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Contextual Factors Influence Professional Development Attendance Among Child Care Providers in Nebraska

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Contextual Factors Influence Professional Development Attendance Among Child Care Providers in Nebraska

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Abstract

Objective: To examine contextual factors that may influence child care providers' motivators for attending nutrition-related training and their preferences and barriers to attending professional development training.

Design: Cross-sectional survey completed between January and April 2017.

Setting: Licensed child care programs (n = 1,490) across urban and rural Nebraska.

Participants: Child care center directors (n = 336) and family child care home providers (n = 1,154).

Main Outcome Measures: Motivators, preferences, and barriers of child care providers for attending professional development.

Analysis: Descriptive statistics and multiple logistic regression analyses were conducted.

Results: Top motivators for attending nutrition-related training included meeting licensure requirements and improving job performance. Child care providers most commonly selected preferences for receiving training included in-person and online delivery. Top barriers to obtaining training were schedule conflicts, accessibility, and cost. Child care centers and participants in the *Child and Adult Care Food Program (CACFP)* and *Nutrition and Physical Activity Self-Assessment in Child Care (Go NAP SACC)* were more likely to be motivated by licensure requirements. Rural providers were also more likely to report barriers such as inability to travel and limited access to training. Results revealed that child care type, geographic location, CACFP and Go NAP SACC participation can influence child care providers' motivators, preferences, and barriers to attending training.

Conclusions and Implications: Results highlight the importance of offering professional development training that best fits child care providers' needs and preferences.

Keywords: child care providers, Child and Adult Care Food Program, professional development, rural, center vs. home-based child care

Introduction

About 20 million children in the US attend some child care where they consume up to 6 meals and snacks per day.¹ Therefore, child care providers can play an essential role in fostering young children's growth and development. Currently, Nebraska ranks fifth in childhood obesity among children aged 2–4 years in the US²; thus, improving child care providers' knowledge and nutrition-related practices to combat childhood obesity is imperative. Professional development of child care providers is critical for the implementation of nutrition-related best practices and policies for shaping children's eating habits and preventing childhood obesity.^{3–5} Despite the need and benefits, engaging child care providers in professional development continues to be a challenge.⁶ Provider-level factors, such as personal beliefs, education,

logistical challenges, and insufficient support, deter providers' ability to attend professional development.⁷

Although there is evidence that provider-level factors influence participation in professional development,⁷ limited information is available about the role of broader contextual factors. For example, contextual factors such as the type of child care (child care center [CCC] vs family child care home [FCCH]) and geographic location (urban vs rural) may influence providers' ability to participate in professional development. Regarding the type of child care, as the first contextual factor, although both CCCs and FCCHs are licensed child care programs, they vary in many aspects. For example, CCCs are larger in size non-residential facilities with more staff and children than FCCHs, which offer care to children in a provider's home.^{8,9} Geographic location is included as the second contextual factor because providers in rural areas have reported limited access to healthy foods.^{10,11} There are also noteworthy disparities in childhood obesity rates, with children in rural areas having 26% higher odds of being classified as obese compared with urban children.¹²

Another contextual factor that may influence providers' professional development includes provider participation in federal food assistance programs and targeted nutrition interventions. The US Department of Agriculture Child and Adult Care Food Program (CACFP) serves approximately 4.2 million US children by providing financial reimbursement to child care providers, and, in response, child care providers are required to comply with meal pattern requirements, and serve nutritious meals to children.¹³ Recently, CACFP updated the meal pattern requirements to increase fruit and vegetable availability, increase whole grains, remove grain-based desserts, and reduce added sugars in breakfast cereals and yogurts.¹³ Changes in the CACFP menu requirements and providers' limited knowledge regarding these changes,¹⁴ warrants the need for professional development and may influence providers' motivation for attending training.

Finally, interventions such as the Nutrition and Physical Activity Self-Assessment for Child Care (Go NAP SACC) may influence child care providers' participation in professional development. Go NAP SACC is an updated version of NAP SACC, an evidence-based environmental intervention for improving nutrition and weight outcomes in children and has been widely implemented in child care programs across the US¹⁵ Go NAP SACC builds on the self-assessment, action

planning, and educational tools used previously by adding updated assessment tools and expanding best practices related to childhood obesity prevention.¹⁶ Child care providers in Nebraska who participated in Go NAP SACC have demonstrated significant improvements in their nutrition practices, such as serving healthier foods and practicing responsive feeding with children.¹⁷ Over 4–6 months, providers participating in Go NAP SACC complete self-assessments; receive training, technical assistance, and incentives such as resources and in-service hours; and establish best practices for healthy environments in child care.¹⁷ These factors associated with Go NAP SACC participation could influence providers' motivation and preferences for attending professional development.

The purpose of this study was to examine how contextual factors such as child care type (FCCH vs. CCC), location (urban vs. rural), and program participation (either CACFP or Go NAP SACC) impact professional development. Specifically, what contextual factors are related to child care providers' motivation for attending nutrition-related training and their preferences and barriers to attending general professional development training.

Methods

Sampling Procedure and Participants

Licensed child care programs from a list provided by the Nebraska Department of Health and Human Services ($n = 3,014$; across the state of Nebraska) were contacted to participate in this study. In January 2017, survey packets (including a cover letter, survey booklet, \$1 cash incentive, and postage-paid reply envelope) were sent through surface mail to all programs. A reminder postcard was sent to all nonresponders after 1 week. After 3 weeks, nonresponders were sent a second survey packet, excluding the \$1 incentive. Finally, all remaining nonresponders were contacted by phone between March and April of 2017 to provide a final reminder to complete the survey. The University of Nebraska–Lincoln Institutional Review Board approved this study, and all participants received the informed consent letter.

The survey was developed to cover relevant nutrition-related topics in child care. To avoid respondent fatigue and to ensure the reliability

of responses, the cover letter included the purpose of the study, which was to develop professional development training that would directly benefit child care providers and the children in their care. The cover letter also emphasized that the survey offered an opportunity for providers to express their needs and challenges related to training opportunities.

