

Child Sexual Abuse Prevention Training for Childcare Professionals: An Independent Multi-Site Randomized Controlled Trial of *Stewards of Children*

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Abstract Given the significant rates and deleterious consequences of childhood sexual abuse (CSA), identifying effective primary prevention approaches is a clear priority. There is a growing awareness that childcare professionals (e.g., teachers, childcare personnel, clergy) are in a unique position to engage in prevention efforts due to high accessibility to children and expertise in child development. However, CSA prevention programs targeting childcare professionals have received insufficient attention. The goal of this study was to conduct an independent multi-site controlled evaluation of an existing CSA prevention program, *Stewards of Children*, offered through both in-person and web-based formats. This study included 352 childcare professionals recruited from children's advocacy centers across three states. Participants were randomly assigned to one of three conditions: (1) in-person training, (2) web-based training, or (3) waitlist control. Dependent variables included CSA knowledge, CSA attitudes, and self-reported CSA preventive behaviors. Results indicated that *Stewards* impacted knowledge, attitudes, and preventive behaviors. No differences were found between training modalities (i.e., in-person versus web-based) on knowledge and preventive behaviors. Results indicate that brief trainings for childcare professionals may impact CSA prevention efforts.

Keywords Child sexual abuse · Prevention · Childcare professionals

Childhood sexual abuse (CSA) is common, with as many as one in four girls and one in six boys experiencing some form of sexual abuse before the age of 18 (Centers for Disease Control and Prevention 2005). Further, CSA has devastating effects on its victims, predicting high levels of short- and long-term mental and physical health problems, including post-traumatic stress disorder, depression, suicidality, and chronic physical health problems, among other significant deleterious outcomes (see Chen et al. 2011; Maniglio 2009 for reviews). Experts have recommended that significant efforts be made to prevent this public health problem. As suggested by both researchers in the field (e.g., Wurtele 2009) and the *Surgeon General's Call to Action* (Satcher 2001), one important approach to reducing CSA may be to provide education about prevention and risk to the general population. To date, many primary prevention efforts have aimed to enhance knowledge, competencies, or coping skills in children (see Wurtele 2009 for review). Evaluations of child-focused programs have found improvements in children's abuse-related knowledge following participation (e. g., Boyle and Lutzker 2005; Wurtele et al. 1992), but the extent to which these programs decrease CSA incidence remains unclear.

Finkelhor's (1984) theory of CSA prevention suggests that the following preconditions typically exist when CSA occurs: an individual's proclivity to abuse, lack of internal and external inhibitions impacting the offender, and offender access to the child. Removing any of the preconditions theoretically lowers the likelihood of abuse indicating that prevention could target any, or all, of these preconditions (Finkelhor 1984). The theoretical underpinnings of the current line of research are based on the premise that adults are ultimately responsible for

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protecting children from CSA by limiting offender access. Thus, the intervention studied here targets offender access to children and external inhibitions impacting the offender, as these targets can be proactively addressed by adults in the lives of children and do not require identification and cooperation of adults at high risk for perpetration. The hypothesis is that if adults can identify situations that present risk for CSA and signs that CSA is occurring and have the skills to intervene, than CSA incidence could be significantly decreased, as this would limit offender access to children.

The majority of risk reduction programs have focused solely on parents. Parent-focused CSA preventive programs increase both parental CSA knowledge and the likelihood that parents will discuss CSA with their children (e.g., Burgess and Wurtele 1998; Wurtele et al. 2008). Targeting childcare professionals is a complementary and perhaps more wide-reaching prevention strategy. Childcare professionals (e.g., teachers, daycare workers, clergy) are in a unique position to decrease opportunity for CSA, as they have frequent contact with large numbers of children. Further, they are apt to participate in trainings since most are mandated reporters of child abuse. Professionals are the most frequent reporters of maltreatment to child protective services, representing three fifths of reports made in 2009 (U.S. DHHS 2010). They can be trained on strategies to prevent victimization (e.g., limiting unsupervised time with children, supervising older children with younger children). They can implement organizational policies (e.g., screening procedures for new hires) related to CSA prevention.

Currently, there is little information on how to prepare childcare professionals for CSA prevention efforts. One of the only programs that has been evaluated is the CSA Prevention: Teacher Training Workshop Curriculum (CSAP:TTWC; Hazzard et al. 1988), a 6-h workshop. In a randomized trial, CSAP:TTWC significantly improved teachers' knowledge, attitudes, and opinions related to CSA (Randolph and Gold 1994). Participants were significantly more appropriate in their responses to hypothetical situations as compared to controls. At 3-month follow-up, teachers who attended the training reported more time discussing CSA with their colleagues and students, increased CSA-related classroom activities, and had significantly more reports of suspected CSA to child protective services as compared to controls. However, though this study employed a randomized design, there were some limitations that preclude firm conclusions. Specifically, the sample was small ($N=42$) and relatively restricted, comprised of volunteer teachers from rural schools in a single school district, which reduces its generalizability to other teachers and childcare professionals.

We are aware of no other CSA prevention program targeting childcare professionals that have been studied empirically. Further, there is a dearth of studies on CSA prevention in general, with many of the existing studies suffering

from substantial methodological problems (see Topping and Barron 2009; Mikton and Butchart 2009 for reviews). The current randomized controlled trial represents one of the few rigorously designed studies examining a CSA prevention program.

