

Survey of North Carolina Community College Early Childhood
Faculty Coursework on Nutrition, Health, and Physical Activity

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Abstract

North Carolina community college faculty teaching courses in early childhood education at 54 of 58 community colleges were surveyed to determine the extent to which they included content knowledge on child health, nutrition, physical activity, and obesity, and adult wellness, in the courses they taught, and to identify faculty member characteristics that were related to how much content knowledge was included on child and adult health and wellness. Nine of 17 courses previously identified as including or likely including content knowledge and experience on health and wellness were taught by one-third to two-thirds of the survey respondents. One-third to two-thirds of the faculty indicated that they included content knowledge or experiences on 11 of 14 health and wellness indicators either *quite a bit* or *a great deal* in their courses. The best predictors of including health, nutrition, physical activity, obesity, and wellness content knowledge and experiences in coursework were the number of courses taught, faculty expertise in health and wellness, instructor demonstrations of health and wellness practices, and authentic and self-directed student learning opportunities. Twenty-one of the survey respondents were identified as highly experienced faculty based on a combination of faculty-related variables. Comparisons between those faculty and all other faculty found that the highly experienced faculty included more content knowledge and experiences on infant and child health and nutrition, child physical activity, infant and child obesity, and adult wellness in their coursework compared to other faculty. Results indicated that community college faculty incorporated health and wellness content knowledge and practice into a number of different courses in a number of different ways.

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Introduction

This report includes the results from a survey of faculty teaching courses as part of the Early Childhood Education Associates Degree Program at the North Carolina Community Colleges to determine how much course content covered topics on child health, nutrition, physical activity, and obesity, and adult wellness. The survey was conducted to identify which coursework faculty taught to upcoming child care and early education professionals about early childhood health and obesity prevention strategies (North Carolina Institute of Medicine, 2013, p. 137), and to determine whether coursework identified as required and/or having course descriptions including information on health and wellness (Dunst, Raab, Hamby, & Long, 2015) and taught by faculty included content knowledge and experience on:

- Obesity trends among infants and young children,
- Impact of obesity on health,
- Infant feeding and signs of satiety,
- Healthy food and beverage procurement and preparation and best nutrition practices,
- Strategies to promote healthy and appropriate sleep duration,
- The importance of reducing screen time,
- Age appropriate movement and physical activity,
- Outdoor learning environments and edible landscapes,
- Breastfeeding support,
- Staff wellness to support role modeling, and

- Strategies to educate parents and other caregivers about best practices to implement at home in order to promote healthy weight (North Carolina Institute of Medicine, 2013, p. 138).

The results were expected to (1) provide information with regard to the scope of content knowledge acquisition and experiences community college students are afforded as part of early childhood education professional preparation on topics related to health, nutrition, obesity, physical activity, and wellness and (2) identify which faculty background, knowledge, and expertise factors were related to how much coursework content knowledge and experiences are included on health and nutrition topics in courses that faculty teach.

North Carolina Community Colleges

Fifty-eight community colleges serve all 100 North Carolina counties. All 58 colleges offer an Associate in Applied Sciences Degree in early childhood education. Fifty-five community colleges offer certificates in early childhood education, and 41 offer certificates in infant and toddler education. The early childhood education degree program is offered as either an on campus or online program or both.

The Associate Degree program is designed to prepare students to work with children from infancy through early childhood in different types of learning settings and environments (North Carolina Community Colleges, 2015b). Requirements for the degree range from 64 to 76 semester credit hours in the 58 institutions in the State.

The required credit hours are usually acquired over a four-to-five semester period of time by completing a combination of general education and early childhood courses included in the *Combined Course Library* (North Carolina Community Colleges, 2015a) approved by the State Board of Community Colleges. Courses in the early childhood major cover theory, content

knowledge, methods, and practices on a wide range of early childhood topics including, but not limited to, child guidance strategies; child physical, cognitive, and social-emotional growth and development; preparation and implementation of developmentally appropriate child learning activities; adult-child interactions; and the physical and nutritional needs of children. Each early childhood program must include a number of State Board of Community College required courses, whereas other courses required or offered vary from college to college.