The final sample included 1,592 respondents across urban and rural Nebraska, resulting in a 54.6% response rate. For the current study, only CCCs and FCCHs were included. Head Start programs ($n = 56$), which are federally funded and are required to meet Head Start Nutrition Performance Standards, as well as other programs ($n = 46$; e.g., community center, public school), were excluded. Thus, 1,490 child care programs were included in the analyses. The respondents identified primarily as either a CCC director ($n = 336$), answering on behalf of other providers in the center, or FCCH provider ($n = 1,154$). Both are referred to as the provider in this study.

Measure

The Healthy Children, Healthy State Nebraska Child Care Needs Assessment survey used in this study consisted of an 86-item paper questionnaire with items drawn from previously published research regarding implementation of, difficulty in, and barriers to best practices for foods served, feeding children, nutrition education and training, and parent engagement.⁸ Survey items were reviewed by an advisory committee comprising individuals with expertise in early childhood education, nutrition, policy, and survey methodology. Further, cognitive testing was conducted with 2 FCCHs and 1 CCC provider to check for face validity.¹⁸ Following the feedback from cognitive testing, the survey was edited to improve the readability of a few items.

For this study, survey items related to motivation, preferences, and barriers to attending training and contextual factors were included in the model. For each item assessing motivators, preferences, and barriers to participating in training, participants were asked to respond to the following 3 question prompts: (1) When you participate in nutrition-related training, what is your motivation for participating? (2) Which of the following are barriers that prevent you from obtaining training? (3) What is your preference when it comes to receiving training? Regarding contextual factors, participants were asked to

indicate if they participated in CACFP and the Go NAP SACC program by choosing a yes or no response. The survey is available as **Supplementary Data**.

Analysis

The Statistical Package for Social Sciences (SPSS version 24.0, IBM Corp, Armonk, NY, 2016) was used to examine descriptive statistics for the entire sample to make comparisons across groups. Furthermore, 3 separate multiple logistic regression analyses were conducted to estimate the association of each binary independent variable, while controlling for the effects of the other 3 independent variables (child care type [0 = FCCH; 1 = CCC], location [0 = urban; 1 = rural], CACFP participation [0 = no; 1 = yes], and Go NAP SACC participation [0 = no; 1 = yes]) with their likelihood of reporting yes (0 = no; 1 = yes) to various motivations (10 items), preferences (6 items), and barriers to attending training (9 items) as binary dependent outcomes. As multiple comparisons were conducted, a Bonferroni adjusted alpha level of 0.0005 (0.05/100 comparisons) was used to determine statistical significance.

Results

Most of the respondents were white (94.2%), and 73% indicated having some college or higher educational background. **Table 1** provides the sample demographic characteristics. The results of this study are presented in 3 sections. Each section presents the results of logistic regression analyses for (1) motivations for attending nutrition-related training, (2) preferences for attending training, and (3) barriers to attending training. For all the logistic regression results, the top responses with the highest percentages of provider responses are first presented, followed by the level of significance. Standardized coefficients are presented in Tables 1–3, together with standard errors and odds ratios (OR).

Table 1. Demographic Characteristics by Child Care Type (CCC and FCCH) and Location (Rural and Urban)

Demographics and Program Details	CCCs			FCCHs		
	Rural (n = 123)	Urban (n = 213)	Whole CCC Sample (n = 336)	Rural (n = 592)	Urban (n = 562)	Whole FCCH Sample (n = 1,154)
CACFP Participation (% yes)	65.9	55.9	59.5	84.1	84.0	84.1
Go NAP SACC Participation (% yes)	26.8	34.3	31.5	12.5	9.3	10.9
Number of providers/program	13.1 (11.1)	18.6 (13.6)	16.6 (13.0)	1.3 (1.0)	1.3 (1.3)	1.3 (1.2)
Providers by race (%)						
American Indian or Alaskan native	1.6	0.4	0.8	0	1.8	0.9
Asian	0.8	0.9	0.9	0.2	0.4	0.3
Black or African American	0	6.6	4.2	0.5	6.2	3.3
Native Hawaiian or Pacific Islander	0	0	0	0	0.5	0.3
White or Caucasian	95.1	88.3	90.8	97.0	88.3	92.3
Other ^a	0	1.9	1.2	1.2	2.1	1.6
Providers' educational attainment (%)						
Some high school	0	0	0	1.2	4.1	2.6
High school graduate or GED	11.4	7.5	8.9	31.3	23.5	27.5
Some college	18.7	20.2	19.6	26.7	27.4	27.0
2-year degree	34.1	18.8	24.4	18.8	16.2	17.5
4-year degree	25.2	30.0	28.3	14.7	19.0	16.8
Graduate or Professional degree	6.5	18.3	14.0	0.5	3.0	1.7
Number of children by age/program						
Null to 23 months	13.1 (11.1)	17.9 (14.1)	16.1 (13.2)	2.4 (1.3)	2.2 (1.2)	2.3 (1.2)
24 to 35 months	10.1 (7.7)	17.2 (13.0)	14.5 (11.8)	2.5 (1.5)	2.2 (1.3)	2.3 (1.4)
3 to 5 years	21.7 (17.0)	33.1 (21.9)	29.0 (21.0)	3.6 (2.0)	3.1 (1.7)	3.3 (1.9)
Older than 5 years	16.7 (23.0)	16.5 (16.7)	16.6 (19.5)	2.3 (1.8)	2.4 (1.9)	2.3 (1.8)
Number of children by race/program						
American Indian or Alaskan native	5.3 (22.3)	1.4 (2.7)	2.9 (14.1)	0.4 (1.2)	0.2 (0.7)	0.3 (1.0)
Asian	0.7 (0.9)	2.4 (2.8)	1.8 (2.5)	0.1 (0.4)	0.2 (0.6)	0.2 (0.5)
Black or African American	1.9 (2.4)	9.0 (16.7)	6.7 (14.2)	0.3 (0.7)	1.5 (2.8)	0.9 (2.2)
Native Hawaiian or Pacific Islander	0.3 (0.8)	0.5 (1.4)	0.4 (1.2)	0.1 (0.7)	0.1 (0.4)	0.1 (0.6)
White or Caucasian	47.4 (36.8)	58.3 (46.2)	54.2 (43.2)	8.5 (3.5)	6.7 (2.9)	7.6 (3.4)
Mixed race	5.2 (8.3)	7.2 (7.5)	6.6 (7.8)	1.0 (1.6)	1.3 (1.7)	1.1 (1.6)
Other	2.7 (7.3)	11.3 (32.6)	8.3 (27.0)	0.3 (1.3)	0.3 (1.5)	0.3 (1.4)
Program schedule (%)						
Half day	0.8	1.9	1.5	74.5	0.2	0.1
Full day	73.2	62.4	66.4	22.0	77.9	76.2
Both half and full day	20.3	29.6	26.2	1.4	16.7	19.4
Other	1.6	1.9	1.8	0	2.5	1.9
Food prepared on site (%) ^b						
Yes	81.3	54.0	64.0	94.4	94.1	94.3
No	4.9	27.2	19.0	0.2	0.7	.4
Both yes and no	10.6	13.1	12.2	1.4	1.2	1.3
Responsible for menu planning (%) ^c						
Owner of child care program	38.2	21.6	27.7	61.1	59.1	60.1
Director or site supervisor/manager	49.6	39.0	42.9	3.4	3.7	3.6
Family child care provider	1.6	0	0.6	45.3	44.8	45.1
Cook or chef	40.7	33.8	36.3	1.4	0.5	1.0
Catering company	1.6	21.6	14.3	0.3	0	0.2
Dietitian	4.1	4.2	4.2	0.3	0	0.2
Parent/guardians provide food for their children	0.8	7.0	4.8	0.2	0.5	0.3
Meals provided in the program (% yes)						
Breakfast	81.3	77.9	79.2	91.9	90.2	91.1
Lunch	92.7	82.2	86.0	94.1	92.5	93.3
Dinner	15.4	17.4	16.7	25.5	25.8	25.6
Mid-morning snack	52.0	40.4	44.6	54.5	50.7	52.6
Mid-afternoon snack	95.1	86.4	89.6	93.9	92.5	93.2
Evening snack	7.3	15.0	12.2	10.3	17.3	13.7

