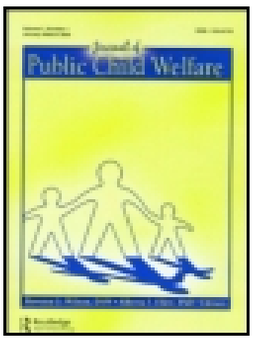

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Child welfare workers' knowledge of risk factors for child maltreatment fatalities: a second multi-state assessment

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ABSTRACT

This paper reports results from a second study which examines the knowledge and training of child welfare professionals with regard to risk factors for fatal child maltreatment. This multi-state, online study (n = 619) shows that workers have gaps in their knowledge of risk factors for maltreatment-related deaths. The majority of workers had received training, but it had little impact on worker knowledge. Workers reported receiving a variety of trainings on risks for fatalities, with different sources, length of training, and foci. Workers who received training that focused on research-based risk factors had higher levels of knowledge than other workers.

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Child maltreatment fatalities; child welfare workforce; child welfare professionals; child welfare training

Child maltreatment fatalities (CMFs), or when children die from abuse or neglect, are repeatedly the focus of media attention (Ayre, 2001), state policy (Douglas, 2009), and as of late, the federal government, with the establishment of the Commission to Eliminate Child Abuse and Neglect Fatalities (U.S. Commission to End Child Abuse and Neglect Fatalities, 2016). The professionals who have the greatest responsibility for providing direct services to protect children and intervene to ensure their safety are those that work for child protection and child welfare agencies. A small body of literature suggests that child welfare workers (CWWs) and those studying the social sciences receive little information and training on risk factors for CMFs (Douglas, Mohn, & Gushwa, 2015; Douglas & Serino, 2013). Our 2010 study documented that CWWs have low levels of knowledge of risk factors for CMFs and that receipt of training does not improve that knowledge (Douglas, 2012). The purpose of this paper was twofold: (1) to test the validity of those initial results, especially given that this area remains relatively unexplored and that six years passed in between periods of data collection and (2) to refine the survey questions to address issues of clarity and intent and to integrate feedback from the field.

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Child maltreatment fatalities

According to official statistics, in 2015, 1,670 children died from maltreatment (U.S. Department of Health & Human Services, 2010), but research confirms that CMFs are undercounted (Ewigman, Kivlahan, & Land, 1993; Herman-Giddens et al., 1999), thus, the true number is likely much higher. Deaths due to abuse and neglect encompass a wide range of causes, including actively killing a child (e.g., assault/shaking) and passively being responsible for a child's death (e.g., neglect/lack of supervision). In 2015, 80.2% of the 1,670 identified CMF victims died from neglect and 43.9% from physical abuse (U.S. Department of Health & Human Services, 2017). The numbers sum to more than 100% because of substantiations for more than one type of maltreatment.

Most children who die from maltreatment are very young. Roughly 50% are under the age of one and close to 75% are under the age of four (U.S. Department of Health & Human Services, 2017). A significant body of research has confirmed that infants are especially at risk for being victims of fatal child maltreatment (Anderson, Ambrosino, Valentine, & Lauderdale, 1983; Kunz & Bahr, 1996; U.S. Department of Health & Human Services, 2017). Recent research has also demonstrated that children who have a physical disability or a medical condition are at an increased risk for CMF (Douglas, 2016b).

Finally, with regard to child characteristics, there are some racial and ethnic disparities among CMF victims. This disparity has the most negative impact on Black/African Americans and American Indians because they are over-represented among CMF victims, as compared to their existence in the population at-large (Herman-Giddens, Smith, Mittal, Carlson, & Butts, 2003; Palusci & Covington, 2014; U.S. Department of Health & Human Services, 2018; Welch & Bonner, 2013), which is true for victims of non-fatal maltreatment as well (Knott & Donovan, 2010). One perspective, termed "bias theory" (Drake et al., 2011), is that minority children are not abused any more than majority children, but they are more likely to be reported to the authorities or more likely to be the subject of a "false positive" (Crofoot & Harris, 2012; Drake et al., 2011; Foster, 2012; Sinha, Trocmé, Fallon, & MacLaurin, 2013). Recent research shows support for this perspective (Foster, 2012); this problem is the focus of many interventions within the child welfare workforce today (Anyon, 2011; Clark, Buchanan, & Legters, 2008; Cross, 2008; Dettlaff & Rycraft, 2008; Knott & Giwa, 2012).

Most individuals who are responsible for the deaths of children due to abuse or neglect are family members (U.S. Department of Health & Human Services, 2017). Mothers perpetrate the largest proportion of deaths (Damashek, Nelson, & Bonner, 2013), presumably because they generally do more caregiving than fathers (Manlove & Vernon-Feagans, 2002; Wood & Repetti, 2004). After

mothers, fathers are the next most likely perpetrators, followed by mothers' male intimate partners (Douglas, 2016a; U.S. Department of Health & Human Services, 2017). Individuals who are responsible for children's deaths through maltreatment are usually in early adulthood – under the age of 30 (Herman-Giddens et al., 2003; Kunz & Bahr, 1996). Parents who perpetrate fatal child maltreatment are more likely to have described their children as being "difficult" and to have inappropriate expectations of their children with regard to age and children's developmental abilities (Chance & Scannapieco, 2002; Fein, 1979; Korbin, 1987). Children who have non-family members living in their households (Stiffman, Schnitzer, Adam, Kruse, & Ewigman, 2002) and who live in families that tend to be especially mobile (Anderson et al., 1983) have an increased risk for CMF. Recent research also shows that among children who are engaged with child protective services, they are more likely to experience a CMF when they live in households where partner violence is present, housing is unstable, and in families that experience financial difficulties (Douglas, 2015).