Stewards of Children: A CSA Prevention Program for Childcare Professionals

Darkness to Light (D2L) is a national non-profit organization focused on educational CSA prevention programs aimed at adults. D2L developed *Stewards of Children* (*Stewards*), a 2 1/2-h workshop to train adults in preventing (primary prevention), recognizing, and responding to CSA (secondary prevention). *Stewards* exists in two formats: (1) in-person with a facilitator presenting the curriculum and leading discussions and (2) an interactive web-based training. Web-based is an appealing format, as it affords widespread and inexpensive implementation. The effectiveness of web-based training programs has been promising in other areas (George 2002; Harris et al. 2002). No research on web-based CSA prevention programs has been conducted to date.

Goals and Hypotheses of Current Study

This is an independent multi-site controlled study with the primary goal of evaluating the impact of *Stewards* on childcare professionals' primary and secondary prevention efforts, including knowledge, attitudes, and behavior related to CSA prevention. A secondary goal is to determine whether the delivery format of *Stewards* (i.e., web or in-person) impacts its effectiveness. Participants were childcare professionals across three states who were randomly assigned to one of three groups: (1) an in-person *Stewards* training, (2) a web-based *Stewards* training, or (3) a waitlist control condition. Our primary hypothesis is that the *Stewards* program (both in-person and web-based) will be effective in improving knowledge, altering attitudes, and increasing primary and secondary preventive behaviors related to CSA compared to no training about CSA prevention (waitlist condition). We also hypothesized that the web-based delivery format will yield comparable results to in-person training with regard to these outcomes.

Method

Participants

Childcare professionals from youth service organizations in Bend, OR; Atlanta, GA; and Beaufort, SC were recruited.

Sites were chosen to offer a wider representation of the US population than one site alone and because these sites had active DTL programs in their communities, which increased the study feasibility and the likelihood of high training fidelity and consistent training across sites. Facilitators of *Stewards* at each of these sites were part of a “Train the Trainers” initiative and had been implementing *Stewards* prior to the study.

Site coordinators recruited participants from youth serving organizations in their communities (e.g., day-care centers, churches, schools). The site coordinators were trained and supervised by the first author on study procedures. Coordinators were successful in recruiting from at least one faith-based community, one school, and one community-based program to ensure variability in agency type. Inclusion criteria were the following: (1) ages 18–65 years; (2) childcare professional working directly with children regardless of their level of training; and (3) English speaking. Participants were excluded if they reported previous exposure to *Stewards*.

Sample Characteristics

Of the 352 participants consented, 306 completed condition assignment and pre- and post-intervention assessments, and 267 completed the 3-month follow-up (see Fig. 1). Reasons for the majority of dropouts were related to scheduling difficulties or time constraints, with one participant noting a death in the family.

Participants ranged in age from 18 to 64 years ($M=38.9$, $SD=11.8$), and the majority were female (85 %). See Table 1 for demographic information. No significant demographic differences were noted between conditions, providing evidence that randomization was effective. As anticipated given the census characteristics of each site, some demographic differences were noted across sites. Specifically, a larger percentage of participants were identified as ethnic/racial minorities in Atlanta (67.5 % minority) than in Beaufort (30.9 %) or Bend (3.5 %). A larger percentage of Hispanic/Latino participants were recruited in Beaufort (7.3 %) compared to Bend (4.3 %) or Atlanta (3.9 %). More participants from Beaufort were married (57.3 %) and had children (70 %) compared to Bend (50 % married; 52 % had children) or Atlanta (46 % married; 59 % had children). Randomization to condition occurred within each site; thus, these differences did not impact the primary analyses. No gender or educational differences were noted.

Procedures

Approval by a University Institutional Review Board (IRB) was obtained prior to data collection. Site coordinators scheduled a time to meet with interested participants either at the child advocacy center or the

