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Exploring the Relationship Between Quality of Written School Wellness Policy and the Degree of Wellness Policy Implementation in Elementary Schools

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EXPLORING THE RELATIONSHIP BETWEEN QUALITY OF WRITTEN SCHOOL WELLNESS POLICY AND THE DEGREE OF WELLNESS POLICY IMPLEMENTATION IN ELEMENTARY SCHOOLS

BY

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This thesis is approved as a creditable and independent investigation by the candidate for the Master of Science degree in Nutrition, Exercise, and Food Science and is acceptable for meeting the thesis requirements for this degree. Acceptance of this thesis does not imply that the conclusions reached by the candidate are necessarily the conclusions of the major department.

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I would like to dedicate this paper to my fiancé, Justin.
I would not be where I am today without your continuous love and support!

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TABLE OF CONTENTS

ABSTRACT

EXPLORING THE RELATIONSHIP BETWEEN QUALITY OF WRITTEN SCHOOL WELLNESS POLICY AND THE DEGREE OF WELLNESS POLICY IMPLEMENTATION IN ELEMENTARY SCHOOLS

JOSIE SIEBERG

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Background: To date many studies have evaluated the quality of written school wellness policies (SWPs), however, few have addresses SWP implementation. As SWPs have the potential to reduce childhood obesity, it is crucial for schools to not only write high quality SWPs, but also to implement these policy items. **Purpose:** The purpose of this study was to assess the relationship between the quality of written SWPs and the degree of SWP implementation. We hypothesized that schools with higher quality written SWPs would have a higher degree of policy implementation. **Methods:** School wellness policy written quality and implementation were assessed in 24 public elementary schools. Written quality of SWPs was assessed with the Wellness School Assessment Tool (WellSAT 2.0) and policy implementation was assessed with the Wellness School Assessment Tool for Implementation (WellSAT-I). Like questions from each tool were matched and Pearson correlations were used to assess the relationship between individually matched questions and total score of all matched questions, using Stata 12.1® (Stata/IC 14, College Station, TX). Statistical significance was set at $p \leq 0.05$. **Results:** There was a significant relationship found within two of the matched questions; student to teacher ratio in physical education class, having a moderate, negative correlation, ($r=-0.47$, $p=0.02$) and having a plan for updating best practices within a policy, showing a moderate, positive correlation

(r=0.43, p=0.04). There was not a significant relationship between the quality of the written SWPs and the degree to which it is implemented using the total score from the matched questions (r=0.06, p=0.78). **Conclusion:** These data suggest that having a high quality written SWP does not lead to a higher degree of implementation. To date, the majority of SWP support focuses on the writing of quality SWPs. These data suggest that supports should be expanded to help schools with practical strategies to implement the items within their written policy. **Funding:** This material is based upon work that is supported by the Northland Chapter of the American College of Sports Medicine, Innovative Student Research Grant and the National Institute of Food and Agriculture, U.S. Department of Agriculture, under award number 2011-67002-30202.

Chapter 1: LITERATURE REVIEW

TITLE: Exploring the Relationship between Quality of Written School Wellness Policies and the Degree of Wellness Policy Implementation in Elementary Schools.

PURPOSE: The purpose of this study is to assess the relationship between the quality of written SWP and the degree to which SWPs are implemented.

TABLE 1: Childhood Obesity

Author, Year and Study Title	Sample Size	Sample Characteristics and Study Purpose	Methods	Major Findings
Ogden et al.[1] Published: 2012 Prevalence of obesity and trends in body mass index among US children and adolescents, 1999-2010.	n=4111 US Children	Cross-sectional study assessing children from birth to age 19, with height and weight measurements from the NHANES of 2009 to 2010 conducted by the CDC.	At home interview and mobile unit measurements of height and weight Weight status defined by BMI. (Overweight ≥ sex specified 85th percentile and Obese ≥ sex specified 95th percentile on the CDC BMI-for-age growth charts)	16.9% of children age 2-19 were obese (males= 18.6% and females= 15%). 31.8% were either overweight or obese. 12.3% were at or above the 97th percentile of BMI for age.
Ogden et al.[2] Published: 2015 Prevalence of obesity among adults and youth: US, 2011–2014.	n= not given, data collected from 3 NHNES	Report monitoring US obesity prevalence by sex, age, and race. Data from the NHANES between 2011 and 2014 conducted by the CDC.	Compile and compare data collected by the NHANES from 1999 to 2014. Generate a report to show changes in adult and child obesity rates within the US over time.	2011-2014 data shows childhood obesity rates at 17% with no difference reported between sexes. This rate remains unchanged from 2003-2004 to 2013-2014.
Ogden et al.[3] Published: 2016 Trends in obesity prevalence among children and adolescents in the US, 1988-1994 through 2013-2014.	n= 40,780 US Children	Cross-sectional study assessing children from birth to age 19, with height and weight measurements from the NHANES between 1988 and 2014 conducted by the CDC (Mean age= 11 years old, 48.8% female).	Compiling of each two-year cycle for 9 survey periods worth of NHANES data collection to analyze correlation and regression. Weight status defined by BMI. (Obese ≥ sex specified 95th percentile and Extreme Obesity ≥ 120% of the sex specific 95th percentile on the CDC BMI- for-age growth charts)	17% of children aged 2-19 were obese in 2011-2014. 5.8% of children and adolescents were considered extremely obese.

