, repetition, modeling by characters with which children and caregivers can identify, encouraging viewer participation, and ongoing program evaluation. Research examining the effects of Sesame Street© programs on children has shown positive effects on academic outcomes as well as social skills (Fisch and Truglio 2001).

This study evaluated the feasibility of the self-directed multimedia kit, "Talk, Listen, Connect III: *When Families Grieve" (TLC III)* on bereaved caregivers and their children (ages 2–16 years) following the death of a parent. Specifically, using a combination of standardized and developed measures this study examined (1) the utilization and satisfaction with the Sesame Workshop© *TLC III* kit, (2) impact on caregiver-child communication and engagement, (3) impact on family's ability to cope with the death, and (4) impact on caregiver and child grief. It was hypothesized that *TLC III* kit material would be highly used and well-liked by the caregivers and their bereaved children. In addition, *TLC III* was expected to have a positive impact on caregiver-child communication and engagement. The *TLC III* kit's impact on coping and grief was expected to be small, particularly when examined in relation to an active comparison group (described below).

Method

Participants

Baseline data were obtained for 185 participants who completed the online surveys. Of the 185 caregivers who completed the baseline questionnaire 93 also completed post-viewing questionnaires; 59 were in the *TLC III* group, 34 in the comparison group (described below). Table 1 shows the demographic characteristics of the adult caregiver participants who completed the baseline questionnaire (n = 185) and of those who completed the baseline and the post questionnaires (n = 93). For those who completed both questionnaires, demographic characteristics are presented separately by group. Participants who completed only the baseline questionnaire were not significantly different from those who completed both baseline and post questionnaires. Similarly, participants in the *TLC III* group did not differ from comparison group participants on demographic characteristics.

Table 1 Caregiver Demographics

Demographic characteristics	Non-completers		Completers				χ^2	*p* value[a]
			TLC III		Emergency			
	n = 92	(%)	n = 59	(%)	n = 34	(%)		
Gender							4.61	.10
Male	10	(11)	2	(3)	1	(3)		
Female	76	(83)	56	(95)	33	(97)		
Annual income							17.96	.12
\$0–\$40,000	28	(31)	22	(37)	8	(24)		
\$40,001–\$80,000	41	(44)	23	(39)	25	(74)		
Over \$80,001	14	(16)	7	(12)	1	(3)		
Highest education level							16.77	.40
High school or less	7	(8)	3	(5)	3	(9)		
Some college/2-year college Degree/Technical School	34	(37)	23	(39)	15	(44)		
4-year College Degree	31	(34)	19	(32)	6	(18)		
Graduate/Professional Degree	15	(16)	13	(22)	10	(29)		
Current Marital Status							11.37	.33
Single/Divorced/Widowed	75	(81)	46	(78)	28	(82)		
Married/Remarried	10	(11)	10	(17)	6	(18)		
Other	2	(2)	0	(0)	0	(0)		
Age							7.01	.32
20–29	14	(15)	6	(10)	6	(18)		
30–39	37	(40)	22	(37)	18	(53)		
40–49	27	(29)	28	(48)	8	(24)		
50+	10	(11)	2	(3)	2	(6)		
Hispanic/Latino							.265	.88
Yes	10	(11)	5	(9)	4	(12)		
Race							7.92	.64
White	73	79	51	(86)	30	(88)		
Black/African American	4	4	3	(5)	2	(6)		
American Indian/Alaskan	3	3	0	(0)	0	(0)		
Asian	1	1	1	(2)	0	(0)		
Native Hawaiian or other Pacific Islander	2	2	0	(0)	0	(0)		
Missing	9	10	3	(5)	2	(6)		

[a] Chi square analyses were conducted to compare the study completers (n = 93) versus non-completers (n = 92)

Caregivers' Demographic Characteristics

The majority of caregivers (92 % at baseline and 97 % at post) who participated in the study were female. Their mean age at baseline was 38.7 years (SD = 7.5). Nearly half

(49 % at baseline and 52 % at post questionnaire) reported a yearly income between $40,000 and $80,000 per year. Approximately 90 % of the participants (90 % at baseline and 94 % at post questionnaire) completed some education beyond high school. Nearly half of the participants (43 % at baseline and 57 % at post questionnaire) were younger than 40 years of age and nearly 85 % identified themselves as white non-Latino (84 % at baseline and 88 % at post questionnaire).