Early Childhood Coursework Analysis

The extent to which early childhood coursework included or had a likelihood of including course content on child health, nutrition, physical activity, or obesity, or adult wellness was identified in the *Analysis of North Carolina College Early Childhood Education Coursework on Nutrition, Health, and Physical Activity* (Dunst et al., 2015) to identify which courses would be included in the survey described in this report. The education course descriptions in the *Combined Course Library* (North Carolina Community Colleges, 2015a) were first examined to identify those courses that did or could include content knowledge or experiences on infant and child health, nutrition, physical activity, or obesity; or adult wellness. Seventy-two courses were categorized as early childhood education in the course library.

The 72 course descriptions were each rated in terms of including or likely including content knowledge or practice on the 14 indicators shown in Table 1. The indicators were developed from information in *Promoting Healthy Weight for Young Children* (North Carolina Institute of Medicine, 2013), the list of topics for Community/Environment Strategy 2 in that document, and other evidence-based information (e.g., Hinkley et al., 2014; Jennings, McEvoy, & Corish, 2011; Kreichauf et al., 2012; Larson, Ward, Neelon, & Story, 2011; Summerbell et al., 2009). The ratings were *probably not covered*, *maybe could be covered* (low probability), or

Table 1

Health, Nutrition, Physical Activity, Obesity and Wellness Items

Infant Health and Nutrition

1. Providing new parents support to encourage breastfeeding
2. Effects of breastfeeding on healthy child development
3. Promoting appropriate child sleep patterns (sleep routines and duration)

Child Health and Nutrition

1. Obtaining and preparing healthy food and beverages for child consumption
2. Encouraging children to eat healthy foods (nutrition practices)
3. Providing children opportunities to grow and sample vegetables and other foods

Exercise and Movement

1. Encouraging healthy age appropriate child movement and physical activity
2. Designing outdoor environments to encourage child physical activity
3. Limiting child TV watching and other screen time (e.g., computers, iPads)

Infant and Child Obesity

1. Understanding the effects of obesity on healthy child development
2. Identifying current trends in obesity among infants and young children
3. Using appropriate infant feeding practices and recognizing signs that a child is full

Adult Wellness

1. Adopting personal wellness practices and providing children and parents role models
 2. Educating parents and other caregivers about healthy development and weight
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quite likely could be covered (higher probability).

Table 2 lists the 17 courses that were included on the survey of community college faculty as either required or having a higher likelihood of including content knowledge or experiences on the health and wellness indicators listed above (Dunst et al., 2015). Courses that had a high likelihood of including health and wellness content but which were not required at any of the community colleges were not included on the faculty survey (EDU 244: Human Growth and Development, EDU 152A: Music, Movement, and Language Lab). Appendix A includes the descriptions of the courses on the faculty survey. Inspection of the course descriptions finds that any number of the 14 health and wellness indicators in Table 1 are or could be included in the coursework which are required or are electives as part of the Associates Degree Program in Early Childhood Education (Dunst et al., 2015).

Table 2

Early Childhood Courses Included in the Survey of Community College Faculty

Course Number	Course Title	Required ^a
EDU 119	Introduction to Early Childhood Education	100
EDU144	Child Development I	98
EDU 145	Child Development II	98
EDU 151	Creative Activities	100
EDU 151A	Creative Activities Lab	17
EDU 152	Music, Movement, and Language	9
EDU 153	Health, Safety, and Nutrition	100
EDU 153A	Health, Safety, and Nutrition Lab	7
EDU 157	Active Play	22
EDU 188	Issues in Early Childhood Education	10
EDU 234	Infants, Toddlers, and Twos	100
EDU 234A	Infants, Toddlers, and Twos Lab	12
EDU 251	Exploration Activities	62
EDU 251A	Exploration Activities Lab	14
EDU 254	Music and Movement for Children	10
EDU 259	Curriculum Planning	86
EDU 284	Early Childhood Capstone Practicum	100

^a Percent of community colleges.

Survey Methods

Participants

The survey respondents were either early childhood education instructors or coordinators at 54 of the 58 community colleges (93%) in North Carolina. There were 67 respondents who completed the survey. There was one respondent each at 47 community colleges (87%), two respondents each at five community colleges (9%), three respondents at one community college (2%), and seven respondents at another community college (2%).