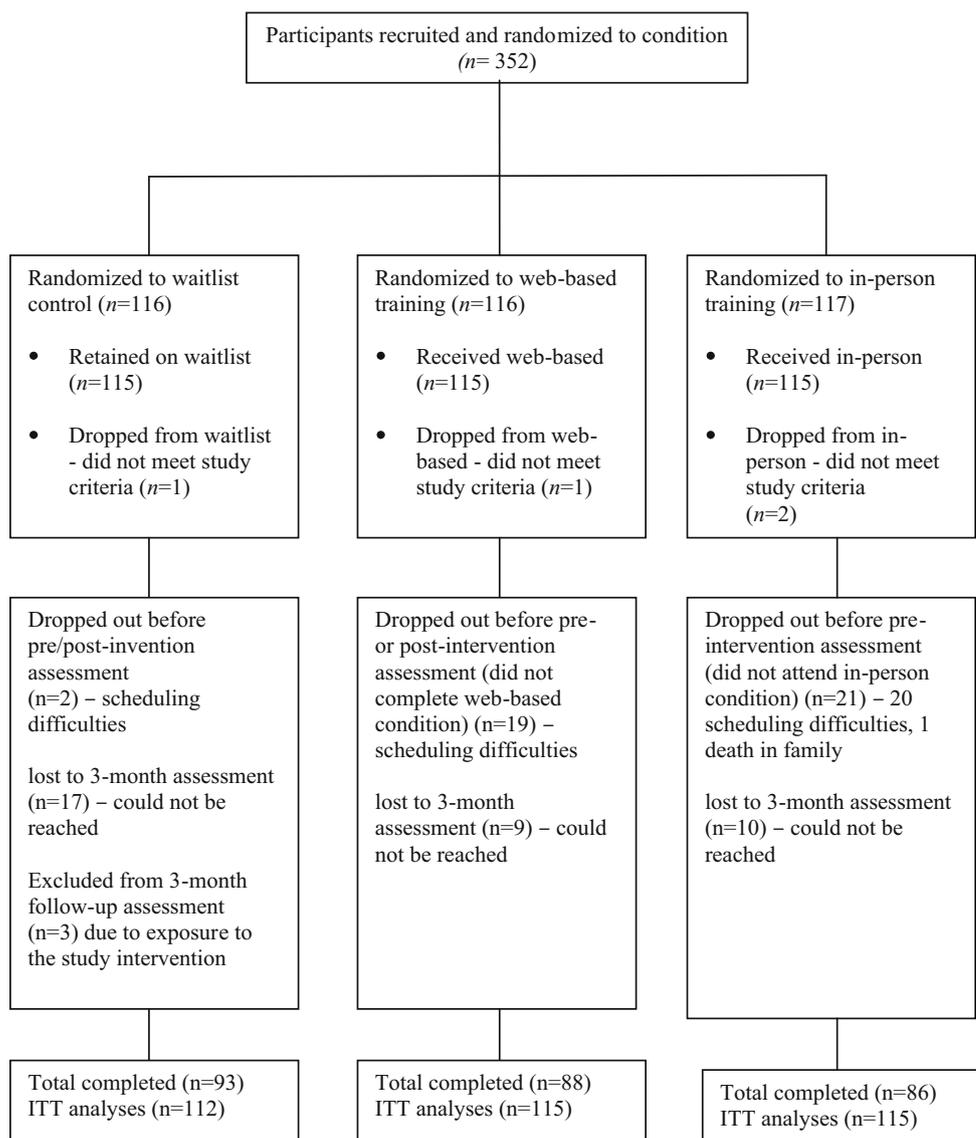
participants’ agency. All participants provided written informed consent. They were randomly assigned to a condition using a permuted block design with block sizes of 3, 6, and 9. This design ensured balanced sample sizes in each condition, and the varied block sizes minimized the “correct guess” probability (i.e., successfully anticipating the next randomly assigned condition). Site coordinators opened sealed envelopes indicating condition assignment at the time of randomization. Only the first author had access to the master randomization list. Each participant was compensated US\$20 for participating in condition assignment and US\$20 for completion of the 3-month follow-up assessment.

Participants assigned to the in-person format were scheduled for the next available training offered by the child advocacy center. On their training day, the pre-intervention assessment (which included the CSA prevention behavior questionnaire) was completed, followed by the in-person training. After the training, participants completed post-intervention measures of the other primary dependent variables. Participants in the web-based training condition completed the same pre-intervention assessment at the time of consent. They were then instructed on how to access the web-based training and were asked to complete it within 2 weeks. The coordinator met with participants to collect post-intervention assessments either at the child advocacy center or the participant’s agency. Participants who did not have access to a computer could complete the web-based training at the child advocacy center. Participants in the waitlist condition completed the active conditions’ pre-intervention and post-intervention measures immediately after the consent process and were asked to not attend a *Stewards* training in the following 3 months. They were offered a training of their choice after completing the 3-month follow-up assessment. Three months following condition completion, participants from all three conditions were contacted to complete the same assessment battery by phone.

Experimental Conditions

Condition 1: In-Person Stewards Training Participants engaged in a 2 1/2-h in-person group training. One seasoned facilitator at each site conducted trainings for all participants. Groups ranged in size from 5 to 20 participants and were held either at the participants’ agency or the child advocacy center. Participants received workbooks containing the full program curriculum based upon “The 7 Steps to Protecting our Children,” D2L’s core, educational tool for CSA prevention. Topics addressed include the following: (1) education about CSA prevalence rates, risks, and outcomes; (2) ways of minimizing opportunities for CSA to occur; (3) talking about CSA with adults and children; (4) recognizing signs of CSA; (5) appropriate responses when a child discloses CSA; (6)

Fig. 1 Participant flowchart



problem-solving barriers to preventive actions on an individual level and organizational level; and (7) involving the community in CSA reduction. The facilitator uses a 1 1/4-h DVD, which integrates segments of CSA survivors relating their stories of abuse and recovery with segments from experts in the field. The facilitator stops the video at three points to lead discussions. All trainings were video-taped, and facilitator adherence was measured using a fidelity checklist developed by the first author and *Stewards* developers.

Condition 2: Web-Based Stewards Training Participants completed the web-based training over a 2-week period to increase ecological validity, as most individuals that complete online training courses do so over time and not in one sitting. The web-based training includes video and is comparable in content and length to the in-person training. Once the training was

completed, participants were instructed to contact the site coordinator to schedule a post-training assessment. Site coordinators contacted participants frequently to monitor their progress. Participants who did not complete the training ($n=19$) were not allowed to complete the post-intervention assessment and were considered post-intervention assessment non-completers.