KEY
US: United States
NHANES: National Health and Nutrition Examination Survey
CDC: Center for Disease Control and Prevention
BMI: Body Mass Index

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TABLE 2: School Wellness Policy Regulations

Public Law Name, Number and Issue Date	Purpose	Act of Congress	Requirements
Child Nutrition and WIC Reauthorization Act of 2004.[4] Public Law: 108-265 Issued June 2004	Increase nutrition and physical activity standards in school environments to improve upon child health and safety.	Mandatory SWP development for all schools participating in the NSLP, by the start of the 2006-2007 school year.	Schools were required to create a community wide represented wellness committee to write SWP. SWP must address nutrition education, physical education, nutrition standards, NSLP compliance, and plans for SWP implementation and evaluation.
Healthy Hunger Free Kids Act (HHFKA).[5] Public Law: 111-296 Issued December 2010	To further develop requirements set by the Child Nutrition and WIC Reauthorization Act of 2004 to prevent childhood obesity.	Highlight SWP implementation and make SWP evaluations publically accessible.	Require wellness committees to include community members, school health professionals, school food staff, school board members, school administrators, students and parents. School wellness councils must continuously evaluate their SWP and make updates as needed available to the public.

Final rule of 2016.[6] Public Law: 210-235 Issued July 2016	Establishing minimum SWP content requirements, ensuring mandatory participation and compliance with current regulations.	Mandatory update of SWP for all schools participating in the NSLP, by the start of the 2016-2017 school year.	Local government agency must increase SWP transparency by evaluating updated written SWP and SWP implementation every three years.

KEY

WIC: Woman, Infant and Children
SWP: School Wellness Policy
NSLP: National School Lunch Program

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Table 3: Written School Wellness Policy

Author, Year and Study Title	Sample Size	Study Purpose	Sample Characteristics	Methods	Major Findings
Moag-Stahlberg et al.[7] Published: 2008 A national snapshot of local school wellness policies.	n=256 SWPs	Identify nationwide gaps in SWP development and implementation.	67 SWP from small school districts (<2500 students) 89 SWP from medium sized school districts (2501-20,000 students) 100 SWP from large school districts (>20,000 students).	Two experts reviewed randomly selected SWPs; content was compared to requirements from CNR and AFHK fundamentals (meeting or not meeting guidelines).	68% of SWP meet the minimum standards required by law. 26% address all NE requirements 2% address all School meal requirements. 0% address all PA requirements 79% of SWP did not have appropriate language to support SWP implementation through measurable objectives.