Children's Demographic Characteristics

Demographic characteristics of the children whose caregiver participated in the study are presented in Table 2. Half of the children in the study were girls (50 % at baseline and 56 % at post questionnaire). The majority of the children (58 % at baseline and 62 % at post questionnaire) were between 2 and 8 years of age. Children's mean age at baseline was 8.1 years (SD = 3.9). For most of the children (86 % at baseline and 90 % at post questionnaire), the deceased parent was the biological or adoptive father. For 72 % of families, the parent's death occurred within 4 years of completing the baseline survey, with 18 % occurring within the year, and 39 % within the past 2 years.

Table 2 Child demographics

Demographic characteristics	Non-completers		Completers				χ^2	p value[a]
	Total		TLC III		Emergency			
	n = 92	(%)	n = 59	(%)	n = 34	(%)		
Age							1.85	.40
02–08	54	(64)	37	(63)	21	(62)		
09–17	32	(36)	20	(34)	13	(38)		
Gender							.78	.38
Boy	45	(49)	24	(41)	16	(47)		
Girl	45	(49)	34	(58)	18	(53)		
Hispanic/Latino								
Yes	14	(15)	7	(12)	2	(6)		
Race							7.92	.16
White	70	(76)	52	(88)	29	(85)		
Black/African American	4	(4)	3	(5)	2	(6)		
American Indian/Alaskan	3	(3)	0	(0)	0	(0)		
Asian	2	(2)	0	(0)	0	(0)		
Pacific Islander	1	(9)	0	(0)	0	(0)		
Biracial	9	(10)	2	(3)	0	(0)		
Age of child at time of parents death							22.17	.28
0–2	27	(29)	16	(27)	7	(21)		
3–5	30	(33)	18	(31)	9	(27)		
6–11	22	(24)	20	(34)	15	(44)		
12+	11	(12)	3	(5)	2	(6)		

[a] Chi square analyses were conducted to compare the study completers (n = 93) versus non-completers (n = 92)

Age of the Deceased Parent and Cause of death

The majority of the deceased parents (61 %) were over 35 years of age (mean = 33.8, SD = 12.8). Medical illness was the most commonly reported cause of death (42 %) followed by injuries sustained by military personnel during combat (24 %). The next most common causes of death were accident (20 %), suicide (11 %), and homicide (3 %).

Procedures

Adult caregiver participants were recruited from 7 bereavement centers geographically distributed around the United States, as well as the Tragedy Assistance Program for Survivors (TAPS) that provides resources and peer-support to bereaved military families. The centers were selected for their size and geographic and demographic (e.g. military status, ethnicity) diversity. Information about the study and the opportunity to participate was made available online, via email, postal service mail, and on flyers and posters displayed at the respective centers. The study included several incentives for participation. In addition to providing study materials at no cost, participants were offered a gift card valued at $10 and a reusable nylon grocery bag. All study participants, including those in the comparison group, received a *TLC III* kit after completing baseline and post questionnaires. All participants provided signed informed consent via the study website. The study was conducted in accordance with ethical standards as approved by the Office of Research at the Uniformed Services University of the Health Sciences.

Study participants were adult caregivers of parentally bereaved children whose parents died since Sept 11, 2001. All participating caregivers provided informed consent after reading online information about the study, its objectives, and participant activities. Data were collected only from adult caregivers. Data were not collected directly from children although caregivers were asked to share the kit materials with their children. Caregivers were asked to complete an online pre-viewing questionnaire to provide information about the deceased, themselves, and the bereaved child (between 2 and 16 years old) in their care. In the event that adult participants had more than one bereaved child in their care, caregivers were asked to report on the child between 2 and 8 years of age. If more than child in their care was between 2 and 8 years of age, the caregivers were asked to select the child with the next upcoming birthday.