Condition 3: Waitlist Control Group Participants were not exposed to any of D2L's training materials and only completed the assessment measures.

Measures

The pre- and post-intervention assessments were administered by the site coordinator, and the 3-month

Table 1 Frequencies for demographic characteristics

	Number	Percentage
Education		
<High school degree	5	1.4
High school degree or equivalent	39	11.2
Some college	70	20.1
College degree	111	31.9
Some graduate school	24	6.9
Graduate degree	63	18.1
Missing	36	10.3
Race		
Caucasian	227	65.2
African American	99	28.4
Asian/Pacific Islander	3	0.9
American Indian/Alaskan native	3	0.9
Other race	16	4.8
Hispanic		
Yes	19	5.5
Marital status		
Single	71	20.4
Married	177	50.9
Living with partner	24	6.9
Separated, divorced	38	10.9
Widowed	3	0.9
Missing	35	10.1
Type of childcare professional		
School teacher	121	34.8
Daycare worker	32	9.2
Coach	18	5.2
Counselor	24	6.9
Volunteer	35	10.1
Probation officer	25	7.2
Other	35	10.1
Missing	58	16.7
Type of agency		
School	128	36.4
Church	40	11.4
Daycare	41	11.6
Extracurricular activity	46	12.2
State agency	34	9.7
Group home/residential setting	16	4.5
Healthcare setting	13	3.7
Other (e.g., guardian ad litem)	33	9.4
Missing	1	0.01

follow-up assessments were administered by a research assistant. CSA behaviors were assessed as part of the pre-intervention battery and then again at the 3-month follow-up to determine the training's impact on participants' self-reported prevention behaviors. To decrease

possible attentional biases to the content of the trainings, the other primary study outcomes (i.e., CSA knowledge and attitudes) were measured immediately post-intervention rather than at the pre-intervention assessment and then again at the 3-month follow-up. Past

research has shown that administration of pre-test measures of knowledge and attitudes significantly influences outcomes (e.g., Rau et al. 2011). Therefore, this design was chosen to increase generalizability of the findings, as individuals attending trainings in non-research settings will not be primed for CSA-specific content prior to training. Absence of a pretest does not sacrifice scientific integrity, because random assignment increases the likelihood of group equivalence (Kazdin 1992).

Demographic Information Information included age, gender, race/ethnicity, marital status, number of children in household, gender of children, employment status, and income.

CSA Knowledge The CSA Knowledge Questionnaire was created for the purpose of this study to measure general knowledge about CSA. It consists of 12 true/false questions about CSA, including prevalence, consequences, risk factors, and preventive steps.

CSA Attitudes The CSA Myth Scale (Collings 1997) was used to assess attitudes about CSA. This scale assesses a full range of CSA myths and stereotypes and has good test-retest reliability, internal consistency, and convergent and discriminant validity (Collings 1997).

CSA Prevention Behaviors Twenty-one questions were asked about CSA prevention behaviors in the past 3 months, including (a) engaged in primary prevention at work (e.g., prevented adults from having unsupervised time with children); (b) talked to a child about CSA; (c) talked to another adult about CSA; (d) made changes in organizational policies regarding CSA; (e) called a CSA hotline; and (f) reported CSA to authorities. The total score is a count of endorsed behaviors. Individual preventive behaviors were examined on an exploratory basis.

Site Differences in Outcome Variables

Comparisons were made between sites on key outcome variables (i.e., pre-intervention assessment for behaviors, post-intervention assessment for knowledge and attitudes). Two differences were found. First, sites varied in the level of preventative behaviors endorsed at pre-intervention, $F(2, 254)=5.42, p<0.01$, with participants at the Atlanta site endorsing more preventative behaviors than those at the Beaufort or Bend sites. Second, providers from Bend endorsed fewer post-intervention CSA myths than providers at the other sites, $F(2, 259)=6.89, p<0.01$. There were no site differences for CSA knowledge. Because of site differences, site was included as a control variable.

Data Analytic Plan

First, chi-square analyses were used to compare participants who completed 3-month assessments and those who did not on key variables. Second, to determine the effectiveness of *Stewards*, participants from the in-person and web-based conditions were combined and compared to the waitlist condition on key outcomes. Next, to compare the mode of presentation, the in-person training group was compared to the web-based training group on study outcomes. The analyses were conducted using mixed-effects regression models (MRMs; e.g., Raudenbush and Bryk 2002), with two repeated measurements (level 1) nested within participants (level 2). For participants with one missing assessment, the models utilize all available data. Given two measurements of each outcome, change over time was modeled using a single, dummy-coded indicator (fixed effect only) to differentiate the 3-month follow-up assessment from the initial assessment. Possible site differences were controlled by including two dummy-coded indicators to differentiate the three sites. Three analyses were conducted for each outcome. The first tested the main effect of time, the second tested the main effect of the intervention condition, and the third tested differences between conditions in change over time. The analyses were conducted using HLM software (Raudenbush et al. 2009), and planned comparisons were specified to test for between-group differences at the 3-month follow-up.