CMF and the child welfare profession

Most research on the intersection of the child welfare profession and CMFs has focused on how fatalities have an impact on the day-to-day operations of CWWs (Ayre, 2001; Douglas, 2009; Gustavsson & MacEachron, 2004; Regehr, Chau, Leslie, & Howe, 2002; Sidebotham, Fox, Horwath, & Powell, 2011). In their study of agencies and organizations in which CMF had occurred, Regehr, et al. (2002) found evidence that CMFs could be attributed to the implementation of harsh working conditions, underscored by a management style focused on policing frontline child welfare professionals. There is very little research which discusses better preparing workers to identify and respond more effectively to high-risk situations (Douglas, 2016a).

Among children who die from maltreatment, 30–50% of victims or their families were previously known to child protective services before their death, either through a report, investigation, ongoing casework, or reunification (Anderson et al., 1983; Beveridge, 1994; Damashek, Drass, & Bonner, 2014). As we have written before (Douglas, 2012, 2016a), child welfare professionals are uniquely positioned to have the opportunity to prevent fatal child maltreatment, and that workers do report assessing for risk factors for fatalities when they work with families (Douglas, 2012). Previous research also shows that, with each successive report to child protective services, children are between 8% and 21% less likely to die, depending on the age of the child and the type of maltreatment that the child is experiencing (Douglas, 2015). Research using the National Child Abuse and Neglect Data Set shows that standard social services including family support, family

preservation, foster care, case management, and court-appointed services have been shown to reduce the risk for CMFs (Douglas, 2016b). This research also shows that these services reduce the risk for physical abuse victims more than for victims of neglect.

Despite the important role that CWWs play in helping to prevent CMFs, there is little literature that addresses the preparation that CWWs receive regarding training, education, and ability to recognize and respond to risk factors for CMFs. In our previous work, we found that content about maltreatment deaths is not formally part of most pre-service child welfare curriculum, nor is it well-addressed in most child welfare/child abuse or neglect-related textbooks that would often be read by students who might enter the social service or child welfare professions. For example, in an analysis of 20 state pre-service training curricula, only one state had a section that was dedicated to maltreatment deaths (Douglas et al., 2015). Further, in our analysis of 24 textbooks that would commonly be used to educate future child welfare or social service workers, we found that 16 included information about who is responsible for children's deaths each year and only seven included information documenting that more children are likely to experience neglect than abuse prior to their deaths (Douglas & Serino, 2013). In general, we found a low accounting of risk factors for fatalities, accompanied by information which was tenuous or unconfirmed. The literature remains relatively silent about the training that workers receive to accurately identify risk factors for CMFs. This paper begins to address that gap.

In the first study that we conducted of CWWs and CMFs, we found that child welfare professionals had large gaps in their knowledge of risk factors for maltreatment deaths among children (Douglas, 2012). In a sample of 426 workers from across the United States, the results showed that workers were more likely to believe that children were killed by non-family members, such as their mother's boyfriends, and by physical abuse than neglect. The survey contained nine questions about risk factors; there were only five questions where a minimum of 50% of workers answered correctly. Additional results show that over a quarter reported that a client once said that s/he might kill his/her children. The results further indicated that receipt of training did not have an impact on the knowledge that workers had about risk factors for maltreatment deaths. In one instance – parental mental health concerns – CWWs who received training had a lower level of knowledge. What remains unknown is whether, among those who did receive training, if knowledge varies by training characteristics, for example, source of training, duration, and delivery of training. In addition, it is unknown whether professional experience and education better prepares workers to respond to risk factors for CMFs.

As noted, the purpose of this study is to replicate and build on the 2010 study previously referenced. All research is worthy of replication (Good, 1992; Schmidt, 2009) and given the important nature of the child welfare profession's opportunity to intervene to prevent CMFs, it behooves the field to better understand the set of skills and knowledge that the child welfare workforce possesses with regard to risk factors for CMFs and whether training is associated with higher levels of knowledge. In addition, we examine whether professional experience is related to knowledge. The questions for the 2016 replication study were also slightly modified for purposes of clarification, to reflect the emergence of new literature, and to respond to informal feedback from the field. Thus, the purpose of this replication study is to address the following questions:

(1) What is the knowledge of child welfare professionals concerning risk factors for maltreatment?
(2) What are child welfare professionals' practice concerns and experiences regarding CMFs?
(3) Does professional experience and relevant education increase knowledge?
(4) Do workers who have experienced training about risk factors for CMF have more knowledge of risk factors? If so, what training characteristics are associated with higher levels of knowledge?
(5) What level and kind of training do child welfare professionals receive concerning risk factors for fatal child maltreatment?