CACFP indicates Child and Adult Care Food Program; CCC, child care center; FCCH, family child care homes; GED, general education development; Go NAP SACC, Go Nutrition and Physical Activity Self-Assessment for Child Care; CCCs, child care center; FCCHs, family child care home.

a. The "Other" option was for those who did not identify with the given racial categories. Sample responses to "Other" included French, East Indian, and Middle Eastern, among others;

b. The numbers do not add up to 100% as some respondents chose to skip this question.

c. The numbers could exceed 100% as this was a multiple-response question as more than one type of staff person could be responsible for menu planning.

Notes: Data are presented as % or mean (SD) unless otherwise specified. Total sample size (n) was 1,490.

Motivation for Attending Nutrition-Related Training

Motivators for attending professional development training most commonly identified by child care providers included licensure requirements (80.7%), staying updated with best practices (67.9%), and improving job performance (59.9%; **Table 2**). In comparing CCCs and FCCHs, CCCs had a higher likelihood of reporting a CACFP requirement as motivation to attend training (OR = 2.59; 95% confidence interval [CI], 1.52–4.42). Additionally, providers participating in CACFP were significantly more likely to be motivated by licensure or regulatory requirements (OR = 2.34; CI, 1.49–3.70) and CACFP requirements (OR = 85.984; CI, 38.57–191.71). Go NAP SACC participants were more likely to report being motivated by 2 factors- to grow and improve job performance and better meet children's needs compared with their nonparticipating counterparts.

Preferences for Training

Preferences for training most commonly selected by child care providers included: in-person training (61.2%), attending 1-day conferences with multiple sessions (49.7%), and online learning modules with videos that can be viewed at any time (49.1%; **Table 3**). Child care centers were more likely to prefer live webinars (OR = 2.99; CI, 2.07–4.34) as compared with FCCHs. Those who participated in Go NAP SACC were more likely to prefer attending conferences (OR = 1.863; CI, 1.32–2.62), and ongoing mentorship and coaching (OR = 2.689; CI, 1.61–4.49) compared with the non-Go NAP SACC participants.

Barriers to Attending Training

Table 4 presents different barriers to attending training encountered by child care providers. The most commonly selected barriers included: scheduled training does not fit within the work schedule (49.1%), unable to travel to the training location (28.4%), and the cost of training (28.3%). Providers in rural areas had a greater likelihood of reporting an inability to travel to the training location (OR = 3.24; CI, 2.31–4.54) and training being hard to find in their area (OR = 3.66; CI, 2.43–5.52) compared with urban providers.

Table 2. Percentages of Child Care Providers and Motivators for Attending Training, by Context, and Participation in CACFP and the Go NAP SACC