Table 3 shows the highest degree attained by the 67 respondents and the professional discipline for which they received their degree. Nearly all the participants had a masters or doctorate degree (88%). Half of the respondents' degrees were in early childhood education (52%), six participants had birth to kindergarten degrees (9%), and three respondents had degrees in child development and early childhood (4%). The other respondents had degrees in

Table 3

Backgrounds of the Faculty Completing the Coursework Survey

Background Variables	Number	Percent
Highest Degree Attained		
Associates Degree	6	9
Bachelors Degree	2	3
Masters Degree	54	81
Doctorate Degree	5	7
Professional Degree		
Early Childhood Education	34	52
Elementary Education	11	17
Child Development/Family Relations	7	11
Birth to Kindergarten	6	9
Child Development/Early Childhood	3	4
Other (e.g., Educational Leadership)	6	7

elementary education (17%), child development and family relations (11%), and humanities, special education, educational leadership, or administration (7%).

Faculty Survey

The survey completed by participants is included in Appendix B. In addition to the background information described in the **Participants** section above, the survey asked respondents to indicate which of 17 courses listed in Table 2 they taught in the past two years; the extent to which they included content knowledge or experiences on the 14 nutrition, health, physical activity, obesity, and wellness indicators listed in Table 1; the teaching methods used to promote student understanding and mastery of content knowledge on child health, nutrition, physical activity, and obesity, and adult wellness; and any health and wellness specific educational background, special knowledge or skills, or personal expertise and interests on the health and wellness indicators rated on the survey. The survey was completed online using Survey Monkey.

Data Preparation

Nutrition, health, physical activity, and obesity ratings. The ratings for individual indicators were first examined to determine *how much* content knowledge was incorporated into coursework by the participants. The 14 health and wellness survey items were each rated on a 5-point scale in terms of “how much content knowledge do you include in any of the courses you teach?” for each of 14 indicators (Table 1). The 5-point scale was *not at all, just a little, some, quite a bit, or a great deal*. Inspection of the patterns of results was used to collapse the 5-point scale ratings into three categories for displaying the survey results: (1) *not at all*, (2) *just a little or some*, or (3) *quite a bit or a great deal*.

The ratings for the survey items in each category were factor analyzed to determine whether the separate ratings could be summed to compute total “subscale scores” (Spector, 1992). The results are shown in Table 4. Each analysis produced a one-factor solution accounting for a large percentage of variance (covariation) among the ratings on the individual items (DeVellis, 1991). The items also had a high degree of internal reliability (Carmines & Zeller, 1979) as evidenced by coefficient alphas of substantial magnitude for a small number of items per category (Nunnally & Bernstein, 1994). The results from the psychometric analyses of the items in each health and wellness category indicate that it is justifiable to sum the individual ratings to obtain subscale scores. The summated scores were used as dependent measures as part of analyses identifying factors associated with variations in faculty ratings of the health and wellness content knowledge indicators.

Factors associated with variations in participants’ ratings of the nutrition, health, and obesity survey items. The extent to which different instructor, course, and teaching method

Table 4

Psychometric Characteristics of the Five Sets of Health and Wellness Indicators

Health and Wellness Categories	Factor Analysis Results			
	No. of Items	No. of Factors	Percent of Variance Explained	Coefficient Alpha
Infant Health and Nutrition	3	1	83	.90
Child Health and Nutrition	3	1	79	.87
Child Physical Activity and Movement	3	1	64	.71
Infant and Child Obesity	3	1	78	.86
Adult Wellness	2	1	83	.80

measures were associated with differences in survey participants' ratings of the health and wellness indicators was ascertained through correlation analyses. The instructor measures included highest degree attained, degree major, and instructor-reported expertise in child health, nutrition, obesity, or physical activity, or adult wellness. The course measures included total number of courses taught, number of methods courses taught, and number of student field placement courses taught. The teaching methods measures included a number of different instructor-led and student self-directed methods.