Results

The 3-month follow-up survey was collected from 87 % of those that completed their assigned condition ($n=267$). The remaining participants were either unresponsive to both telephone and mail or were inaccessible at time of follow-up (i.e., disconnected number, wrong address). Three participants from the waitlist condition were excluded from participating in the 3-month follow-up, as they completed *Stewards* training during the follow-up time period. Eight participants were excluded from behavior analyses only as they indicated that, due to a change in job status, they had no opportunity to engage in assessed behaviors. Chi-square analyses indicated that completers of the 3-month follow-up assessment did not significantly differ from those lost to follow-up with respect to gender, race, and education. However, those lost to the 3-month follow-up were, on average, younger ($M=35.0$) than those who completed the 3-month ($M=39.7$) ($t=-2.5, p=0.011$). Although the follow-up assessment was meant to be completed at 3-month post-training, the average time for completion of follow-up measures was 4.5 months.

Primary Aim: *Stewards* versus Waitlist

The primary study goal was to evaluate the effectiveness of *Stewards* training. For the full model, at post-intervention, Knowledge was significantly lower for the waitlist condition, $\beta=-1.11$, $SE=0.14$, $t(301)=-7.68$, $p<0.001$. Between post-intervention and the 3-month follow-up, knowledge increased more for the waitlist condition than the *Stewards* condition, $\beta=0.54$, $SE=0.17$, $t(558)=3.18$, $p=0.002$. However, at the 3-month follow-up, the overall level of knowledge remained higher for the *Stewards* condition, $\chi^2(1)=11.67$, $p<0.001$. Results are illustrated in Fig. 2.

Given the conceptual similarity and significant correlation among the three factors and total scores on the CSA Myth Scale, the total score was analyzed. For the full model, at post-intervention, the myths score was significantly higher in the waitlist condition, $\beta=1.75$, $SE=0.79$, $t(301)=2.22$, $p=0.027$. Between post-intervention and the 3-month follow-up, the change in myths did not differ for the two conditions, $\beta=-0.13$, $SE=0.79$, $t(560)=-0.17$, $p=0.867$. However, at the 3-month follow-up, the overall myth score was higher for the waitlist condition, $\chi^2(1)=3.85$, $p=0.047$.

Participant behaviors were assessed using (1) total number of preventive behaviors reported in the behavioral scale and (2) individual behaviors compared between conditions. Table 2 provides means and standard deviations of the total scores of behavioral responses. For the full model, at post-intervention (which is the baseline assessment for behavior measure), the number of behaviors did not differ for the two conditions, $\beta=0.56$, $SE=0.54$, $t(307)=1.05$, $p=0.296$. However, between post-intervention and the 3-month follow-up, the change in the number of Behaviors increased significantly more for the *Stewards* condition than the waitlist condition, $\beta=-1.30$, $SE=0.48$, $t(545)=-2.72$, $p=0.007$.

A series of chi-square analyses were conducted to examine differences between the *Stewards* training and waitlist groups on specific preventive behavioral items at 3-month follow-up. There were significant differences for two specific behaviors. These included the following: “Limiting the opportunity for older youth and younger youth to have one-to-one interaction” ($\chi^2=7.53$, $p=0.006$), with 51 % of those in the *Stewards* conditions endorsing this item compared to 33 % of the waitlist condition. In addition, differences were noted for “Sharing with another adult an article, brochure, or other

Fig. 2 Changes in CSA knowledge and preventive behaviors between baseline (pre-intervention for preventive behaviors, post-intervention for knowledge) and 3-month follow-up for the intervention and waitlist groups