Predictors*	Child Care Type				Location				CACFP Participation ^b				Go NAP SACC Participation ^c							
	Whole Sample n = 1,490	CCC n = 336	FCCH n = 1,154	P	SE	OR	Rural		Urban		Yes n = 1,170	No n = 177	P	SE	OR	Yes n = 232	No n = 517	P	SE	OR
							n = 715	n = 775	n = 715	n = 775										
Licensure or regulatory requirements	80.7	80.1	80.8	.24	0.24	1.32	82.9	78.6	78.6	84.9	47.6	<.001*	0.23	2.34	81.5	84.5	.13	0.23	0.71	
To stay updated with best practices	67.9	71.1	66.9	.53	0.19	0.89	65.7	69.8	69.8	70.0	66.7	.66	0.20	1.09	77.2	65.8	.001	0.20	1.90	
To grow/improve job performance	59.9	61.9	59.3	.85	0.19	0.97	60.0	59.7	59.7	61.6	58.2	.61	0.19	1.10	73.7	57.3	<.001*	0.19	2.09	
CACFP requirement	59.9	53.3	61.8	<.001*	0.27	2.59	64.5	55.6	55.6	72.6	5.1	<.001*	0.41	85.98	65.9	52.8	.31	0.22	1.25	
Passion for job/love of children	51.3	52.4	51.0	.92	0.18	0.98	52.3	50.3	50.3	52.6	51.4	.87	0.19	1.03	62.1	48.4	.001	0.17	1.82	
Topic was interesting, new, or different	51.2	44.3	53.2	.008	0.18	0.62	52.0	50.5	50.5	53.2	50.3	.75	0.19	0.94	59.5	50.1	.002	0.18	1.73	
To better meet children's special needs	43.4	49.1	41.7	.09	0.18	1.36	41.3	45.3	45.3	45.1	42.4	.37	0.19	1.19	56.0	38.3	<.001*	0.17	2.00	
Help educate children and prepare for school	37.8	40.8	36.9	.68	0.18	1.08	35.5	39.9	39.9	39.4	35.6	.23	0.19	1.26	50.4	35.0	.001	0.17	1.79	
Accreditation requirement	28.1	25.0	29.0	.95	0.20	0.99	29.1	27.2	27.2	29.8	19.8	.04	0.23	1.58	32.8	23.4	.02	0.19	1.53	
Network and meet other providers	26.4	22.3	27.6	.01	0.21	0.59	26.3	26.6	26.6	28.4	24.3	.53	0.21	1.14	31.0	26.5	.09	0.19	1.38	

CACFP indicates Child and Adult Care Food Program; CCC, child care center; FCCH, family child care homes; Go NAP SACC, Go Nutrition and Physical Activity Self-Assessment for Child Care; CCCs, child care center; FCCHs, family child care home; OR, odds ratio.
 *P = .0005 (Bonferroni adjusted).
 a. Logistic Regression, Predictors are listed on the top row; outcome variables are listed on the leftmost column.
 b. Total responses = 1,347 and no responses = 143.
 c. Total responses = 749 and no responses = 741.
 Notes: Data are presented as % unless otherwise specified.

Table 3. Percentages of Child Care Providers and Results of Logistic Regression for Each Preference for Training, by Child Care Type, Location, Participation in CACFP and the Go NAP SACC

Predictors ^a	Child Care Type				Location				CACFP Participation ^b				Go NAP SACC Participation ^c								
	Whole Sample n = 1,490	CCC	FCCH	P	Rural	Urban	P	SE	OR	Yes n = 1,170	No n = 177	P	SE	OR	Yes n = 232	No n = 517	P	SE	OR		
		n = 336	n = 1,154																	n = 715	n = 775
In-person training	61.2	71.1	58.3	.08	0.19	1.40	58.2	64.0	.10	0.16	0.77	63.9	61.0	.03	0.20	1.55	72.8	63.4	.02	.19	1.53
Attending conferences with multiple training sessions on 1 day	49.7	47.3	50.3	.11	0.18	0.75	54.4	45.3	.02	0.15	1.45	50.7	50.3	.46	0.19	0.87	60.8	46.6	<.001*	.17	1.86
Online learning modules with videos	49.1	56.0	47.1	.02	0.18	1.52	47.7	50.3	.59	0.15	0.92	49.9	49.7	.06	0.19	1.42	54.7	53.6	.60	.17	.91
Live webinar (allows for Q&A)	25.9	41.4	21.4	<.001*	0.19	2.99	25.5	26.3	.55	0.17	1.11	25.6	31.6	.19	0.21	1.31	34.1	28.8	.95	.19	1.00
Ongoing peer-to-peer with other providers	17.9	12.2	19.5	.002	0.26	0.45	18.7	17.0	.57	0.20	1.12	18.9	13.6	.64	0.26	1.13	24.1	15.5	.002	.21	1.96
Ongoing mentorship/coaching	8.3	15.8	6.2	.03	0.27	1.80	7.4	9.2	.41	0.26	0.81	8.0	10.2	.56	0.32	1.21	18.5	6.8	<.001*	.26	2.69

CACFP indicates Child and Adult Care Food Program; CCC, child care center; FCCH, family child care home; Go NAP SACC, Go Nutrition and Physical Activity Self-Assessment for Child Care; CCCs, child care center; FCCHs, family child care home; OR, odds ratio.
 * P = .0005 (Bonferroni adjusted).
 a. Logistic Regression, Predictors are listed on the top row; outcome variables are listed on the leftmost column.
 b. Total responses = 1,347; no responses = 143.
 c. Total responses = 749; no responses = 741.
 Notes: Data are presented as % unless otherwise specified

Table 4. Percentages of Child Care Providers and Results of Logistic Regression for Each Barrier to Attending Training, by Child care Type, Location, Participation in CACFP and the Go NAP SACC

Predictors ^a	Child Care Type				Location				CACFP Participation ^b				Go NAP SACC Participation ^c								
	Whole Sample n = 1,490	CCC		FCHH n = 1,154	Rural		Urban n = 775	Yes n = 1,170	No n = 177	P	SE	OR	Yes n = 232	No n = 517	P	SE	OR				
		n = 336	n = 1,154		n = 715	n = 775												OR	SE	OR	SE
Scheduled training do not fit within my work schedule	49.1	50.0	48.8	.04	0.18	1.44	51.6	46.7	.14	0.15	1.26	50.7	48.6	.02	0.19	1.55	47.0	57.3	.001	0.17	0.57
Unable to travel to the training location	28.4	26.2	29.0	.35	0.17	1.21	40.6	17.2	<.001*	0.17	3.24	29.9	22.6	.02	0.22	1.64	28.4	31.5	.36	0.19	0.84
Cost of training	28.3	32.4	27.0	.05	0.19	1.44	29.2	27.4	.90	0.16	1.02	29.5	27.1	.06	0.21	1.47	31.5	31.5	.71	0.18	0.93
Leaving my work site would leave the other providers shorthanded	24.4	44.9	18.5	.001	0.19	3.64	24.8	24.1	.35	0.17	1.17	24.2	30.5	.15	0.21	1.36	34.9	27.5	.87	0.19	1.03
Training are hard to find in my area	17.1	19.3	16.5	.005	0.28	1.89	25.9	9.0	<.001*	0.21	3.66	17.3	19.2	.74	0.24	1.09	15.5	20.5	.09	0.23	0.68
Unsure if the training qualifies for new license rules	9.5	12.5	8.7	.15	0.27	1.49	9.1	9.9	.56	0.24	0.90	9.5	13.0	.72	0.29	0.90	8.2	11.8	.14	0.29	0.65
Not interested in training topics	6.0	4.8	6.3	.66	0.35	0.86	5.2	6.7	.17	0.29	0.67	6.4	4.0	.08	0.43	2.16	7.3	7.2	.91	0.32	1.04
Training has not been made available in the past	5.9	10.1	4.7	.004	0.31	2.44	7.3	4.6	.13	0.29	1.54	5.5	7.9	.39	0.36	1.36	6.9	7.7	.36	0.33	.74
Lack of internet or computer access	4.1	.6	5.1	.03	1.05	0.11	5.3	3.0	.25	0.48	1.73	4.0	2.8	.30	0.54	0.57	2.6	2.9	.85	0.54	1.11