Methods

Procedure

Data for this paper were collected as part of a larger study, *Child Maltreatment Fatalities: Perceptions and Experiences of Child Welfare Professionals II* (CMF-POCHIWP II), from August 2016 to January 2017. Child welfare professionals were recruited to participate in an online survey that focused on CWWs' perceptions of and experiences with CMFs, their training about CMF risk factors, and as a separate construct, their experiences with the strength-based orientation in child welfare practice. Potential participants were primarily recruited through announcements that were made to the Child Maltreatment Research Listserv (maintained by the National Data Archive on Child Abuse and Neglect, Cornell University), where members in the field forwarded the recruitment statement to workers and supervisors, and through direct appeals that were emailed to agency administrators in each state who was identified on state child welfare agency websites. Participants were also recruited through our professional networks,

from a database of individuals who signed up to be notified about research conducted by one of us (EMD), and through postings on social work-related Facebook pages.

Individuals who responded to the solicitation were directed to the online survey which was created using Qualtrics. Potential participants were informed of their rights as a participant in the study, including that some of the questions may cause them distress. Individuals were informed that they could skip any questions they did not want to answer and cease participation at any time. The methods for this study were approved by the Institutional Review Board at [Redacted] and [Redacted]. We received responses from 687 CWWs; 30 respondents completed a fraction of the questionnaire and were eliminated from the study; 21 had jobs in child welfare, but were not engaged in day-to-day child welfare practice (lead advocate, quality assurance, policy specialist, records specialist, etc.) and were eliminated from the sample; and finally, 17 attorneys participated in the study but are not included in the analyses presented in the current paper. This study includes 619 respondents. Approximately 100 participants did not complete the demographic section of this study. Their data are included in the descriptive analyses but is eliminated in multivariate analyses. Given the widespread use of cross-postings and appeals about this study, it is not possible to calculate a response rate.

One particular state took a special interest in this study and encouraged its child welfare workforce to participate; 329 respondents are from this one state, the identity of which is confidential. The respondents from this one state differed from other respondents in several ways: respondents were younger, ($p < .001$), had less education, ($p < .001$), were less likely to have a social work degree, ($p < .001$), more like to be African American/Black ($p < .001$), and less likely to be White/Caucasian ($p = .012$). CWWs from this one state were also more likely to work for a private, rather than a public child welfare agency ($p < .001$).

Participants

Table 1 presents participant data, the vast majority of whom was female (86.9%). With regard to race, 12.9% identified as African American/Black, 14.6% as Latinx, and 73.8% as White/Caucasian; the presence of other racial and ethnic groups are displayed in Table 1. The sample of CWWs was mid-career with a mean age of 39.6 (median = 37) and with a mean of 9.7 years (median = 8) as a child welfare professional. The participants reported being well educated, with 54.3% having a bachelor's degree, 39.4% a master's degree, and 4.4% having a doctorate. About one quarter (28.7%) of the sample had a degree in social work. The majority of workers (60.5%) were frontline workers, 27.2% were supervisors, and 7.5% were administrators.

Table 1. Demographic characteristics of study participants (n = 512–525).

Characteristic	Percent/Mean (SD)
Gender – Female	86.9
Race/Ethnicity	
American Indian/Alaska Native	1.8
Asian	1.8
African American/Black	12.9
Caucasian/White	73.8
Latinx	14.6
Native Hawaiian/Pacific Islander	0.6
Age	39.6 (11.63)
Dominant state[a]	65.1
Child welfare professional role	
Administrator	7.5
Frontline worker	60.5
Supervisor	27.2
Other	4.8
Public agency (vs. private)	53.0
Professional specialization	
Adoption	3.1
Determinations of abuse and/or neglect	43.4
Licensing/placements	3.7
Ongoing services	50.5
Post-reunification services	18.7
Other	14.0
Years in the field	9.7 (8.37)

[a]This state, which remains confidential, had an overwhelming response from their child welfare workforce.

The CWWs came from a total of 17 different states. Over a quarter of the sample (27.2%) had experienced a CMF on a caseload.

Instrument

The survey asked participants about their understanding of risk factors for CMF, opinions about CMFs, their training about CMF risk factors, their experiences with the strength-based orientation in child welfare practice, and demographic characteristics. This paper concerns questions regarding knowledge of risk factors for CMFs and opinions about CMFs. It also assesses the potential impact of training on knowledge and opinions. The survey questions pertaining to these areas, knowledge and opinions, were developed from a review of the literature about CMFs (Chance & Scannapieco, 2002; Douglas, 2005, 2013, 2015; Douglas, 2016a; Graham, Stepura, Baumann, & Kern, 2010; Palusci & Covington, 2014; U.S. Department of Health & Human Services, 2017; Yampolskaya, Greenbaum, & Berson, 2009), much of which was presented in the literature review to this paper. The questionnaire is also a revised version of what was used in the *CMF-POCHIWP I* study (Douglas, 2012, 2013). Specifically, the instrument was designed to ask about four different types of risk factors and knowledge concerning CMFs: (1) child

risk factors, (2) parental risk factors, (3) parent–child relationship risk factors, and (4) household/environment risk factors. At the start of the survey, participants were introduced to the topic of the study and the following set of instructions: "Child maltreatment fatalities (CMFs), or when children die from abuse or neglect, have been receiving increasing levels of attention in the past few decades. There is still much to be learned and we want to know what your experiences have taught you about CMFs. Some of the first set of questions address which children might be more or less at risk. Other questions address who might be responsible for when a child dies and is known to protective services. We want to know your most honest thoughts, perceptions, and opinions on this important topic. For clarification, a child maltreatment fatality (CMF) is: 'a child dying from abuse or neglect, because either (a) the injury from the abuse or neglect was the cause of death, or (b) the abuse and/or neglect was a contributing factor to the cause of death' (National Data Archive on Child Abuse and Neglect, 2016, p. 35). To what extent do you agree with the following statements? Please note that we use the terms parents and caregivers interchangeably. This could be a birth/natural parent, foster parent, adoptive parent, step-parent, or a parent's life partner."