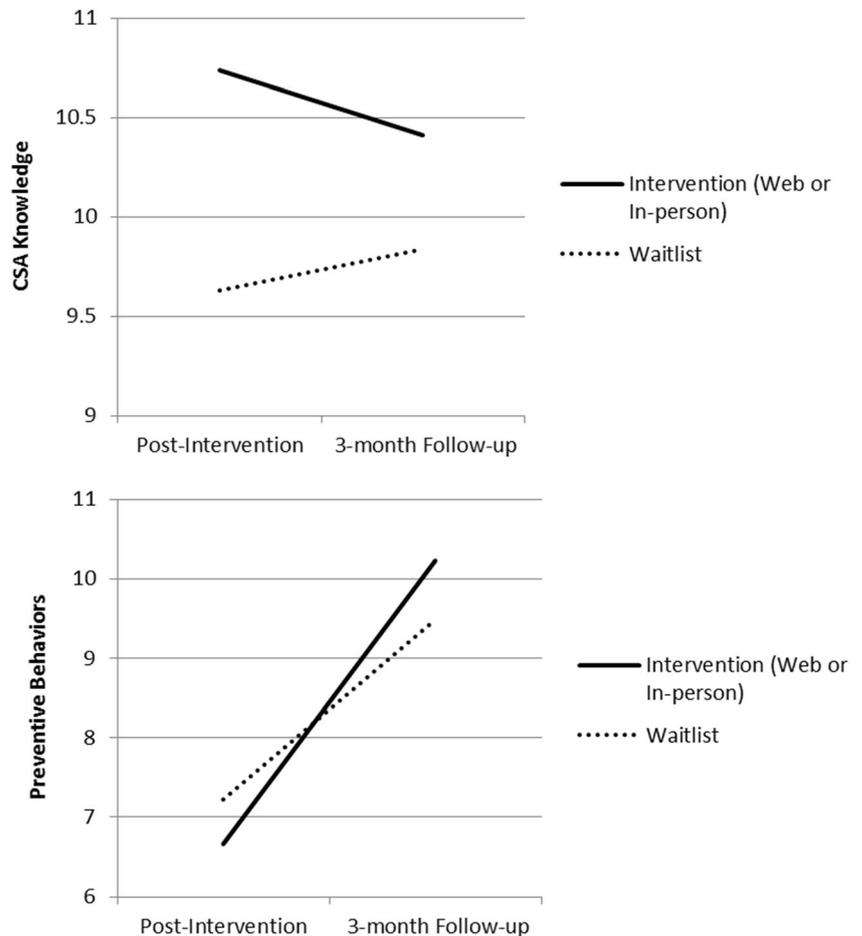
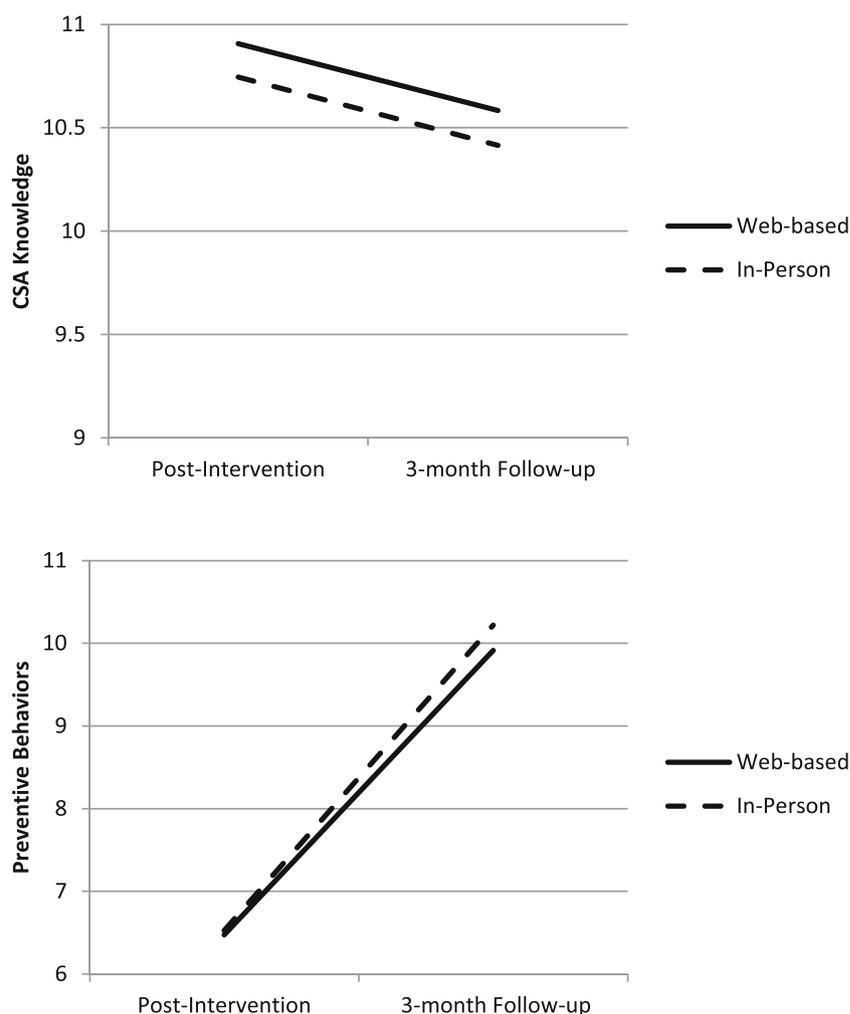


Fig. 3 Changes in CSA knowledge and preventive behaviors between baseline (pre-intervention for preventive behaviors, post-intervention for knowledge) and follow-up for the web-based training and in-person trainings



information about CSA prevention” ($\chi^2=4.22, p=0.04$) with 46 % of the intervention group endorsing this behavior compared to 32 % of the waitlist group.

Secondary Aim: Comparison of Delivery Format

The secondary study goal was to evaluate the impact of training mode on the outcomes. For these models, a dummy-coded indicator was included to differentiate participants who received the in-person versus web-based intervention. For the full model, at post-intervention, knowledge was significantly lower for the in-person group, $\beta=-0.33, SE=0.17, t(189)=-2.01, p=0.046$. Between post-intervention and the 3-month follow-up, the two groups did not differ in their change in knowledge, $\beta=-0.01, SE=0.20, t(355)=-0.04, p=0.972$, and at 3 months, the groups did not differ in their level of CSA knowledge, $\chi^2(1)=3.41, p=0.061$ Fig. 3.

For the full model, at post-intervention, the myths score did not differ for the two groups, $\beta=0.76, SE=0.93, t(189)=0.82, p=0.415$. Between post-intervention and the 3-month follow-up, the change in myths did not differ for the two groups,

$\beta=-0.56, SE=1.00, t(356)=-0.56, p=0.577$. At the 3-month follow-up, the groups did not differ, $\chi^2(1)=0.04, p>0.500$.