CACFP indicates Child and Adult Care Food Program; CCC, child care center; FCHH, family child care homes; Go NAP SACC, Go Nutrition and Physical Activity Self-Assessment for Child Care; CCCs, child care center; FCHHs, family child care home; OR, odds ratio.

* P = .0005 (Bonferroni adjusted).

a. Logistic Regression, Predictors are listed on the top row; outcome variables are listed on the leftmost column.

b. Total responses = 1,347; no responses = 143.

c. Total responses = 749; no responses = 741.

Notes: Data are presented as % unless otherwise specified.

Discussion

Given the childhood obesity epidemic, it is critical to ensure that child care providers receive professional development on nutrition-related best practices to shape children's eating habits. Therefore, the objective of this study was to understand the role of contextual factors in providers' motivators for attending nutrition-related training as well as preferences and barriers to attending professional development in general. Given the important role that child care providers play in the development of children's health behaviors, understanding these factors can help improve providers' participation in professional development. Child care type, location, CACFP and Go NAP SACC participation influenced child care providers' motivators, preferences, and barriers to attending training. As such, understanding the role of these contextual factors can help tailor the delivery of professional development training aiming to improve nutrition-related behaviors of children. The results offer implications for researchers, nutrition educators, and policymakers.

The results of this study showed that licensure requirements were one of the most commonly selected motivators for attending training. The Centers for Disease Control and Prevention recommend that licensing and state's quality rating and improvement systems include training requirements regarding nutrition and physical activity-related topics.¹⁹ Following this recommendation, Nebraska providers who participate in Go NAP SACC receive points toward maintaining a higher-quality rating, referred to as the Step Up to Quality Program.²⁰ In addition, fulltime Nebraska child care providers are required to receive 12 hours of annual training and cooks or providers who serve food need at least 4 hours of food safety training every year.²¹ However, training with regards to nutrition or physical activity is not required to maintain licensure. The Centers for Disease Control and Prevention recommends including nutrition and physical activity training as part of licensure for child care providers; however, this is not a requirement in Nebraska.¹⁹ Meeting licensure requirements was the most commonly selected motivator by Nebraska child care providers for participating in nutrition-related training. Therefore, child care providers may be more motivated to attend nutrition-related training if Nebraska strengthened the licensure requirements by mandating training in nutrition as part of licensure.

Whereas licensure requirements were a top motivator for attending training, program characteristics also played an important role in increasing the likelihood that a particular motivator would be selected. For example, CCCs, as compared with FCCHs, were more likely to attend training because it is a CACFP requirement. These results highlight the differences between these 2 settings (CCCs and FCCHs) and the need to tailor professional development training differently. Providers in FCCHs may be more likely to choose professional development opportunities based on their interests because fewer FCCH providers participate in CACFP and do not need to meet these requirements. In addition, because FCCH providers often serve in the role of a director as well as providers, FCCHs may have more choice in attending training.^{8,9} With some studies reporting that less formal types of care, including FCCHs, are more highly associated with childhood obesity,²² it is essential to engage FCCH providers in professional development by assessing the health-related topics they are interested in learning more about. CACFP participation was also an important predictor of motivation for providers to attend nutrition-related training. This finding is important as other studies find that CACFP participation improves the quality of foods offered in child care.^{23,24} Because of the mandated requirements that result from CACFP participation, efforts to increase CACFP enrollment may help increase participation in nutrition-related professional development training.

Aside from licensure requirements, adjusting for other contextual factors, Go NAP SACC participants were more likely to choose additional motivators as compared with non-Go NAP SACC participants. These motivators included intrinsic motivators such as a desire to improve job performance and to better meet children's needs. Go NAP SACC is centered on meeting best practices related to children's nutrition, which may contribute to providers being more likely to choose motivators related to the desire to learn about nutrition education and to help children develop healthy eating habits.^{25,26} Furthermore, participation in Go NAP SACC is entirely voluntary; thus, those who have completed the process are likely highly motivated to improve their quality of care to promote children's healthy eating and obesity prevention.

Overall, the top 3 barriers that prevented providers from obtaining training were that the scheduled training did not fit their work schedule, providers were unable to travel to the training location, and the

cost of training was too high. In addition, rural providers were more likely than urban providers to report the inability to travel as a barrier to obtaining training and that training was hard to find in their area. These findings are consistent with previous research reporting that rural providers are more often concerned regarding access to training compared with urban providers.²⁷ Together, these findings highlight how geographic location of the child care setting may contribute to unique challenges in obtaining training for rural providers. Online professional development offerings may be particularly convenient and useful for rural providers who experience limited in-person local training options.^{28,29} Regardless of child care type and location, providers did not report lack of internet or computer access as a prominent barrier (only 4.1% of the entire sample reported it as a barrier). Although the potential for online professional development is a promising avenue for training rural child care providers in Nebraska, a recent study reported that greater than 70% of Minnesota rural child care providers indicated they preferred an in-person training delivery mode despite scheduling and travel barriers.²⁷ As about 50% of Nebraska providers preferred online training, future studies are needed to determine strategies to improve the feasibility and acceptance of online distance training with rural child care providers.