This paper reports on the results of questions that assessed knowledge, experiences, and training. The survey included 10 questions about workers' knowledge of risk and four questions about their opinions about CMFs. All of these questions asked CWWs to rate the extent to which they agreed with each statement on a scale of 1–4, where 1 = Strongly Disagree, 2 = Disagree, 3 = Agree, and 4 = Strongly Agree. For example, in the area of knowledge of risk factors, "Families that move a lot are more likely to suffer a CMF" and "Parents who are responsible for their children's deaths often have inappropriate age expectations of their children." Specifically, four questions targeted parental risk factors; two targeted child factors, two targeted household factors, and a final two targeted the parent–child relationship, for a total of 10 questions. Further, six questions were posed as accurate statements; four were posed as false statements, so that workers could not simply agree with each statement. Table 2 displays these questions and whether they were true or false. The false statements were reverse scored for some of the analyses in this paper. Four questions addressed workers' opinions, such as "Children who are killed by their caregivers are not really any different from other children in the child welfare system." These questions are also displayed in Table 2.

The survey contained nine questions which addressed the type and level of training that workers received about risk factors for CMFs. Finally, eight variables were included to assess demographic characteristics and whether CWWs experienced a CMF on their caseload, including age, gender, race/ethnicity, education level, social work degree, role as a CWW, and the length of time they have been

Table 2. Knowledge of risk factors for fatal child maltreatment, with comparison of those who did and did not receive training (n = 619).

			Receipt of Training about CMFs			
Statement About CMF Risk Factor	True/ False	% of Total Sample who Agree	% Who Received Training who Agree	% Who did Not Receive Training who Agree	χ^2	*p*
KNOWLEDGE OF RISK FACTORS FOR CMFs						
Child Risk Factors						
Older children are more at-risk for CMFs than younger children.	False	1.5	1.8	0.5	[a]	–
Children who have a physical or medical disability are more likely to experience a CMF.	True	75.9	75.6	76.7	.08	.774
Perpetrator/Care Giver Risk Factors						
Men are most often responsible for child abuse or neglect deaths.	False	43.3	46.1	36.7	4.62	.032
Most parents who are responsible for their children's deaths have mental health problems.	True	55.8	55.2	57.5	.27	.603
Children are most likely to die because of non-family member (such as mother's boyfriend).	False	69.5	73.0	61.0	8.78	.003
Parent-Child Relationship						
The parents of CMF victims often have inappropriate age expectations of their children.	True	77.4	77.5	76.9	.028	.866
Parents who actively or passively kill their children probably saw their child as "difficult" or ill-behaved in general	True	62.9	63.8	60.6	.583	.445
Household Risk Factors						
Children are more at risk for a fatality when they have non-family members living in their homes with them.	True	63.0	66.3	55.0	6.94	.008
Families that move a lot are more likely to experience a CMF.	True	52.0	53.1	49.4	.68	.409
Maltreatment Type						
Most children usually die from physical abuse (as opposed to neglect or another type of maltreatment).	False	46.9	46.4	48.1	.141	.707
OPINIONS ABOUT CMFs						
Children who die from abuse or neglect aren't really any different from other children in the child welfare system.	N/A	65.0	64.8	65.4	.02	.899
The families where children die from abuse or neglect aren't really any different from the other families in the child welfare system.	N/A	56.1	56.4	55.3	.06	.800
When children die from abuse or neglect, it's a freak occurrence that could happen to any of our children.	N/A	11.7	12.0	11.0	.12	.733
There usually aren't enough warning signs before a child dies from abuse or neglect.	N/A	18.0	18.0	18.1	.00	.963

[a] Cell size is too small to conduct significance testing.

a CWW. Most of the responses for demographic questions were transformed into binary variables of 1,0; for example, African American = 1, not = 0; social work degree = 1, not = 0; or front-line worker = 1, not = 0.

Data analysis

To aid in the ease of interpretation, the responses to questions were dichotomized where Strongly Agree/Agree with statement = 1 and Strongly Disagree/Disagree = 0. This permitted one to determine the percent of CWWs who correctly identified each risk factor. A 2 × 2 chi-square analysis was also completed to compare responses between workers who had received training and those who had not. The full range of the response set was used in additional analyses. All 10 questions that inquired about risk factors were summed to create a summary score concerning knowledge of risk factors for CMFs. The summary score variable was created using variables that had been reversed scored for those questions that had been posed as a false, rather than an accurate statement. This was used as the dependent variable in first a series of bivariate correlations and then an OLS regression analysis that predicted knowledge based on workers' education and professional experiences. This summary score statistic concerning knowledge of risk factors for CMFs was also used as a dependent variable in comparison of means tests – analysis of variance – to examine the potential impact of training characteristics on knowledge of CMF risk factors. The theoretical range for this variable was 4–40; the actual range was 19–35; and the mean was 27.05.

