

Nutrition Education in Clark County, Nevada

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Over 51 million school hours are missed annually by school-aged children due to a dental problem or visit, with 117 hours missed per 100 children (NIDCR, 2002). Approximately half a million of California's 7.2 million school-age children missed at least one day of school in 2007 because of dental issues such as toothaches (Pourat, & Nicholson, 2009).

Independent research regarding various educational and intervention programs have been conducted in elementary schools across the country that focus on nutrition and/or physical activity, some of which have found that the programs positively impacted students' dietary behaviors (Edwards, Mauch, & Winkelman, 2011; Muth, Chatterjee, Williams, Cross, & Flower, 2008; Tuuri et al., 2009). However, there does not appear to be literature regarding the standardization of nutrition and oral health education curricula for elementary school children.

Nevertheless, there are school districts that have well structured health education curricula that cover nutrition and oral health education (California Department of Education, 2009; Central Michigan University, 2005). All of these reports are in agreement with Dietz, et al (2008) which reported that nutrition and oral hygiene education should be an integral part of keeping growing children healthy and forming good nutrition habits that will carry into adulthood.

There is also a wealth of information provided by the Centers for Disease Control and Prevention (CDC) (2010) regarding coordinated school health programs that are available to schools and school districts. Currently there are 22 states and 1 tribal government that receive funding for state and territorial education programs for the implementation of coordinated school health programs (CSHP) (CDC, 2010).

Nevada is not one of those currently receiving funding.

Kubik et al (2002), report the importance of teachers' influence on children's dietary and oral hygiene habits, supported by behavior theories, such as Bronfenbrenner's ecological model and Bandura's Social Cognitive Theory. These theories suggest that teachers can influence behavior in children through role modeling, normative practices and social support (Murimi, Sample, Guthrie, & Landry, 2007). Since children spend a large portion of the day in school, teacher contact can influence what the child learns about nutrition and oral hygiene habits (Kwan, Petersen, Pine, & Borutta, 2005).

In a survey assessing perceptions of middle school teachers on the importance of nutrition and oral health topics taught and the teaching curricula, a majority reported that including health and nutrition in the curriculum is critical. However, they also concluded that content development and staff training in nutrition and health appeared to be lacking. The researchers suggested that outdated or incorrect health education materials in coordinated school health programs could limit the impact of nutrition and oral health (Murimi, Sample, Guthrie, & Landry, 2007).

Currently, the state of Nevada has no mandated nutrition and oral health curricula for K-12 public schools. However, it does have a "Statewide Child Nutrition, Wellness and Healthy School Environment Policy" that leaves each local education agency free to establish their own policies (CCSD, 2011). At this time, CCSD, the largest school district within the state, and the 5th largest school district in the nation, has a standardized curriculum that could be used uniformly. However, there is no State mandate preventing teachers from developing and presenting their own oral health and nutrition education curriculum. Therefore, the purpose of this study was to assess the perceptions and practices of teachers (grades 1 through 4) regarding the State/local mandates, as well as the frequency of nutrition and oral health education content taught in their classes.

Methods

This study used a cross-sectional web-based survey to assess self-reported perceptions and practices of teachers currently teaching grades 1 through 4 in the Clark County School District.

Construction of Questionnaire

A 16-item, closed-ended (yes/no or select one or all of the above) survey was developed to ascertain respondents' perceptions of State or local mandates concerning nutrition and oral health education curriculum, as well as the frequency of and amount

of nutrition and oral health education taught in their classrooms. The survey included 10 items regarding their perception and practices about nutrition and oral health curriculum and 6 demographic items. The content validity of the questionnaire was established through a review completed by three experts in nutrition and oral health education. An internal reliability using the entire sample population, based on the average inter-item correlation, was established using Cronbach's alpha ($r=0.74$; $p<0.005$).