The results of this study should be interpreted in light of their strengths and limitations. The strengths of this study include the large state-wide representative sample and inclusion of varying contextual factors that may influence providers' motivators, preferences, and barriers for participating in professional development. However, despite the large sample size, this study only included child care providers in Nebraska, which could limit the generalizability of the results. The sample was also fairly racially homogeneous, a reflection of the racial distribution in Nebraska, and could also limit generalizability of the findings. Although we used a regression model to predict the association between the contextual variables and the motivators, preferences, and barriers to training, the use of single time-point data can only demonstrate a correlation. For example, we found that Go NAP SACC participants selected more motivators for attending nutrition-related training, suggesting that the Go NAP SACC program increases the number of motivating factors to attain these types of training. However, it is also plausible that those providers who decided to participate in Go NAP SACC were already motivated to attend

nutrition-related training. In addition, this study collected data only from licensed child care programs registered with the Nebraska Department of Education, but not license-exempt child care programs that care for 3 or fewer children from more than 1 family.³⁰ Finally, the center director or FCCH provider completed the survey and perspectives from other child care staff were not reported in this study. Future studies could incorporate data from multiple data sources (e.g., assistant director, curriculum coordinators, program directors, and lead teachers) or methods (e.g., interviews, focus groups) to overcome this limitation.

Implications for Research and Practice

The results from this study indicate that professional development training designed to improve child care practices consider not only the type of training needed, but also the unique contextual factors related to child care providers' motivations, preferences, and barriers with attending training. First, given that the top motivator to attend training was licensing requirements, ensuring that these requirements include nutrition and physical activity training is important. Second, in-person training and attending conferences remained the most preferred modes of training, but participants who expressed these preferences also reported challenges with access to training that varied by program type and rural-urban context. Thus, nutrition educators are encouraged to look at elements that contribute to the increased appeal of in-person training and consider incorporating these elements into online platforms where applicable. For example, making training websites interactive and having an online coach or trainer available for questions may help bridge the differences between in-person and online training. This sort of hybrid or blended format incorporates the desirable features of in-person and online training and could also cater to child care providers' needs. Given the higher childhood obesity rates in rural areas, ensuring that rural providers have access to training is critical.³¹

Past research has shown that hybrid online courses, when effectively designed, can positively impact the learner's engagement and learning.³² These blended approaches could also incorporate professional learning communities wherein child care providers can learn

from their peers and have increased opportunities for networking. Professional learning communities occur when peers meet for some time and collectively share their motivations, barriers, or strategies typically with a skilled facilitator guiding the group's discussion and reflections.³³⁻³⁵ Providers may improve their teaching and skills by learning from the contributions, experience, and knowledge of peers.^{34,35} Successful professional learning communities support providers' growth by maintaining confidentiality, keeping the group provider-driven, and ensuring that the facilitator does not rush the professional development process.^{35,36} This approach could be tailored to address providers' needs at multiple levels because professional learning communities can be formed based on a variety of variables; role, location, topics of interest, or concerns.

It is also interesting that most child care providers, irrespective of the context, selected attending an in-person training followed by participating in conferences with multiple training sessions on a single day and online learning modules with videos as the most preferred training modes. Regarding the influence of contextual factors on training preferences, CCCs preferred viewing a live webinar compared with FCCHs. This difference is likely because of availability of additional staff in CCCs than FCCHs. Moreover, surveys were largely completed by directors in CCCs who may have greater availability to attend a live webinar during the day. These results indicate that future research examines how the time and duration with which training is offered may influence CCCs and FCCHs motivation to attend nutrition and childhood obesity prevention training.

Participation in Go NAP SACC is another important contextual factor to consider in the delivery of training. Child care providers participating in Go NAP SACC were more likely to choose ongoing mentorship and ongoing peer-to-peer interactions as a preferred form of training. In addition, Go NAP SACC participants preferred attending conferences with multiple training sessions in a single day and ongoing mentorship and coaching as compared with non-Go NAP SACC participants. In completing the survey, Go NAP SACC providers and directors with more experience receiving technical assistance and mentorship may have experienced benefits with this form of professional development. As such, non-Go NAP SACC participants may have less experience and interest in receiving training in this way. Future

studies could delve into additional characteristics that motivate comfort and interest of child care providers to receive training.

Conflicting schedules, accessibility, and cost were reported as barriers for child care providers to obtain training. Therefore, centers and organizations that offer training are encouraged to consider providing substitute teachers and providers and bringing the training or networking opportunity to the providers' area of work. These options may minimize travel time and reduce training costs. As highlighted in this study, providers have multiple motivators and preferences to engage in professional development training to meet various requirements and improve their child care practices. Addressing these barriers to training may help increase providers' participation in professional development and hence the quality of their work. With 20 million children attending child care paired with a growing childhood obesity epidemic,¹ ensuring adequate professional development and training of providers will ultimately benefit the children in their care.

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Supplementary data related to this article follows the **References**.

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Supplementary data (survey instrument) follows.





Healthy Children, Healthy State

Nebraska Childcare Needs Assessment Survey

We ask the survey be filled out by one director or provider most familiar with the childcare program's nutrition practices. However, you may come across questions that you think someone else in your program could answer more easily than you. If so, PLEASE FEEL FREE TO ASK YOUR STAFF FOR HELP.

- These questions ask about practices in your **preschool classroom (2-5 year old)** or **Head Start program**, NOT infant classroom or your Early Head Start program (if you have one). **Please answer questions about your preschool classroom with children aged 2-5 years.**
- Childcare providers are individuals who have direct contact with preschoolers (2-5 years), and are responsible for supervising meals or snacks for preschool children.
- Please answer about what is currently happening in your program, unless a question asks about another time period.
- We do not expect you or your staff to consult any administrative records in order to complete the survey.
- If you are unsure about how to answer a question, please give the best answer you can rather than leaving it blank.