Results

Knowledge of risk factors for CMFs

Table 2 displays workers' knowledge of risk factors for CMFs. Participants had the greatest level of knowledge concerning children's age as a risk factor. Workers were also able to accurately identify that children whose parents view them as "difficult" and children who have a disabilities are more at-risk for CMFs. Workers have less knowledge in the area of how children die and who is responsible for children's deaths. Workers also had less knowledge of risk factors in the areas of parental mental health and family mobility.

Worker opinions and practice experiences

Table 2 also shows that about two-thirds of CWWs indicate that children who die from CMFs are not any different from the other children that they serve. A smaller proportion of workers indicate that the families in which children die from CMFs aren't any different from other families that they

serve. About one-fifth of workers indicated that there are not enough warning signs to prevent CMFs and a small minority reported that a CMF is a freak occurrence. Finally, 20.2% of workers reported that they once had a parent who said s/he might kill his/her child (does not appear in Table 2).

Factors related to knowledge of CMF risk factors

The second to final column on Table 2 shows how training is related to knowledge of individual risk factors. The results show that in one instance, receipt of training was related to a higher level of knowledge and in two instances it was related to a lower level of knowledge. These occurred in the areas of living with non-family members and in two areas concerning who perpetrates CMFs. In all instances, these were statistically significant (p= .003-.032). In all other instances, receipt of training was not related to knowledge of risk factors or CWWs' opinions about CMFs.

The summary score for total knowledge of risk factors was correlated with the following variables using either Pearson's correlation (for two continuous variables) or point-biserial correlation (for one continuous variable and one binary variable) (Allen, 2017): having a graduate degree (r= −.010, p= .823), having a social work degree (r= −.001, p= .981), total length of time as a child welfare professional in months (r= −0.083, p= .065), being a frontline worker as opposed to a supervisor (r= .021, p= .640), child welfare specializations with dummy variables for each – making determinations of abuse or neglect (r= −.095, p= .032), ongoing services (r= .116, p= .009), post-reunification services (r= .127, p= .004), adoption services (r= .001, p= .988), licensing and placements (r = −.094, p = .096), or administration (r= −.092, p= .104), working for a private versus a public agency (r= .088, p= .048), and ever having received training about risk factors for CMFs (r= −.013, p= .743). Those with p-values ≤ .10 were entered into a regression model. In this multivariate model, variables with the highest p values were pruned, one by one, until all remaining variables had a p value ≤ .10. Table 3 displays the parsimonious model of the summary statistics for the OLS regression predicting a total summary score of knowledge of risk factors for CMFs. The results in Table 3 show that CWWs who specialize in post-reunification services more accurately identify risk factors for CMF (p= .053), as compared

Table 3. Parsimonious Summary Statistics for Ordinary Least Squares Regression Analysis Predicting Child Welfare Workers' Total Knowledge of Risk Factors for Fatal Child Maltreatment (n = 480).

Independent Variable	B	SE	β	*t*	*p*
CWW provides post-reunification services	.559	.287	.112	1.945	.053
CWW specialization is licensing/placements	−1.086	.652	−.095	−1.666	.097
CWW works for private CW agency	.527	.264	.115	1.992	.047

Note: F = 4.236, R^2 = .040, p= .006

with workers who make determinations about abuse or neglect, provide ongoing services to open cases, provide adoption services, or who are administrators. There is a trend toward significance (p= .097) that workers who specialize in licensing and placements are less able to accurately identify risk factors for CMFs, as compared to workers with other specializations. Finally, CWWs who work for a private child welfare agency accurately identify more risk factors for CMFs than those who work for a public agency (p= .047). Despite these findings, the overall model weakly predicts CWW knowledge of risk factors for CMFs, with an R^2 = .04, only 4% percent of the variance is explained by this model.

Training received regarding risk factors for CMFs and level of knowledge

Table 4 shows that close to three-quarters of respondents indicated that they had received training about risk factors for CMFs and an even higher proportion reported that they would like to have trainings in the future. Table 4 also shows that of those who received training, most of them received information about CMFs as part of a larger training, as opposed to a training that specifically focused on CMFs. In terms of the source of the training on CMFs, the highest categories of where CWWs received this training was by their department, featuring an outside expert or at a pre-service training. The most frequent duration of the CMF-related training were 2 to 4 h and close to a full day. When asked about the content of the training, most reported that the training focused on research-based risk factors for CMF victimization or perpetration. Two-thirds indicated that the training that they received was not evaluated, or they were unsure if it was evaluated. The vast majority indicated that they thought that the training increased their knowledge of risk factors for CMFs.

Table 5 presents summary statistics from analyses of variance that were performed to test whether different elements of training were related to knowledge of risk factors for CMFs. The results show that workers who reported receiving research-based information about risk factors for CMFs more accurately identified what placed children at risk for fatality (p= .039). There is also a trend toward significance that workers who received information about CMFs as part of their pre-service training, or in a way that was not captured by our survey (they selected "other"), had a higher level of knowledge of risk factors for CMFs (p= .058).

Discussion

This study replicated and expanded previous work that examined the readiness of CWWs to accurately identify risk factors for fatal child maltreatment. In our analyses, we found that workers have gaps in their knowledge of risk factors for CMFs, and, even though roughly 70% of workers receive training,

Table 4. Frequency statistics concerning characteristics of training received by child welfare professionals.