Web-based surveys have become increasingly popular over the past few years as a convenient and low-cost method of gathering data. Researchers have found web surveys to have significant advantages over mail and fax surveys in terms of response rate and costs (Cobanoglu, Warde, & Moreo, 2001). They reported that there are three reasons that web-based surveys should be used when surveying educators: 1) web-based tools yield a higher response rate at less cost and more rapidly than mail surveys; 2) the majority of educators have access to e-mail in the United States; and 3) since web-based surveys code the data automatically, eliminating hand-coding, it prevents data entry errors and saves time and resources. These three reasons provided the basis for the decision to disseminate this survey via a web-based tool (Zoomerang; MarketTool, Inc., 1999).

Sample and Sample Size

This cross-sectional study elicited responses from teachers currently teaching grades 1 through 4 in the Clark County School District in the academic school year 2010-11. A power analysis was performed to ascertain the appropriate minimum response rate. To achieve a power of .80 ($p = .05$; $d = .20$), with a teacher population of 3,500, a minimum of 350 responses were required. Responses were received from 1,194 teachers within the CCSD teaching grades 1 through 4, who voluntarily agreed to participate in the study. The University of Nevada Las Vegas Institutional Review Board and the Clark County School District Review Board approved this study.

Data Collection and Analysis

Once the survey was completed and validated, the link to the survey was embedded in an email sent by the K-12 Director of Science, Health, Physical Education and Foreign Language within the Clark County School District via the internal email system to all teachers (grades 1 through 4). This prevented responses being linked to specific individuals and assured confidentiality of the responses. A three-wave emailing (approximately 10 to 15 days apart)

was used to help increase response rate. There were 300, 600 and 294 responses respectively. Results were imported into an excel file and subsequently uploaded into SPSS, 19.0 (SPSS, Inc., Chicago, IL) for analysis. Descriptive statistics were used to compare frequencies and percentages of responses of each item on the survey.

Results

Of the 3,500 (first through fourth grade teachers) in the CCSD, 34% (1,194) responded to the survey. Demographic data indicated that 90% were female, 95% work in urban or suburban areas and 97% taught in schools located in low-to-middle socioeconomic neighborhoods. Approximately 60% had been teaching for 10 years or less and 98% had earned either a Bachelor's or Master's degree in teaching. There was a well distributed response rate among the 4 selected grades (Table 1).

Table 1. Analysis of CCSD Survey Participants

Variable	N	Percentage
Gender (n=1141)		
Female	1032	90.5
Male	109	9.5
School Location (n=1153)		
Urban	683	59.2
Suburban	410	35.5
Rural	60	5.3
SES of School (n=1107)		
Low	632	57.0
Middle	445	40.2
High	30	2.8
Years Teaching (n=1146)		
1-5 years	351	30.6
6-10 years	329	28.7
11-15 years	198	17.2
16-20 years	112	9.7
More than 20 years	156	13.8
Grade Currently Teaching (n=1137)		
First (1 st)	332	29.1
Second (2 nd)	306	26.9
Third (3 rd)	266	23.3
Fourth (4 th)	233	20.7
Degree Obtained (n=1149)		
Teacher's Certificate	5	0.4
Bachelor's	303	26.3
Master's	827	71.9
Doctoral	14	1.4

Note: N=1194, not all equal 100% due to missing data in some categories.

Approximately two-thirds of the teachers (62%) who responded believed they were required to teach nutrition and oral health education in their classes. Of those teachers that believed it was required, 51% believed it was required by the CCSD, 27% thought it was state mandated, 15% were not sure of the requirement, while 1% reported as an individual school requirement. Six percent specified other

mandates, by other school personnel, such as Principal, nurse or others (Table 2).