An Internet based design was used to reach a geographically broad participant group and to streamline data collection, while providing participants privacy and flexibility to complete the questionnaires at their convenience. After providing informed consent and completing the baseline questionnaire, participants were randomly assigned to the experimental group that received the *TLC III* kit or to a control group that received a Sesame Workshop© kit about emergency preparedness entitled, *Let's Get Ready! Planning Together for Emergencies*™ (hereon referred to as the *Ready* kit). The *Ready* kit was similar to the *TLC III* kit in structure but not in content, and was selected as a comparable control due to its potentially anxiety-provoking topic and similar structure.

Following random assignment to one of two study conditions, the kits and instructions for viewing were sent by mail to the participants. After 4 weeks, study participants were contacted by e-mail and reminded to return to the website to complete an online post-viewing questionnaire. In the event that participants did not respond, they were contacted by letter or telephone to encourage completion of the post questionnaires. Two versions of the post questionnaires were used and participants completed the version that corresponded to the kit (*TLC III* or *Ready*) they were assigned.

Materials

Both the *TLC III* kit and the comparison *Ready* kit included a DVD featuring Sesame Street© Muppets. In addition to the DVD, both kits also included print materials for caregivers, tips and activities for families, a storybook for children, as well as supporting materials available via the Internet at kit specific websites. The *TLC III* kit content focused on experiences and feelings associated with grief and provided activities for children and caregivers. Activities were designed to assist with caregiver-child communication and to support coping during bereavement through education and parent guidance. Although both kits address difficult and potentially emotionally upsetting subjects, due to its subject matter *TLC III* was designed to be serious in content and tone, whereas *Ready* was designed to be entertaining and fun in teaching emergency preparedness.

Measures

Study questionnaires were constructed using a combination of validated instruments, as well as items developed by the authors to meet the specific aims of the study. For example, many of the items used to collect information about family constellation, demographics, characteristics of the parental death (including military service and combat injury), and caregiver's assessments of the kit materials were developed by the research team. Questionnaires also included items taken from widely used measures to assess a variety of child and caregiver emotional (e.g., grief) and behavioral responses (e.g. communication).

Primary Outcome Variables

Utilization of Kit Materials

Caregivers were asked to respond either 'Yes' or 'No' to whether they and their children used the kit materials. Caregivers in both groups also indicated which materials were used by them or their children. Questions regarding kit utilization were included only on the post viewing questionnaire. Kit utilization is presented as a percentage of use for each component (i.e., DVD, bonus material, storybook for children, guide for parents, or web-based content) of the kit materials used by caregivers and children.

Satisfaction with Kit Materials

Also included only on the post viewing questionnaire were questions regarding caregiver satisfaction with kit materials. Using 5 items, each scored on a 5-point scale ranging from 1 = *poor* to 5 = *excellent*, caregivers in both groups rated kit materials in the following four domains: appeal, relevance, organization, and ease of understanding. The satisfaction items were combined to yield a total satisfaction score that ranged from 5 to 25. Kappa coefficients of internal consistency were acceptable within the present sample ($\alpha = .77$).

Communication About the Death

Caregiver and child communication about the death of the child's parent was assessed on pre- and post-viewing questionnaires using 5 items scored on a 5-point scale ranging from

0 = *Never* to 4 = *Almost Always*. Communication about the parent's death included items such as: "My child talks easily and asks questions about the deceased" and "My child easily shares memories of the deceased". Communication items were combined to yield a total communication about death score that ranged from 0 to 20. Kappa coefficients of internal consistency were acceptable within the present sample (α = .83).