Information About Training	%
Overview of Training (n=601-619)[a]	
Received training on risk factors for CMFs	70.4
Would like to have training about CMFs in future	85.7
Type of Training Received (n=400)	
• A training that covered many areas and information on CMFs was included	84.3
• A training that just focused on CMFs	15.8
Source of Training (n=434)	
• Pre-service training	28.3
• Annual training sponsored by department	15.4
• Training sponsored by department, featuring outside consultant/expert	37.6
• Training received on own at conference, workshop, etc.	12.7
• Other	6.0
Length of Training (n=434)	
• Fewer than 2 hours	16.8
• 2-4 hours	28.1
• Close to a full day	25.8
• 2-3 days	10.4
• More than 3 days	18.9
Content of Training (n=430)[a]	
Research-based risk factors for CMF victimization or perpetration	64.9
CMFs trends that have taken place in worker's state	48.8
Interventions to help prevent CMFs	53.0
Evaluation and Knowledge Gain (n=430-432)[a]	
Training received was evaluated	
• Yes	33.3
• No	41.7
• Unsure	25.0
Training increased my knowledge	93.7

[a]Does not sum to 100%. Respondents were asked to "select all that apply" or more than one question was asked in this category.

it does not substantially improve their knowledge. We also found that training content and sources varied considerably, but that workers who received training that was grounded in research on risk factors for victimization and perpetration were able to accurately identify more risk factors.

Knowledge of risk factors

Overall, workers had a low level of knowledge of risk factors for CMFs. This finding supports the earlier work that we conducted in this same area of research (Douglas, 2012). CWWs had the highest level of knowledge in the areas of children's age as a risk factor, children having a physical or medical disability, and parents who have age-inappropriate expectations of their children. The largest gaps in worker knowledge of risk factors for CMFs were in the areas of parent risk factors, household risk factors, and the means by which children die. Only one-third to one-half of the sample accurately identified that women are the most common perpetrators of CMFs, or the

Table 5. Comparison of means tests for ANOVA and t-test summary statistics for level of knowledge for CMF risk factors by training characteristics.

Training Characteristic	Level of Knowledge of CMF Risk Factors Mean (SD)	F(*df*)	η^2	*p*
Type of Training Received (*n* = 398)				
Training Covered Many Areas, Including CMFs	27.07 (2.23)	.03(1)	.00	.856
Training Focused only on CMF Risk Factors	27.01 (2.10)			
Source of Training (*n* = 421)				
Pre-service training	27.46 (2.27)	2.298(4)	.02	.058
Annual training sponsored by the department	26.67 (2.13)			
Training sponsored by the department, featuring outside consultant/expert	26.80 (2.17)			
Training received on own at conference, workshop, etc.	26.98 (2.04)			
Other	27.50 (2.25)			
Length of Training (*n* = 421)				
Fewer than 2 h	27.04 (1.93)	1.481(4)	.01	.207
2–4 h	26.81 (1.90)			
Close to a full day	26.87 (2.24)			
2–3 days	27.43 (1.99)			
More than 3 days	27.43 (2.76)			
Training Content				
Focused on Research-Based Information				
No	26.74 (2.11)	4.281(1)	.01	.039
Yes	27.21 (2.24)			
Focused on CMF Trends in Participant's State				
No	27.12 (2.29)	.556(1)	.00	.456
Yes	26.96 (2.11)			
Focused on Interventions to Prevent CMFs				
No	27.03 (2.17)	.011	.00	.916
Yes	27.05 (2.24)			
Evaluation Was Performed (*n* = 420)				
Yes	27.18 (2.26)	.613(2)	.00	.542s
No	26.91 (2.07)			
Unsure	27.08 (2.28)			
Training Increased Knowledge				
No	26.42 (1.61)	2.101	.01	.148
Yes	27.09 (2.23)			

maltreatment that precedes fatalities, and about one-half of the sample correctly indicated that children most commonly experience neglect prior to their deaths. These results are consistent with the previous research that we conducted in this area. One of our concerns that prompted this reexamination of previous research was that our word choices or phrasing about gender and perpetration might have been misleading. A question in our first study read: "Mothers are the ones who are most likely to kill their children," which implied overt action against children, when in fact women are more responsible for neglect-related deaths (Damashek et al., 2013). This prompted us to rephrase this question and to reverse code it to read: "Men are most often responsible for child abuse or neglect deaths." The rephrasing did improve the accuracy in identifying which gender is responsible for more children's deaths, from 20.0% to 56.7%, but still, only a marginal minority of

CWWs accurately identified that women are more often responsible for children's deaths.

These findings confirm what we previously speculated: "Workers appeared to believe that children are most commonly killed by non-family members and a small majority believed that they mostly die as a result of physical abuse" (Douglas, 2012, p. 670). Official statistics from the U.S. Department of Health & Human Services annually report that prior to their deaths, children are more likely to experience neglect than physical abuse and that the identified perpetrator of that maltreatment is more likely to be a female than a male. The numbers from 2015 show that 73% of victims experience neglect prior to death, as compared with 44% who experience physical abuse and that mothers are involved in 61% of their children's deaths, as compared with 41% of fathers (U.S. Department of Health & Human Services, 2017). Further, those same statistics show that maltreatment prior to a child's death which is attributed "Partner of Mother (Male)" is 4%. Having accurate information concerning how children die and who is responsible for children's deaths should be the most basic information that the field provides to CWWs so that they can better work to help prevent maltreatment deaths.