Coffield et al.[8] Published: 2011 A multivariate analysis of federally mandated school wellness policies on adolescent obesity.	n=30 Utah school districts	Use a population based sample of adolescents to evaluate SWP at the district level.	Collect data during 2006-2007 via Utah Population Database, Common Core Database, and Utah district SWPs. Adolescent was defined as 15-19 years old.	Self-reported height and weight was recorded via first issued driver's license. SWPs were assessed containing the following domains: physical activity and education, competitive foods, nutrition practices and education, and other wellness related components.	18% of sample was overweight. Mandated district level SWP domains are associated with lower odds of adolescent overweight and obesity within Utah. SWPs showing vital improvements towards obesity prevention efforts.
Lyn et al. [9] Published: 2012 Statewide evaluation of local wellness policies in Georgia: an examination of policy compliance, policy strength, and associated factors.	n=176 Georgia public schools	Analyze relationship between demographics and SWP compliance to regulations and written strength.	2007-2008 school year, request SWPs from Georgia public school superintendents.	Creation of a 5 section coding tool to evaluate SWPs with a 10-person review panel: 1) School district demographics 2) SWP compliance 3) SWP strength 4) Implementation plan 5) Modeling best practices	Despite high compliance, less than 52% of districts were fully compliant in all 7 SWP components. 75% of SWPs received a 0 or 1 rating for all policy components.
Belensky et al.[10] Published: 2013 Local Wellness Policy 5 Years Later: Is It Making a Difference for Students in Low-Income, Rural Colorado Elementary Schools?	n= 45 rural Colorado elementary schools	Compare SWP one year before and five years after the federal mandate went into place.	Randomly Selected. Rural: schools located outside of urban areas. With at least 40% of students eligible for FRL. 2005= 71% response rate 2011= 89% response rate	Used the School Environment and Policy Survey, created by the Rocky Mountain Prevention Research Center (3 modules: #1 for principals-Elementary School Policies and Factors Related to PA and Food. #2 for Food Service Managers-Nutritional Services. #3 Physical Education Teacher-PE and Other PA Programs)	Slight increase in written SWP strength in regards to physical education and physical activity, decline in fruits and veggies from 2007 to 2011, but no significant change in written SWP quality.

Parsons et al.[11] Published: 2014 Evaluating school wellness policy in curbing childhood obesity in Anchorage, Alaska.	Control n=3506 students Exposed n=3716 students	Determine a correlation between exposure to SWPs and rates of childhood obesity.	Cohort 1: exposed to SWP (kindergarteners in 2004-2005). Cohort 2: not exposed to SWP (kindergarteners in 1999-2000). Both cohorts followed until they were in 5th grade (49% female, 51% male).	Use student height and weight data from 1999-2010. Did not assess the quality of SWP implementation, just the presence of a written SWP.	No significant difference in BMI between SWP exposure and unexposed. Male, minorities, with low socioeconomic backgrounds had greater odds of becoming and remaining overweight or obese. Suggest greater SWP implementation with increased intensity and duration of exposure would help to combat outside factory affecting childhood obesity.
Lucarelli et al. [12] Published: 2015 Little association between wellness policies and school reported nutrition practices.	n= 48 schools	Assess the relationship between the quality of SWPs and the nutrition environment.	2007-2008 data, Michigan middle schools with at least 50% FRL.	Cross sectional analysis of data collected through School Nutrition Advances Kids (SNAK) from Michigan State University. Use WellSAT to evaluate SWPs (school administrators) and the School Environment and Policy Survey (food service directors)	Average strength score= 19, average comprehensiveness score= 40 Similar findings to other studies.
Piekarz et al.[13] Published: 2016 School District Wellness Policies: Evaluating Progress and Potential for Improving Children's Health Eight Years After the Federal Mandate.	n= 47 states ~639 policies each year	Examines progress in SWP content and quality.	Randomly selected public school district SWP collection between 2006-07 and 2013-14.	Compare SWP with the SWP coding system developed by Schwartz et al. evaluating NE, school meals, PA, competitive foods, SWP implementation and evaluation.	SWP that required a plan for implementation raised from 56% in 2006-07 to 78% in 2013-14. Only 11% of SWP require an evaluation of implementation. Overall Strength scores increased from 17.65 (2006-07) to 25.27 (2013-14) while comprehensiveness scores increased from 31.35 (2006-07) to 44.08 (2013-14)