Instructor degree was coded on a 4-point scale ranging from an associate degree (1) to a doctorate degree (4). Professional degree was coded as early childhood education, birth to kindergarten, or child development/early childhood (1) vs. elementary education, child development/family relations or other (0). Instructor expertise was coded in terms of formal education; special knowledge, skills, or interests; or specialized training in child or adult health or wellness (1) vs. no reported special knowledge, training, or skills (0). Twenty-eight participants (42%) reported having expertise in some aspect of child or adult health or wellness. Formal education included degrees in Home Economics or Nursing, and specialized training included knowledge and skills on some type of health, nutrition, or physical activity program or curriculum (*Color Me Healthy, Be Active Kids, Grow North Carolina, Eat Smart – Move More,*

Healthy Weight – Healthy Child). Instruction experience included employment in the Child and Adult Care Food Program; Head Start Health Services; Women, Infant, and Children Nutrition Program; Community Garden Program; or Green Teacher Network Member. Special knowledge, skills, or interests included personal healthy lifestyle practices (certified aerobics instructor, regular exercise routine, modeling a healthy lifestyle), conducting workshops on child health and nutrition, and developing methods for planning healthy eating patterns in child care programs.

The instructor course measures included how many of 17 courses listed in Table 2 were taught in the past two years, the number of methods courses taught in the past two years (EDU 151, EDU 152, EDU 153, EDU 157, EDU 234, EDU 254, EDU 259), and the number of student field placement courses supervised in the past two years (EDU 151A, EDU 153A, EDU 234A, EDU 251A, EDU 284). Survey respondents were asked to indicate whether they used any of 12 teaching methods to promote student understanding and mastery of content knowledge on child health, nutrition, obesity, and physical activities, and adult wellness. The teaching methods included authentic student learning opportunities (field placements, course labs, service learning), student-directed learning (student projects, online assignments, extra readings), instructor-student reflective practices (discussion groups, case-method instruction), instructor-led methods (demonstrations, simulations, role playing), and instructor lectures.

Data Analysis

Both descriptive and statistical procedures were used to analyze the survey results. The percent of respondents who taught the 17 courses included on the survey were first examined to determine which courses were the basis for faculty ratings of the health and wellness indicators. The patterns of faculty ratings of the 14 health and wellness indicators were examined to

determine how much content knowledge and experience was incorporated into the courses taught by the faculty.

The correlations among the faculty background measures, courses taught, teaching methods, and the five summated health, physical activity, obesity, and wellness measures (Table 4) were computed to determine which variables were the best predictors of variations in faculty ratings of the health and wellness indicators. Post hoc correlation analyses were conducted to identify which particular predictor variables accounted for the covariation in the relationships with the health and wellness measures.

K-means cluster analysis (Alsabti, Ranka, & Singh, 1997; Khan & Ahmad, 2004) was used to group the faculty into subgroups based on their backgrounds, education levels, coursework loads, and specialized expertise. Between-group comparisons were used to determine if group membership was associated with differences in the summated subscale health and wellness scores. The between group comparisons were made with one-way ANOVAs (SPSS Inc., 2005), and Cohen's *d* effect sizes for the differences in the subgroup mean scores on the dependent measures were used to ascertain the magnitude of the between-group differences (Dunst & Hamby, 2012).

All of the statistical analyses are best understood in terms of the sizes of effects between different predictor variables and the health and wellness subscale scores (Cohen, 1988). Correlation effect sizes between .10 and .29 are considered small, those between .30 and .49 are considered medium, and those equal to or greater than .50 are considered large. Cohen's *d* effect sizes between .20 and .49 are considered small, those between .50 and .79 are considered medium, and those equal to or greater than .80 are considered large. Computationally, correlation

coefficients less than .50, if doubled, equal Cohen's *d* effect sizes (e.g., $r = .25$ is equal to $d = .50$).

Results

Faculty Courses

Table 5 shows the number and percent of faculty who taught the 17 courses included on the survey. Five of the courses (EDU 119, EDU 144, EDU 145, EDU 153, EDU 284) were taught by half to two-thirds of the faculty. An additional four courses (EDU 151, EDU 234, EDU 251, EDU 259) were taught by 30% to 42% of the faculty. Nearly all of these courses are required at all or a majority of community colleges (see Table 2). The courses taught by less than 10% of the faculty are all ones not required as part of obtaining an Associate's Degree in Early Childhood Education (see Table 2).