Caregiver and Child Engagement

Caregiver and child engagement was assessed on pre- and post-viewing questionnaires using 6 items scored on a 4-point scale ranging from 0 = *Never* to 3 = *Always*. Caregiver and child engagement included items such as: "When upset, my child comes to me for comfort" and "My child tells me about his/her day". Engagement items were combined to yield a total engagement score that ranged from 0 to 18. Kappa coefficients of internal consistency were acceptable within the present sample (α = .80).

Secondary Outcome Variables

Family Coping

Two items, included only on the post viewing questionnaire, were used to obtain caregiver's ratings of impact of kit materials on their own and their child's ability to cope with the death. The 2 items were each scored on a 6-point scale ranging from 0 = *No Impact* to 5 = *Great Impact*. To assess the impact on child's coping, caregivers were asked "Do you think using these materials has had an impact on your child's ability to cope with the death of his/her parent?" To assess the kit's impact on caregiver's own coping, caregivers were asked "Do you think using these materials has had an overall impact on your ability to cope with the death of your loved one?" Kappa coefficients of internal consistency for the family coping scale within the present sample were good (α = .94).

Child Grief

On both the pre- and post-viewing questionnaires, children's grief was assessed using 6 items from the UCLA Grief Screening Scale (Layne et al. 2007) selected to represent three dimensions of child grief (i.e., normative, existential, and traumatic); each domain was represented by 2 items. The items were modified to obtain caregiver-reports, rather than self-reports of children. Each item was scored on a 5-point scale ranging from 0 = *Never* to 4 = *Almost Always*. For the combined groups (n = 93), internal consistency was good (α = .88).

Caregiver Grief

Caregivers' grief was assessed on both the pre- and post-viewing questionnaires, using 3 items selected from the Complicated Grief Screen to assess dimensions of grief response (Shear et al. 2006) including intrusive thoughts about the deceased, trouble accepting the death, and feeling detached. The items were scored on a 3-point scale ranging from 0 = *not at all* to 2 = *A lot*, and were summed to yield a total caregiver grief score ranging from 0 to 6. For the combined groups (n = 93), internal consistency was good (α = .78).

Data Analyses

Utilization of kits by caregivers and their children was evaluated by examining frequencies of posttest responses to the questionnaires. Caregiver satisfaction with kit materials and family coping were assessed only after viewing the kit materials and posttest differences between the *TLC III* and the *Ready* groups were compared using ANOVA. For the remaining outcome variables (i.e., communication, engagement, child grief, and caregiver grief), differences between the *TLC III* and the *Ready* groups were compared using ANCOVA to control for the scale scores at pretest (Rausch et al. 2003).

As an additional measure of change from pre- to post-test, effect sizes were computed using Hedge's G statistic for small sample sizes (Hedges and Olkin 1985). Also, percentage of participants whose scores on pre- to post- test changed by a value greater than or equal to 1 standard deviation (as calculated at pretest) were computed for each group.

To identify potential moderators of primary and secondary outcomes that may be further examined in future studies, pre- and post-test difference scores were computed and correlated with amount of time from death to pretest assessment, child age at time of pretest assessment, and whether the parent's death was sudden or unexpected. Statistical analyses were conducted using IBM SPSS Statistics, Release 20.0.0 (SPSS Inc., 2011).

Results

Primary Outcome Variables

Caregiver's Utilization of Kit Materials

Kit materials were highly utilized by caregivers in both groups. All participants who completed the baseline and post questionnaires reported that the assigned kit was viewed by the family; either by the child, the caregiver, or both. Rates of kit utilization by caregivers in both groups were high for most components with no statistically significant differences between groups by kit component. The DVD component of the kit was viewed by 86 % of caregivers in the *TLC III* group and 94 % of caregivers in the *Ready* group ($\chi^2 = 2.54, p = .11$). The guide for parents and caregivers was used by 80 % of caregivers in the *TLC III* group and 68 % of caregivers in the *Ready* group ($\chi^2 = .71, p = .40$). The storybook/activity book for children was used by 79 % of caregivers in the *TLC III* group and 70 % of caregivers in the *Ready* group ($\chi^2 = 2.43$, $p = .12$). The remaining components (i.e., bonus DVD and Website), were utilized by fewer than 33 % of the caregivers in either group. The bonus DVD was used by 32 % of caregivers in the *TLC III* group and 27 % of caregivers in the *Ready* group ($\chi^2 = .16$, $p = .69$). Website materials were used by 24 % of caregivers in the *TLC III* group and 15 % of caregivers in the *Ready* group ($\chi^2 = 1.30$, $p = .26$).