In this version of our study, we also examined how educational and professional experiences may be related to knowledge of risk factors. Using a multivariate analysis, we found that workers who focus on post-reunification services and workers who are employed by private child welfare agencies have higher levels of knowledge in terms of risk factors for CMFs. This is somewhat in conflict with previous research which found that child welfare knowledge and professional behaviors are linked to disciplinary background (Turcotte, Lamonde, & Beaudoin, 2009). This continues to be an area of study which is under-examined and warrants additional exploration in order to create the most prepared child welfare workforce possible.

Research shows that many different types of providers and professionals lack knowledge of risk factors for health conditions or fatalities. For example, both child welfare workers and medical providers report not being comfortable with their level of knowledge to accurately identify bruising in children that may be related to maltreatment (Matthews, Kemp, & Maguire, 2017). Health-care providers have low knowledge when it comes to offering dietary advice to patients and a misunderstanding concerning which diets have been rigorously tested (Arora et al., 2015). Similarly, research has documented low knowledge concerning the risks of youth taking antidepressants (Cordero, Rudd, Bryan, & Corso, 2008). In other words, CWWs' lack of knowledge concerning risk factors may not be highly unusual. The more positive side of this finding is that there is some evidence concerning the efficacy of training in terms of increasing professional knowledge (Petrik, Delucia, & Adams; Turcotte et al., 2014).

Opinions about CMFs

The study also asked workers four questions about their opinions of maltreatment deaths. CWWs were asked if the children who died were any different from other children on their caseload and then also if the families where children died were different from families were there was no death. Half to two-thirds of workers endorsed these statements and the receipt of training did not have an impact on how workers answered these questions. Workers largely rejected the notion that a CMF is a freak occurrence or that there are not enough warning signs, with only two-fifths to one-tenth of workers endorsing these statement. These questions were included to explore beliefs and attitudes, because previous research demonstrates that workers' own values have an impact on their practice decisions (Davidson-Arad & Benbenishty, 2010; Morazes, Benton, Clark, & Jacquet, 2010). While workers were reluctant to agree that there were insufficient red flags before a child dies, two-thirds did agree that the families in which a child dies are not different from families where children do not die. Further, if workers believe that CMFs are random, they may believe that CMFs are not preventable. A simple bivariate analysis of our data shows that, in general, there is a positive and statistically significant correlation between workers who hold the beliefs that CMF is a freak occurrence and that there are not enough warning signs and those workers who believe that the children and families where children die are no different from other families who are served (ranging from r= .09-.240, p< .001-.014). This is an area that is ripe for future research, because it is possible that if workers believe that deaths cannot be prevented, they may be less comprehensive in their interventions.

Training

Seventy percent of the sample indicated that they had received training on CMFs. The largest contribution that this paper makes to the field is addressing what kinds of training CWWs in the area of risk factors for CMF victimization and/or perpetration. Seventy percent received training around CMF risk factors and of those, 86% would like additional training in the future. Most often and perhaps most telling in terms of knowledge gaps, CWWs reported that the training they receive was not dedicated to CMFs. They obtained information about CMFs as part of a larger training where, at some point, the trainer or curriculum touched on fatalities. CWWs training was most often sponsored by their child welfare department/agency and it featured an outside expert (which was still only endorsed by 38% of the sample). Finally, the vast majority of workers believed that the training improved their knowledge.

The most concerning aspect regarding training is that the training rarely increased knowledge. When examined dichotomously, received training or not, those who received training did not uniformly have higher levels of knowledge. Instead, the training produced mixed results and, like our previous study on worker knowledge of risk factors (Douglas, 2012), it actually was associated with lower levels of knowledge in two instances (concerning who is responsible for children's deaths). Further, we found that only one training characteristic improved knowledge among workers: trainings that focused on research-based information about risk factors for victimization and/or perpetration. For the sake of transparency, that training only yielded about a 2% increase in knowledge gained. Trainings that included information about state trends or prevention did not increase knowledge in any way that was statistically valid. There was a trend toward significance in the area of "source of training," thus, this is something that may warrant additional research in the future.

This paper answers the question of where workers receive training, how much training they receive, and on what the training focuses, but it does not investigate the actual content concerning CMFs and which characteristics increase the risk for death. The best way to obtain this information is likely through examining training curricula and by interviewing trainers, so that the field has a sense of what examples or scenarios are presented to workers to deepen their understanding of CMFs. This study also does not answer the question, *what improves worker knowledge?* CWW training evaluation is an area in need of expansion (Collins, 2008; Smith, 2003), but existing research shows that training can improve the knowledge and skills of CWWs. For example, case scenario training suggests that this approach can have positive impacts on judicial-decision making (Sicafuse, Wood, Summers, & DeVault, 2015). In another study of roughly 900 CWWs, the results showed that worker knowledge of basic child welfare information and professional behavior improved as a result of a training that was measured immediately after training completion (Turcotte et al., 2009). Despite these findings, more rigorous research is warranted.

In addition, the field has demonstrated that receipt of training alone is not sufficient for change in the workplace. New ideas and approaches need to be integrated into daily casework, assessments, and interventions (Antle, Barbee, & van Zyl, 2008; Lietz & Rounds, 2009). Further, this is work that has to be integrated with and reinforced by supervision (Collins-Camargo & Royse, 2010), both in the field and in the office. So, while the examination of training for CMFs is an important first step, a further examination into what workers do with new knowledge, how they integrate it into their work, and the role that supervision plays is essential if the field is to better understand how to effectively prevent CMFs. Thus, evaluation of any training that workers might receive is also imperative.