Table 5
Number and Percent of Survey Respondents Teaching Foundations, Methods, and Field Placement Courses

Coursework		Number	Percent
Foundation Courses			
EDU 119	Introduction to Early Childhood Education	44	66
EDU 144	Child Development I	37	55
EDU 145	Child Development II	35	52
EDU 188	Issues in Early Childhood Education	2	3
Methods Courses			
EDU 151	Creative Activities	28	42
EDU 152	Music, Movement, and Language	1	2
EDU 153	Health, Safety, and Nutrition	40	60
EDU 157	Active Play	10	15
EDU 234	Infants, Toddlers, and Twos	25	37
EDU 251	Exploration Activities	20	30
EDU 254	Music and Movement for Children	3	5
EDU 259	Curriculum Planning	27	40
Field Placements			
EDU 151A	Creative Activities Lab	6	9
EDU 153A	Health, Safety, and Nutrition Lab	5	8
EDU 234A	Infants, Toddlers, and Twos Lab	4	6
EDU 251A	Exploration Activities Lab	4	6
EDU 284	Early Childhood Capstone Practicum	37	55

Health, Nutrition, and Physical Activity Indicators

The percent of faculty indicating that they included information on the 14 health, nutrition, physical activity, obesity, and wellness indicators into courses they teach is shown in Table 6. A small percentage of the faculty indicated that they did *not at all* include information on the indicators in their coursework. Either *quite a bit* or *a great deal* of information on encouraging child movement and physical activity was incorporated into coursework by 70% of the respondents followed by information on limiting child screen time (57%), healthy food and beverage preparation (52%), information on outdoor environments (49%), effects of obesity on child health (47%), obesity trends among infants and young children (46%), and modeling personal wellness practices (46%). About one-third of the faculty indicated they incorporated

Table 6
Percent of Faculty Indicating Different Degrees of Health and Wellness Content Knowledge in Courses They Teach

Health, Nutrition, and Physical Activity Indicators	Respondent Ratings (%)		
	Not At All	Just A Little/ Some	Quite A Bit/ A Great Deal
Infant Health and Nutrition			
Breastfeeding and healthy child development	9	55	36
Promoting appropriate sleep patterns	14	55	31
Providing parents breastfeeding information	14	58	28
Child Health and Nutrition			
Healthy food and beverage preparation	6	42	52
Encouraging healthy child food consumption	3	55	42
Children growing and sampling vegetables	11	64	25
Exercise and Movement			
Encouraging child movement and physical activity	0	30	70
Limiting child screen time	0	43	57
Outdoor environments and physical activity	6	45	49
Infant and Child Obesity			
Obesity trends among infants and young children	4	50	46
Effects of obesity on child health	4	49	47
Appropriate infant feeding practices	9	65	26
Adult Wellness			
Modeling personal wellness practices	8	46	46
Educating adults about wellness practices	12	49	39

either *quite a bit* or *a great deal* of information on the other indicators into the courses they taught.

Predictors of Health, Nutrition, and Physical Activity Summated Faculty Scores

Table 7 shows the correlations between the three sets of faculty-related predictor variables and the five summated health and wellness subscale scores. The particular measures that proved to be the best predictors of variations in the subscale scores are highlighted in italics to show overall patterns of results. Seven of the 11 predictors were significantly related to the child physical activity, infant and child obesity, and adult wellness scores; five predictors were related to the child health and nutrition scores; and four predictors were related to the infant health and nutrition scores. The particular variables that were associated with variations in the health and wellness summated subscale scores were total number of courses taught, number of methods courses taught, special faculty expertise in health and wellness, instructor demonstrations of health and wellness practices, authentic student learning opportunities, and student-directed learning. In all cases, higher scores on the predictor variables were associated with higher scores on the health and wellness subscale scores.

The particular coursework taught by faculty and correlated with the health and wellness subscale scores is shown in Table 8. Three courses (EDU 153, EDU 234, EDU 251) stand out as most likely to include content knowledge and experiences on infant and child health and nutrition, physical activity, and obesity, and adult wellness. EDU 153 (Health, Safety, and Nutrition) by far was the one class associated with the largest amount of health and wellness content knowledge and experiences as evidenced by significant relationships with all five subscale scores. Each of the other courses (EDU 144, EDU 145, EDU 151, EDU 157) was