For the full model, at post-intervention, the number of Behaviors did not differ for the two groups, $\beta=0.42, SE=0.65, t(198)=0.65, p=0.518$. Between post-intervention and the 3-month follow-up, the change in the number of Behaviors did not differ for the two groups, $\beta=0.25, SE=0.69, t(350)=0.36, p=0.717$. At the 3-month follow-up, the groups did not differ, $\chi^2(1)=0.92, p>0.500$.

Discussion

Much of what we know about CSA prevention comes from intervention studies focused on educating children. D2L’s *Stewards of Children* is based on the conceptual premise that the primary responsibility for CSA prevention falls on the shoulders of adults who care for children, including parents and childcare professionals. Though there is some initial support for the efficacy of parent-focused prevention

Table 2 Means (standard deviations) of self-report measures for baseline^a and 3-month follow-up (intent to treat)

	Pre-/Post-intervention ^a			3-month follow-up		
	Web-based (n=115)	In-person (n=115)	Waitlist (n=112)	Web-based (n=115)	In-person (n=115)	Waitlist (n=112)
CSA Knowledge Questionnaire	10.81 (1.05)	10.53 (1.08)	9.66 (1.27)	10.48 (1.03)	10.23 (1.11)	9.92 (1.26)
CSA Myth Scale	19.92 (5.63)	20.50 (6.37)	21.83 (7.03)	22.07 (5.63)	22.17 (6.17)	23.33 (5.91)
CSA prevention behavior	6.50 (4.18)	6.88 (4.45)	7.12 (4.50)	9.96 (3.58)	10.39 (4.08)	9.58 (4.13)

^a Assessments of knowledge and myths were administered directly post-intervention and prevention behavior were administered at pre-intervention

programs, very few studies have examined programs aimed at childcare professionals. This multi-site randomized controlled trial indicated that *Stewards* improved knowledge, CSA attitudes, and preventive behaviors among childcare professionals. Results are encouraging, given that this very brief training produced at least short term (3–4 months) changes in both CSA knowledge and preventive behaviors.

Results showed that participants retained knowledge relevant to CSA prevention immediately following exposure to the materials and at 3-month follow-up. Further, in-person and web-based modes of presentation both improved knowledge significantly compared to the control group. This is consistent with past research demonstrating that brief CSA trainings for adults increase CSA knowledge (Wurtele et al. 2008). Although improving knowledge is a necessary but not sufficient aspect of decreasing CSA, it is an important first step in increasing awareness among childcare workers and an important part of a community prevention approach.

Interestingly, knowledge decreased slightly for the intervention groups and increased slightly for the waitlist group between the training and the 3-month follow-up. Decreases for the intervention groups could be due to loss of knowledge over time, indicating that this brief intervention may not be substantial enough to produce long-term knowledge gains. Thus, future work aimed at magnifying the potency of the intervention may be warranted. In addition, individuals, rather than agencies, were randomly assigned to condition. Thus, waitlist and intervention participants likely interacted with one another in professional settings during this period, potentially increasing knowledge in the waitlist group due to a contagion effect.

Stewards shows significant differences in attitudes about CSA from the waitlist group; however, in looking at overall mean scores, these differences may not be clinically meaningful as all conditions scored very low on the CSA Myth Scale, a scale that ranges in scores from 15 to 75, with a score of 15 indicating very low endorsement of CSA myths. The mean scores for all three groups in this study were in the low 20s, suggesting a possible floor effect. Given that childcare professionals are adults who are interested in and educated in working with children, this sample may believe fewer CSA myths compared to the general adult population. Thus, decreasing

CSA myths in this group may be a less relevant aim for future studies of CSA prevention programs for childcare professionals.

In other health-related fields, researchers have targeted behavioral change through increasing knowledge and changing attitudes. Although increased knowledge is not always directly linked with behavior change, the literature suggests that knowledge and attitudes do influence behavior and that the more specific and targeted the education, the more likely for behavior change to occur (Kelly and St. Lawrence 1988). This was demonstrated in a study by Gadomski et al. (2001) who implemented a multi-faceted training and public awareness campaign focused on domestic violence prevention with healthcare professionals. Following the campaign, participants showed significant positive changes in both knowledge and behavioral outcomes, indicating that providing information about domestic violence issues may prove effective for primary and secondary prevention. Similar models have been successfully used with sun exposure and head injury prevention with parents of young children, HIV prevention with college students, and teacher-focused CSA prevention programs (Gruninger 1995; Macnair-Semands et al. 1997; Randolph and Gold 1994; Rodrigue 1996; Schneider et al. 1993).

Study findings are consistent with this past research. Participants who received *Stewards* endorsed more frequent preventive behaviors. Minimal differences were found between in-person and web-based delivery modes, suggesting that these modes of training were equally effective. Findings indicate that the *Stewards* program increased childcare professionals' attempts to limit opportunities for CSA to occur. For example, participants who received the training reported an increase in monitoring interactions between older and younger children, and a greater increase in this behavior than waitlist participants. Given that juveniles account for more than one third (35.6 %) of CSA offenders (Finkelhor et al. 2009), programs that successfully target monitoring of older and younger children are important.