Children's Utilization of Kit Materials

Overall, children's utilization of kit materials, as reported by their caregivers, was lower than utilization by caregivers. For children in the *TLC III* group, kit utilization was significantly higher than utilization by caregivers ($\chi^2 = 55.66$, $p < .01$). Children's utilization of kit materials in the *Ready* group, was not significantly different than utilization by caregivers ($\chi^2 = 25.96$, $p = .14$).

DVD use by children in the *Ready* group (91 %) was significantly higher than DVD use by children in the *TLC III* group (71 %) ($\chi^2 = 5.12$, $p = .02$). For the remaining kit components, there were no statistically significant differences between the *TLC III* and the *Ready* groups. The children's storybook was used by 61 % of children in the *TLC III* group and 68 % of children in the *Ready* group ($\chi^2 = .52$, $p = .66$). The bonus DVD section was viewed by 19 % of children in the *TLC III* group and 24 % of children in the *Ready* group ($\chi^2 = .32$, $p = .57$). Although intended for caregivers, the guide for parents was used by 5 % of children in the *TLC III* group and 15 % of children in the *Ready* group ($\chi^2 = 2.54$, $p = .14$). Similar to caregivers, children utilized the website least of all kit materials with 7 % of children in the *TLC III* group and 9 % of children in the *Ready* group ($\chi^2 = .13$, $p = .72$) using the website. Thirty-one percent of children viewed the *TLC III* DVD more than once, 33 % of the children who viewed the *Ready* DVD did so more than once ($\chi^2 = 4.87$, $p = .18$).

Caregiver's Satisfaction with Kit Materials

Caregiver satisfaction in both groups was high when rating the kit's overall appeal, relevance, organization, and ease of understanding. When comparing mean scores of caregiver satisfaction across groups, caregivers in the *TLC III* group ($M = 20.64$, $SD = 3.43$) reported significantly higher satisfaction than did caregivers in the *Ready* group ($M = 19.06$, $SD = 3.53$), $F(1) = 4.24$, $p = .043$. Caregiver satisfaction with kit materials were assessed only at posttest (i.e., after the kit materials were viewed).

Caregivers' and Child's Communication About Death

As shown in Table 3, there were no significant differences between the groups at pretest with regard to communication about death. As shown in Table 4, posttest mean communication about death scores for both the *TLC III* group ($M = 19.44$, $SD = 3.56$) and the *Ready* group ($M = 19.53$, $SD = 4.38$) increased slightly relative to pretest scores, however, no significant difference was detected between the groups after controlling for the communication at pretest $F(1, 83) = .057$, $p = .812$.

Caregiver Engagement with Children

Similar to communication about the death, there were no significant differences between the groups at pretest with regard to engagement. As shown in Table 4, posttest mean

Table 3 Between groups pretest comparisons of primary and secondary outcomes

	TLC III		Ready		F	*p* value
	Mean	SD	Mean	SD		
Primary outcomes						
Caregiver and child communication	18.39	4.75	19.29	3.69	.90	.35
Caregiver and child engagement	13.16	3.18	12.94	2.67	.12	.74
Secondary outcomes						
Child grief	9.24	5.17	9.15	5.90	.70	.41
Caregiver grief	2.81	1.69	2.76	1.69	.01	.94

Table 4 Descriptive statistics and effect sizes for primary and secondary outcome measures at pretest and posttest