Table 2. Responses to Survey Items of CCSD Survey Participants

Survey Item	N	%
Are you required to teach nutrition education to your students? (n=1194)		
Yes	737	61.7
No	457	38.3
If yes, what is mandate requirement (n=778)		
State of Nevada	213	27.3
Clark County	397	51.0
School	11	1.4
Not Sure	112	14.3
Other	45	6.0
How often do you teach these topics? (n=1020)		
1 time per week	78	7.6
2 times per week	27	2.6
3 or more times per week	16	1.5
1-2 times a month	150	14.7
1 time a year	131	12.8
2 times a year	129	12.6
3-4 times a year	320	48.2
Nutrition/Oral information resource (n=1676)		
State of Nevada	79	4.7
Clark County School District	123	7.3
Southern Nevada Health Department	76	4.5
School Nurse	132	7.8
On own (Internet, library, book store, etc.)	910	55.2
Nutrition Professional	134	7.9
Health Agencies, etc.	121	7.2
Other	101	5.4

Note: N=1194, not all equal 100% due to missing data in some categories.

When asked how often nutrition and oral health education was being taught to their students, over half (56%) of the teachers who responded to the survey were educating their students four times or less a year. The remainder were teaching the topics more often, but with largely varying intervals. The intervals ranged from 7% teaching these topics one time a week up to 14% taught the topics one or two times per month.

The information that was presented to the students was obtained from a wide variety of sources. The most popular source, chosen by over half (55%) of the teachers was individually obtained from the Internet, library, book store, etc. Additional sources, such as the State of Nevada website, Clark County School District, Southern Nevada Health Department, School Nurses, Nutrition Professionals, Health Agencies, and others (i.e., pamphlets and materials from doctors offices) were reported by less than 10% of the respondents.

Lastly, teachers were asked questions regarding physical activity and oral health curricula included in student education. The majority (81%) of teachers

teaching nutrition education were including physical activity and exercise education to the students, while approximately 86% added education on sugary foods and how high dietary intake can increase cavities. However, only about two-thirds (68%) were providing information on proper brushing and flossing techniques.

Discussion

The results of this analysis revealed that more than half (55%) of the teachers are providing nutrition and oral health education less than four times a year. More troubling, 55% of the participants in the study obtained the content of their educational information from non-standardized sources, which could include non-scientific websites on the Internet. Finally, no clear consensus was found among the study participants regarding the requirement or mandate for teaching these modules to students.

Findings of this study revealed that most of the nutritional and oral health education content delivered by CCSD teachers was not Nationally, State, or locally standardized. Access to the Internet is convenient to most for obtaining information, but not all information is accurate or evidence based. If teachers are not given or taught standardized or evidence-based nutrition and oral health education, then the proper information may not be transmitted to their students. This, in turn, can perpetuate a cycle of ignorance or misinformation that can lead to unhealthy lifestyle choices through adulthood and into future generations.

Significance of the Study

This study is important because very little research has been conducted within the U.S. to assess teaching requirements, frequency or content of nutrition and oral health education curricula for grade school children. Good healthcare and nutrition have been shown to contribute to academic success (ASTDD, 2011). Nevada, in particular, has low health educational achievement, which is symptomatic of large minority populations, low socioeconomic status groups and may contribute to Nevada's high drop out rates among these populations (Nevada Department of Education, 2004). All of these factors have contributed to a lack of health care access within many segments of the States populations. Additionally, these factors, can contribute to a lack of health insurance and benefits that would provide prevention information to the people that need it most. Based upon this information, the primary source of nutrition and oral education for children may be only through their K-12 education.

Limitation of the Study

Of concern is the limitation regarding the validity of the information when using self-reported information. It is possible that some respondents did not accurately report (either underrepresented or overrepresented) their responses. In addition, there is always a concern that those who respond are different in attitudes and perceptions from those who do not respond. Therefore caution should be used when generalizing these results.

Recommendations for Curriculum Development and Future Research

Based upon the findings in this study, the following are recommended:

- 1) Oral health and nutrition curriculum should be standardized throughout the state for K-12 schools, as developed by health teachers and State coordinators and validated by oral health care providers and nutrition experts.
- 2) Elementary teachers and secondary health teachers should receive pre-service or in-service preparation in the requirements and implementation of the newly developed oral health care and nutrition curriculum.
- 3) Future studies should be conducted to evaluate the outcomes of any newly developed standardized oral health care and nutrition curriculum.

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