About Your Program

1. Which of the following best describes your program?

- | | Yes | No |
|----------------------------|-----------------------|-----------------------|
| a. Childcare center | <input type="radio"/> | <input type="radio"/> |
| b. Family childcare home | <input type="radio"/> | <input type="radio"/> |
| c. Head Start | <input type="radio"/> | <input type="radio"/> |
| d. Other (please specify): | <input type="radio"/> | <input type="radio"/> |

2. What is the total number of children in your childcare program?

3. On a typical day, how many children in your program are in the following age categories?

- | | |
|----------------------|--------------------|
| <input type="text"/> | 0-23 months |
| <input type="text"/> | 24-35 months |
| <input type="text"/> | 3-5 years |
| <input type="text"/> | Older than 5 years |

4. On a typical day, how many children in your program are Hispanic or Latino/a/x? (please give your best estimate)

5. On a typical day, approximately how many children in your program are of the following racial backgrounds? (please give your best estimate)

- | | |
|----------------------|-------------------------------------|
| <input type="text"/> | American Indian or Alaskan Native |
| <input type="text"/> | Asian |
| <input type="text"/> | Black or African American |
| <input type="text"/> | Native Hawaiian or Pacific Islander |
| <input type="text"/> | White or Caucasian |
| <input type="text"/> | Mixed race |
| <input type="text"/> | Other (please specify): |
| <input type="text"/> | |

6. What is the total number of childcare providers employed at your program?

7. Which of the following best describes your program?

- Half-day
 Full-day
 Both half and full day
 Other (please specify):

Serving Foods and Beverages: Difficulty Level

	Is your program currently doing this?		How difficult is it to do (or potentially do)?			
	Yes	No	Not at all difficult	A little difficult	Kind of difficult	Very difficult
18. Serve fried or pre-fried meats less than one time a week or never <i>(This includes breaded and frozen chicken nuggets and fish sticks)</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. Serve high sugar/high fat foods less than one time per week or never <i>(This includes cookies, cakes, doughnuts, muffins, ice cream and pudding)</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. Serve high fiber, whole grain foods at least once a day <i>(This includes whole wheat bread, whole wheat crackers, oatmeal, brown rice, Cheerios, and whole grain pasta)</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. Never serve sugary drinks <i>(This includes Kool-Aid, fruit or sport drinks, sweet tea)</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. Use either healthy foods or non-food treats (such as stickers) to celebrate holidays, birthdays, and other special events	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Serving Foods and Beverages: Barriers

The list below includes possible barriers to providing healthier meals and snacks. For each statement, please answer yes if it is a barrier your program faces, or no if not.

	Yes	No
23. Not enough money to cover the cost of serving healthier meals and snacks	<input type="radio"/>	<input type="radio"/>
24. Lack of control over the types of meals and snacks that are delivered to us	<input type="radio"/>	<input type="radio"/>
25. Those preparing meals and snacks lack the knowledge to prepare healthier foods and beverages	<input type="radio"/>	<input type="radio"/>
26. Those preparing meals and snacks lack the time to prepare healthier foods and beverages	<input type="radio"/>	<input type="radio"/>
27. Children would not like the taste of healthier meals and snacks	<input type="radio"/>	<input type="radio"/>
28. Parents/guardians do not support the idea of serving children healthier meals and snacks	<input type="radio"/>	<input type="radio"/>
29. Limited space for food storage, such as refrigerator and cabinet space	<input type="radio"/>	<input type="radio"/>
30. Lack of availability of healthy foods in my area	<input type="radio"/>	<input type="radio"/>
31. Lack of support from other providers	<input type="radio"/>	<input type="radio"/>
32. Other areas in our program have higher priority than nutrition at this time	<input type="radio"/>	<input type="radio"/>
33. So many different recommendations that providers do not know which to follow	<input type="radio"/>	<input type="radio"/>
34. Unsure which foods can be reimbursed through CACFP	<input type="radio"/>	<input type="radio"/>
35. Weekly schedule limits time to shop more than once per week	<input type="radio"/>	<input type="radio"/>

36. Please describe any other barriers not listed above.

Is your program currently doing this?

How difficult is it to do (or potentially do)?

	Is your program currently doing this?		How difficult is it to do (or potentially do)?			
	Yes	No	Not at all difficult	A little difficult	Kind of difficult	Very difficult
46. Providers talk about healthy foods with the children at mealtime (e.g., which vegetables they like)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
47. Providers praise children for trying new or less preferred foods	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
48. Providers do not praise children for finishing food or cleaning their plates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
49. When children request seconds, providers ask them if they are still hungry before serving more food.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
50. Providers allow children to decide when they are full during meal and snack times	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
51. When children eat less than half of a meal or snack, providers ask them if they are full before removing their plates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
52. Providers do not use food to calm upset children or encourage appropriate behavior	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
53. Providers use children's preferred foods to encourage them to try less preferred foods <i>(This includes offering a treat only if a child finishes his/her vegetables)</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Meal Time Practices: Barriers

The list below includes possible barriers to implementing/using mealtime practices. For each statement, please answer yes if it is a barrier your program faces, or no if not.

	Yes	No
54. Providers do not have time to sit with children during meals	<input type="radio"/>	<input type="radio"/>
55. There are not enough providers in the program to sit with children during meal times	<input type="radio"/>	<input type="radio"/>
56. There is not enough money to cover the cost of serving meals and snacks to providers	<input type="radio"/>	<input type="radio"/>
57. Providers are unsure how to encourage children's healthy eating	<input type="radio"/>	<input type="radio"/>
58. Providers do not like the taste of the healthy foods that are served at the childcare program, so they have trouble encouraging children's healthy eating at mealtime	<input type="radio"/>	<input type="radio"/>
59. Providers have dietary restrictions, so they find it difficult to eat the same foods that are served to children	<input type="radio"/>	<input type="radio"/>
60. Providers are uncertain how to handle children who are hesitant to try new foods	<input type="radio"/>	<input type="radio"/>
61. Providers feel mealtimes with children are stressful	<input type="radio"/>	<input type="radio"/>

62. Please describe any other barriers not listed above.

Nutrition Education

For each of the following statements, please mark how often these events occur.