	TLC III							Ready						
	Pretest		Posttest		% Change		Effect Size	Pretest		Posttest		% Change		Effect Size
	Mean	SD	Mean	SD	−	+	Hedge's g	Mean	SD	Mean	SD	−	+	Hedge's g
Primary outcomes														
Satisfaction	–	–	25.13	3.98	–	–	–	–	–	23.44	4.01	–	–	–
Communication	18.39	4.75	19.44	3.56	19	6	.26	19.29	3.69	19.53	4.38	9	9	.06
Engagement	13.16	3.18	13.37	3.36	6	8	.07	12.94	2.67	13.29	2.96	3	9	.13
Secondary outcomes														
Coping	–	–	5.81	2.25	–	–	–	–	–	3.97	2.73	–	–	–
Child grief	9.24	5.17	9.43	3.84	11	11	.04	9.15	5.90	9.18	5.88	15	12	.01
Caregiver grief	2.81	1.69	2.65	1.45	9	14	−.13	2.76	1.69	2.18	1.79	6	24	−.41

engagement scores for both the *TLC III* group ($M = 13.37$, $SD = 3.36$) and the *Ready* group ($M = 13.29$, $SD = 2.96$) increased slightly relative to pretest scores. When comparing the kits impact on caregiver engagement with the child, no difference was detected between the groups after controlling for the engagement at pretest $F(1, 83) = .002$, $p = .968$.

Secondary Outcome Variables

Family Coping

Caregivers in the *TLC III* group reported significantly greater ability to cope with death after viewing the kit materials ($M = 5.81$, $SD = 2.25$) than did caregivers in the *Ready* group ($M = 3.97$, $SD = 2.73$), $F(1) = 11.66$, $p = .001$. Kit materials impact on family coping was assessed only at posttest.

Children's Grief

As shown in Table 3, there were no significant differences between the two groups at pretest with regard to child grief. Posttest mean child grief scores for both the *TLC III* group ($M = 9.43$, $SD = 3.84$) and the *Ready* group ($M = 9.18$, $SD = 5.88$) showed no significant differences relative to pretest scores. When comparing the two groups with regard to child grief, no difference was detected between the groups after controlling for the child grief at pretest $F(1, 87) = .027$, $p = .871$.

Caregiver's Grief

There were no significant differences between the two groups at pretest with regard to caregiver grief. When comparing the two groups with regard to caregiver grief, no significant differences were detected between the two groups after controlling for the caregiver grief at pretest $F(1, 87) = 2.748$, $p = .101$.

Effect Sizes and Percent Change

As shown in Table 4, two outcomes reached the level of small effect size. Caregiver's in the *TLC III* group reported a small increase (Hedge's $g = .26$) from pre- to post-test in communication with child about his/her parent's death. Also, caregiver's in the *Ready* group reported a small decrease (Hedge's $g = -.41$) from pre- to post- test in their own grief. The remaining effect sizes, which ranged from $-.13$ to $.13$, did not reach the threshold of small effect.

Also shown in Table 4 are percentages of adult participants who reported a change of 1 standard deviation (*SD*) or greater on the outcomes measured at both pre- and post-test. For example, 17 % ($n = 10$) of caregivers in *TLC III* group reported an increase of 1 *SD* or better on the measure of communication about the death; 5 % ($n = 3$) reported a decrease of 1 *SD* or more. In the *Ready* group, 9 % ($n = 3$) of caregivers reported an increase in communication about the death; 9 % also reported a decrease in communication about the death.

Correlations of Outcome Measures with Potential Moderators

Table 5 presents correlations of potential moderators with primary and secondary outcomes. As seen in Table 5, caregiver utilization of kit materials was significantly correlated with child utilization [$r(59) = .61$, $p < .00$] and changes in family coping [$r(58) = .35$, $p = .01$]. Changes in family coping also were correlated with changes in child grief [$r(56) = -.28$, $p = .04$]. Caregiver satisfaction also was correlated with changes in family coping [$r(55) = .47$, $p < .00$]. The potential moderators (time since death, child age, and sudden death) showed no statistically significant correlations with primary outcome measures. Sudden death was significantly negatively correlated with changes in secondary outcome, child grief [$r(57) = -.32$, $p = .01$], indicating that experiencing a sudden/unexpected parental death was related to greater decrease in caregiver-report of child grief from pre- to post-test.