Surprisingly, although there was a greater increase in reported preventive behaviors in the intervention groups compared to waitlist, the waitlist group also showed a significant increase in these behaviors. Several reasons

could account for this increase. First, the mere assessment of behaviors may impact behavior change. Another explanation is the possible “contamination effect” that may have occurred. Childcare professionals were randomly assigned to condition on an individual basis and not by agency. Therefore, within a given agency, some participants were assigned to intervention conditions while others were not. Participants may have shared information learned in the trainings with one another. In fact, 46 % of the intervention group reported sharing written information about CSA with another adult, and all three conditions reported an increase in talking with co-workers about CSA. From a public health perspective, this “contamination effect” is a strength of the training, as it may indicate that not all childcare professionals within an organization need to be trained in order to impact staff behavior. Future research could focus on optimal numbers of individuals within an organization or community that should be trained to maximize cost-effectiveness of prevention efforts.

Stewards offers detailed information about CSA prevalence and consequences as well as concrete actions to decrease the potential risk of CSA within a brief interactive training program. Findings support the notion that inclusion of specific behaviors may be a critical element of this approach. Similar findings were noted in an evaluation of D2L’s public media campaign, which found that public service announcements raised CSA awareness among parents but that the provision of more detailed information impacted behavior (Rheingold et al. 2007). Further, although *Stewards* is not a theory-based prevention model, its principles fit well with Finkelhor’s (1984) theory regarding the necessary preconditions to CSA. *Stewards* targets both offender access to children and external inhibitions impacting the offender by increasing the awareness and preventive behaviors of adults who have caretaking roles for children. Unlike other preconditions (i.e., the offender’s internal inhibitions and proclivity to abuse), offender access and external inhibitions do not rely on individual characteristics of potential perpetrators and, thus, offenders’ cooperation is not necessary. Instead, *Stewards* training provides several tools for communities to take a proactive CSA preventive approach. Based upon the pattern of these findings, it may be prudent to continue to focus the training of childcare professionals on behaviorally specific risk reduction techniques for both primary (e.g., making all contacts potentially observable) and secondary (e.g., practicing mandated reporting scenarios) prevention efforts and providing more instruction on how to talk to children about body safety and CSA. Several aspects of this study distinguish it from prior CSA prevention research. We employed a randomized control design, which allowed us to make between-subjects and

within-subjects comparisons. We recruited a large sample of childcare professionals in three sites across the country as well as a high proportion of minorities, increasing the generalizability of the findings. This study examined web-based delivery of CSA prevention, which has received little attention and is a potentially cost-effective way of dissemination. Lastly, this was an independent evaluation, limiting the potential for bias in design and interpretation of results.

There are several limitations that warrant consideration. The design involved a post-only assessment for knowledge and attitudes; therefore, no within-group analyses could be completed from pre-intervention for those outcomes. Although individuals were randomly assigned to groups, the decision to not include pretesting of participants precludes the examination of any pre-intervention group differences on variables of interest. Further, proximal measures were chosen for the study with CSA prevention being the ultimate goal. Although we noted an increase in adult-reported CSA risk reduction behavior, we do not know whether this translates directly to the prevention of CSA events. Ideally, a large-scale longitudinal study with a sufficient sample to address the relatively low base rate of CSA would be necessary to assess a decrease in CSA incidence. Such a study is costly and was beyond the scope of the current research. In addition, approximately 13 % of the sample that completed their assigned condition was not available at 3-month follow-up. Those lost to 3-month follow-up were somewhat younger than those who completed this assessment, but no other demographic differences were found. Though this drop-out rate is moderate, it is still possible that attrition could have influenced study results. Although the heterogeneity of the professions recruited in this study can be viewed as a strength in terms of external validity, there were not enough participants in each of these subgroups to allow for the examination of between-profession differences in the efficacy of the intervention. Further, additional key variables (e.g., length of time in profession) may be important considerations for future studies in order to allow for potential modifications aimed at increasing the effectiveness of *Stewards* for specific subgroups of childcare professions.

Despite these limitations, study results indicate that a brief training for childcare professionals may impact CSA prevention knowledge and behavior, albeit the practical implications is still unclear. Although these findings are statistically significant, it is premature to suggest clinically relevant shifts to the prevention of incidence or prevalence. Successful CSA prevention has major public health benefits, and investing in the development and implementation of evidence-based strategies is a high priority (Gilbert et al. 2009). Child-focused CSA prevention alone is not likely to protect children fully from CSA, as we cannot prepare children for the diversity of approaches the potential offenders may utilize (Bolen 2003).

Adult-focused programs are likely to have added benefit when used in conjunction with evidence-based child-focused programs. In addition, positive findings for web-based CSA educational approaches should encourage the use of technology in the development of programs. Web-based programs are of particular interest as they can be delivered widely, efficiently, and at low cost, making them accessible to agencies with limited resources. Thus, web-based approaches may assist in overcoming barriers to participation and minimizing health disparities.

In summary, CSA prevention programs that target adults are needed (Wurtele 2009), as they can be used to supplement benefits gained from child-focused programs. This study is one of few that examines the impact of a CSA risk reduction program in a large well-controlled multi-site trial. Overall, findings indicate that a brief workshop for childcare professionals produces moderate increases in awareness and CSA preventive behaviors. Future work should focus on strategies for increasing effectiveness of this promising program.

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