63. Structured nutrition education is incorporated into daily routines through lesson plans, books, posters and hands-on activities.

- Rarely or never
- 1 time per month
- 2-3 times per month
- 1 time per week or more

64. Providers talk with children informally about healthy eating during mealtime.

- Rarely or never
- 1 time per month
- 2-3 times per month
- 1 time per week or more

65. Children are involved in hands-on sensory food experiences (for example, tasting, smelling, and touching food)

- Rarely or never
- 1 time per month
- 2-3 times per month
- 1 time per week or more

66. How often do providers receive professional development on child nutrition? *(Please do not include training on food safety or food program guidelines. This can include taking in-person or online training for contact hours or continuing education credits. It can also include information presented at providers meetings.)*

- Never
- Less than one time per year
- One time per year
- Two or more times per year

Engaging Parents/Guardians

67. How often are families are offered education on child nutrition? *(Education can be offered through in-person educational sessions, brochures, tip sheets, or your program's newsletter, website, or bulletin boards.)*

- Never
- Less than one time per year
- One time per year
- Two or more times per year

68. During the last year, which of the following parent engagement activities has your program used?

(check all that apply)

- Routinely communicated with parent/guardian regarding child's daily food and beverage consumption
- Gave written information (such as flyers, or newsletters) about healthy eating (trying new food etc.).
- Discussed healthy eating at parent-provider conferences
- Encouraged healthier items for holiday/celebration foods

69. Please describe any other parent engagement activities your program has used during the last year.

The list below includes possible barriers for engaging parents or guardians to encourage children's healthy eating. For each statement, please answer yes if it is a barrier your program faces, or no if not.

	Yes	No
70. Parents do not have time to talk with the provider about children's nutrition	<input type="radio"/>	<input type="radio"/>
71. Parents have cultural beliefs about food that are not always consistent with healthy eating	<input type="radio"/>	<input type="radio"/>
72. Parents do not have enough money to purchase healthy foods	<input type="radio"/>	<input type="radio"/>
73. Parents are too busy to prepare healthy foods	<input type="radio"/>	<input type="radio"/>
74. Providers do not want to offend parents	<input type="radio"/>	<input type="radio"/>
75. Parents or guardians do not like the taste of healthy foods themselves	<input type="radio"/>	<input type="radio"/>
76. Providers are uncertain how to engage parents.	<input type="radio"/>	<input type="radio"/>
77. Parents prioritize other food related topics such as allergies or children's food intake over healthy eating	<input type="radio"/>	<input type="radio"/>

78. Please describe any other barriers not listed above.

Access to Training

79. Do you have internet access at the childcare site or elsewhere?

- Yes
 No → Go to Question 82

80. Would you describe your internet access as reliable and consistent? (That is, you could stream videos for training purposes?)

- Yes
 No

81. How do you access the internet? (check all that apply)

- Desktop computer on-site
 Laptop computer
 Tablet
 Mobile phone

82. When you participate in nutrition related training, what is your motivation for participating?

(check all that apply)

- To stay updated with best practices
 To grow and improve job performance as a professional
 Topic was interesting, new, or different
 Licensure or regulatory requirements
 To better meet children's special needs
 Passion for job/love of children
 Network and meet other providers
 Help educate children and prepare for school
 CACFP requirement
 Accreditation requirement
 Other (please specify):

- I do not participate in training

83. Which of the following are barriers that prevent you from obtaining training? (check all that apply)

- Cost of the training
 Unable to travel to the training location
 Scheduled trainings do not fit within my work schedule (outside of usual hours)
 Leaving my work site would leave the other providers short-handed
 Training has not been made available in the past
 Not interested in training topics
 Lack of internet or computer access
 Trainings are hard to find in my area
 Unsure if the training qualifies for new license rules
 Other (please specify):

- None of the above

84. What is your preference when it comes to receiving training? (check all that apply)

- In-person training
 Live webinar (allows for question and answer with the host)
 On-going mentorship/coaching
 On-going peer-to-peer with other providers
 On-line learning modules with videos that can be viewed at any time
 Attending conferences with multiple trainings on one day (like a Saturday)
 Other (please specify):

- No preference

85. If you wanted to improve healthy eating practices in your childcare program, how likely would you be to consult the following sources for advice and information?

	Very unlikely	Unlikely	Neutral	Likely	Very likely
a. Google search	<input type="radio"/>				
b. Social Media - Facebook	<input type="radio"/>				
c. Social Media - Pinterest	<input type="radio"/>				
d. Social Media - Twitter	<input type="radio"/>				
e. Family Doctor/Pediatrician	<input type="radio"/>				
f. Dietitian/Nutrition Educator	<input type="radio"/>				
g. Family Members	<input type="radio"/>				
h. Nebraska Extension	<input type="radio"/>				
i. Child and Adult Food Program	<input type="radio"/>				
j. Other childcare providers	<input type="radio"/>				
k. Other (please specify):	<input type="radio"/>				
<input type="text"/>					

86. In your opinion, how much of a health problem is obesity among children in your program?

- Not a problem
- A small problem
- A problem
- A large problem

About You

87. What is your job title?

- Center Director
- Family Childcare Provider
- Program Nutrition Specialist
- Program Education Specialist
- Other (please specify):

88. How many years have you been working in the early childhood field? (enter 0 if less than one year)

89. What is your age?

90. What is your gender?

- Male
- Female
- _____

91. Are you Hispanic or Latino/a/x?

- Yes
- No

92. What is your race(s)? (check all that apply)

- American Indian or Alaskan Native
- Asian
- Black or African American
- Native Hawaiian or Pacific Islander
- White or Caucasian
- Other (please specify):

93. What is the highest degree you have completed?

- Some high school
- High school graduate or GED
- Some college
- 2-year degree (Associate's)
- 4-year degree (Bachelor's)
- Graduate or Professional degree

Thank you! We greatly appreciate the time you have taken to complete this survey. For your convenience, please use the postage-paid return envelope included in your survey packet to return your questionnaire. Questions or requests from this survey can be directed to:

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