Discussion

This study examined parentally-bereaved children's and their caregivers' experience with the *TLC III* kit compared to the *Ready* kit. The multimedia kit, *TLC III*, was developed as a resource for children and families facing the challenge of parental death. The use of self-directed materials to assist with parental death poses unique challenges as a result of the sensitivity of the topic and the age of the target audience (Kazdin and Blase 2011). *TLC III* addressed these challenges by delivering program content in a manner consistent with the empirically informed model used by Sesame Workshop©. The model employs the use of detailed curricula, materials and characters that are appealing to children, instruction that is explicit and concrete, child centered content, repetition, modeling by characters with which children and caregivers identify, and viewer participation (Fisch and Truglio 2001).

Determining whether children would understand a program about death and whether children and their families would find such a program appealing is critical to its success (Raveis et al. 1999). As described above (see Results), kit materials were highly utilized by caregivers and children in both the *TLC III* and the *Ready* groups. Caregivers in the *TLC III* group, compared to caregivers in the *Ready* group, reported statistically significantly higher ability to cope with the death and satisfaction with kit after viewing the kit materials. Caregivers' satisfaction with kit materials was positively correlated with family coping, suggesting that caregiver's satisfaction ratings may have been influenced by the kit's effects on families' ability to cope with the death in addition to the four domains (i.e., appeal, relevance, organization, and ease of understanding) represented by the measure of satisfaction.

The current findings support the capacity of these self-directed multimedia materials to capture and maintain users' attention and satisfaction, a critical element of program effectiveness (Hollon et al. 2002). *TLC III* kit performed well in that kit materials utilization was high and most caregivers also reported high satisfaction with the materials. However, children used the materials at a lower rate than did their caregivers. When comparing the *TLC III* and *Ready* groups, caregivers reported children in the *TLC III* group to have viewed the DVD less than children in the *Ready* group. This result may be related to caregivers' hesitation to share the grief themed materials with their children. Although this study did not directly assess caregivers' reasons for not sharing the kit materials with their children, the literature recognizes that adults often hesitate to communicate with children about a parent's death, particularly young children. Crenshaw and Lee (2010)

Table 5 Correlations outcome difference scores and potential moderators of program effects

Variable name	1	2	3	4	5	6	7	8	9	10	11
1. Caregiver utilization											
Pearson’s	–	.611**	.037	−.010	.031	.352**	−.054	−.114	−.069	−.57	.029
N		59	56	54	53	58	57	57	53	89	59
2. Child utilization											
Pearson’s		–	.106	−.090	.072	.246	−.018	−.175	−.210	.073	.928
N			56	54	53	58	57	57	53	57	59
3. Satisfaction											
Pearson’s			–	−.230	.036	.470**	−.190	.191	.120	−.261	−.050
N				53	51	55	54	54	51	54	56
4. Communication[a]											
Pearson’s				–	−.088	−.140	.138	−.217	.030	−.228	−.103
N					49	53	53	52	49	52	54
5. Engagement[a]											
Pearson’s					–	.221	.160	−150	−.283	.149	.024
N						52	52	53	47	52	53
6. Family coping											
Pearson’s						–	−.280*	.074	−.130	−.183	−.002
N							56	56	52	56	58
7. Child grief[1]											
Pearson’s							–	.216	−.183	.167	−.323*
N								56	51	55	57
8. Caregiver grief[1]											
Pearson’s								–	−.184	−.067	−.125
N									51	55	57
9. Time since death											
Pearson’s									–	.261	−.224
N										51	53

Table 5 continued

Variable name	1	2	3	4	5	6	7	8	9	10	11
10. Child age											
Pearson's										–	−.146
N											57
11. Sudden death											
Pearson's											–
N											

** Correlation is significant at the .01 level (2-tailed)

* Correlation is significant at the .05 level (2-tailed)

[a] Indicates variable presented is a difference score (posttest − pretest)

suggest that such communication is difficult and sometimes unbearably painful to adults at a time when they too are grieving. The need to speak to children about the reality of death is highlighted as a critical contribution to successful grief resolution in children (Deblinger et al. 2012).