Limitations

This study is not without limitations. First, it is based on a convenience sample of CWWs and is not representative of all workers nationwide or workers in their respective states. The sample is, however, relatively similar to a national sample of CWWs (Barth, Lloyd, Christ, Chapman, & Dickinson, 2008). The sample for the present study is most notably comprised of more workers who identify as Caucasian and Latinx, and fewer who identify as African American/Black. Second, the workers who were recruited by agency directors or the workers themselves could have a special interest in CMFs, which may influence the findings of this study. For example, they may know more about risk factors for CMFs that other workers. Third, as noted in the methods section, one state became especially interested in this study and encouraged their workforce to participate. That one state was different from the rest of the sample in several sociodemographic characteristics. Those differences did not have a statistical impact on the analyses presented in this paper, but it is worth acknowledging that the workers from that one state may be different from workers in other states in ways that we did not capture through our survey. Fourth, this study relied on workers' recall regarding the training that they received around risk factors for CMFs and the content that was delivered; we do not know the specific content that was delivered to the child welfare professionals. Future research may want to connect specific training with knowledge before and after, as well as knowledge retention. Fifth, this survey addressed some of the known risk factors for fatalities, but not all. For example, it did not address large-group or societal-level factors, for example that males are more often fatality victims as compared to females and the fact that African Americans are vastly over-represented among victims of fatalities (U.S. Department of Health & Human Services, 2017). The results of our study are obviously limited without the inclusion of this information. This is something that future researchers should include, as the child welfare profession continues to grapple with issues of race, ethnicity, bias, and disproportionality. Related to this, future researchers may also want to examine how workers' own race or ethnicity is related to their own understanding of risk factors for maltreatment deaths. Sixth, the wording of some of the survey questions could have influenced the way workers interpreted the questions. For example, the statement "Most parents who are responsible for their children's deaths have mental health problems" was intended to capture that poor parental mental health is a risk factor for CMFs. That said, the research in this area is not very expansive and thus, workers who "agreed" with this statement, as opposed with "strongly agreeing," may have actually been more accurate, even though analytically, for the purposes of this study, those selecting "strongly agree" were rated as having the highest level of accuracy. Seventh, the multivariate analysis performed in

this study to assess the relationship between professional experiences and knowledge of risk factors should be considered exploratory. It is the first of its kind and the low R^2 shows that the field has much to learn concerning knowledge of risk factors. Finally, this study assesses workers' knowledge of known risk factors; the survey does not assess for whether one risk factor is more important than another. Beginning with a base of information concerning knowledge or risk factors is important. The next stage would be to move toward helping workers to understand which risk factors are greater than others; for example, infants are more at-risk than older children. Since much of the literature in this area is small, this may be challenging to do across the board. But, it could be incorporated into training when the body of evidence is substantial enough to do so.

Conclusion and recommendations

This study adds to a small but growing body of literature concerning CWWs' training related to and knowledge of risk factors for CMFs. Like our previous work in this area (Douglas, 2012), the results of this multi-state study show that the majority of workers received training and that they believe it was helpful, but the vast majority of the sample would welcome additional training on CMF risk factors. We found that knowledge of risk factors was slightly improved over the last time that we assessed it in 2010–2011. That said, knowledge concerning risk factors for maltreatment fatalities could still be further improved.

The largest gaps in knowledge are in the area of who is responsible for children's deaths, how children die, and parent and household risk factors. Workers were more accurate in their knowledge concerning child risk factors and some elements of the parent–child relationship. The receipt of training, however, did not uniformly result in higher levels of worker knowledge. In our first study concerning CWW knowledge of risk factors for CMFs (Douglas, 2012), we closed that paper by commenting that the gaps in CWW knowledge regarding risk factors for CMFs are not the fault of individual workers, but instead reflects a larger systemic problem. The research that we have conducted in this area (Douglas, 2012; Douglas et al., 2015; Douglas & Serino, 2013) suggests that the field may not adequately prepare CWWs to recognize risk for fatalities and thus when to take protective action in order to prevent future fatalities. This research is supported by one additional study (Douglas, 2015) which, using the National Child Abuse and Neglect Data Set, found that each subsequent report made about a child to protective services lowers that child's risk for fatality. This suggests that making reports about known or suspected maltreatment can reduce risk for death, presumably because repeated reports about a family decreases the chances that a report will be screened

out or that an investigation will end in unfounded claims; it also suggests that workers may overlook initial risk factors, but that repeated concerns from the community raise more red flags than do case characteristics. Finally, the results from this study, and our first study, show that between one in four or five have a parent say that s/he might kill her/his child. Further, the vast majority of workers want additional training on how to prevent fatalities. Given the national attention being paid to maltreatment-related deaths, through such activities as the Congressionally created U.S. Commission to Eliminate Child Abuse and Neglect Fatalities (U.S. Commission to End Child Abuse and Neglect Fatalities, 2016), the Congressional investigation into the deaths of children in private foster care (U.S. Senate Finance Committee, 2017), efforts by the Three Branch Institute to prevent maltreatment deaths (Three Branch Institute, 2016), and organizations such as Alliance for Strong Families and Communities (n.d.) launching "Within Our Reach," which is a systematic approach to implementing recommendations from the Commission – there has never been a better time for the field to launch an intensive effort to train CWWs about the risk factors for maltreatment deaths.

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