Furthermore, empirical research describes children who experience a parent's death as often being uncomfortable talking about the death and struggling to maintain healthy social support networks (Dopp and Cain 2012), further isolating them in their grief. Despite lower rates of kit utilization among children in the *TLC III* group, caregivers in the *TLC III* group were more satisfied with materials and, as indicated by the small effect size, believed the kit materials had a positive effect on communication about the death (e.g., comfort in speaking with their child about death). Although conclusions regarding communication must be cautiously considered, these findings are worthy of mention. Any positive change in children's desire or comfort speaking about their parent's death is an encouraging finding. This is particularly true in the case of non-traditional programs with potential to reach previously inaccessible populations (Kazdin and Blase 2011).

Of the present findings, two were unexpected based on initial hypotheses. *TLC III* materials had greater impact on the family's coping with grief than was anticipated following use of these self-directed materials. Although family coping with grief was measured at posttest only, the positive correlation between family coping and pre-to-posttest changes in child grief is encouraging in that the relation helps to support these findings. An additional unexpected finding was that the effect size of caregiver grief in the *Ready* group, but not in the *TLC III* group, indicated a small decrease in grief symptoms pre-to-posttest. The small effect on caregiver grief was not significant when controlled for pretest scores and none of the potential moderators assessed in the correlations were significant. However, the finding related to caregiver grief highlights the complexity of grief responses, their changes over time, and the potential differential impact of viewing grief-related materials. In both cases, these findings should be considered cautiously given the lack of a larger empirical literature supporting the use of self-directed multimedia programs for bereaved children.

Limitations

One limitation of the present study is the use of Internet-based data collection. As with most Internet-based data collection, the validity of the data and veracity of the participants is uncertain. However, online data collection is a widely used and increasingly accepted practice in social science research (Alessi and Martin 2010; Gosling et al. 2004). A second limitation is related to the exclusive use of caregiver-report data. Evaluation domains such as usability and satisfaction were likely best assessed by caregiver-report, however, it would be advantageous in future studies to obtain self-reports from the children about their own grief symptoms.

Also, although efforts were made to obtain a representative sample of bereaved children and caregivers, this sample was restricted to English speaking participants with Internet access. Although studies have shown Internet-based surveys to yield similar results to mail-based or in-person questionnaires (See Alessi and Martin 2010; Gosling et al. 2004), conclusions about the impact of the kit materials on children's grief are best viewed as tentative, pending further research.

Conclusions

The positive evaluation by caregivers of the *TLC III* kit points to the usefulness of broadly accessible, self-directed, multimedia psycho-educational materials for grief faced by children and families. Although both kits in the study were well used and well-liked by the study participants, high ratings by caregivers in the *TLC III* group on measures of utilization, satisfaction, and coping indicated that the kit materials were uniquely well suited for young children who have experienced the death of a parent. Therefore it is likely that impact of multimedia kits is greatest when used as a targeted program that is seen as extremely relevant as were the materials in the current study. The findings speak to the potential benefit of similar materials in other complex or emotion-laden problems faced by children and families. Although further research is needed to determine whether the use of multimedia programs as adjuncts or alternatives to traditional therapies are acceptable to families, future studies should consider innovative approaches to examining the effects of such programs. In addition to the usual psychosocial outcome measures, it would be beneficial to examine whether these programs help families seek additional treatment, or sustain benefit to families who have sought treatment in the past. In either of these cases, the effects of non-traditional programs are likely best measured using non-traditional instruments.

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