Meendering et al. [14] Published: 2016 Bigger does not equal Better: The Comprehensiveness and Strength of School Wellness Policies Varies by School District Size.	n= 70 school districts in South Dakota	Evaluate how school district size effects the quality of written SWP.	Based off of school district size: large (n=10), medium (n=29), and small (n=31).	Evaluate the quality (strength and Comprehensiveness) of SWP with WellSAT 1.0 tool. Addressing NEWP, USDA standards for School Meals, NS, PEPA, and evaluation.	Total combined scores, total strength scores and total comprehensive scores were lowest in larger school districts. Small school districts develop SWP that cover more of the federal requirements.
Cox et al.[15] Published: 2016 Strength and comprehensiveness of school wellness policies in southeastern US school districts.	n=111 school districts in 8 southern states	Identify which policy areas need the most improvement.	States: Alabama, Florida, Georgia, Kentucky, Mississippi, Tennessee, and North and South Carolina. Policies focused on 6^{th}-8^{th} grade specific SWPs.	Used WellSAT to evaluate SWPs (collected via, district websites, google, phone call to the school).	Majority of evaluated SWPs had weak wording and are lacking required content areas. Most needed improvement in the areas of SWP communication and promotion as well as physical education.
Hoffman et al.[16] Published: 2016 School District wellness policy quality and weight related outcomes among high school students in Minnesota.	n=270 district SWPs in Minnesota	Examine weight related outcomes according to the quality of written SWPs.	Of 331 school districts participating in the NSLP in 2013-14, 270 had data from the Minnesota student Survey; these were then used to examine weight related outcomes.	Collection of SWPs through school websites ad upon request from the school. Use of Common Core Data, Minnesota Student Survey and WellSAT to assess SWPs and school demographics.	Average total strength score= 29.2, average total Comprehensiveness score 63.8. Weak, non-specific wording throughout the SWPs.

KEY

SWP: School Wellness Policy
CNR: Child Nutrition and WIC Reauthorization Act of 2004
AFHK: Action for Healthy Kids Wellness Policy Fundamentals
NE: Nutrition Education
PA: Physical Activity
FRL: Free and Reduced Lunch
BMI: Body Mass Index

WellSAT 1.0: First version of the Wellness School Assessment Tool
USDA: United States Department of Agriculture
NEWP: Nutrition Education and Wellness Promotion
NS: Nutrition Standards
PEPA: Physical Education and Physical Activity
NSLP: National School Lunch Program

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TABLE 4: School Wellness Policy Implementation

Author, Year and Study Title	Sample Size	Study Purpose	Sample Characteristics	Methods	Major Findings
Longley et al.[17] Published: 2009 Effects of federal legislation on wellness policy formation in school districts in the US.	n= 847 US school districts	Examine the process of developing SWP after the 2004 mandate	US national sample of school districts participating in the NSLP	Phase 1: examine school nutrition legislation Phase 2: conduct qualitative interviews with food service directors in 2007 with a focus group (n=21) Phase 3: email and mail surveys to food service directors, quantitative survey (43% response rate, n=363)	Phase 1: in 2006, 22 of the 50 states had strong legislative environments. Phase 2: Mandate did not improve implementation and monitoring of overall SWP development. Phase 3: before mandate, 37.4% of schools had food service components in place (outside of federally regulated meal programs) after mandate this increased to 72.4%, regulating a la carte foods, beverages, fundraising, parties, and vending.
Barnes et al.[18] Published: 2011 Results of evaluability assessments of local wellness policies in six US school districts.	n=6 districts (2 in WY, 1 in AZ, MN, NM, and TX)	Determine steps towards implementation and evaluation for districts with all written SWP components	Had to have a SWP that was district wide, implemented in multiple schools during 2006-2007, include all mandated components, never been previously evaluated, and has monitored implementation.	15-member panel of experts scored each SWP on 9 mandated criteria, to select SWP for this study. Evaluability assessment, reviewed written SWP, developed a logic model and conducted a 2-3-day site visit to assess implementation through staff interviews.	All school districts met all written SWP requirements; however, they did not have full policy implementation after one year. Evidence suggests having a written policy is not enough to ensure adequate policy implementation and evaluation.
Schwartz et al.[19] Published: 2012 Strength and comprehensiveness of district SWPs predict policy implementation at the school level.	n=151 school districts	Predict SWP implementation based off SWP strength and Comprehensiveness scores.	Connecticut sample of public school districts participating in the NSLP that voluntarily submitted their current SWP.	Collection of district SWP, assessed with the WellSAT 1.0 tool, School Nutrition and Physical Activity Practices survey to principals regarding school practices, and district demographics obtained through public data sources.	SWP that contain stronger and more comprehensive language had greater success of full policy implementation throughout the school.

Snelling et al.[20] Published 2017 Measuring the implementation of a school wellness policy.	n=139 elementary schools in the DC area	Use the annual school health profile (2012-13) to create a composite score to measure SWP implementation	Elementary was defined as a school reporting physical education minutes in any k-5 grades.	School health profile is a self-reported survey to monitor the Healthy School Act requirements. Generation of a composite score to indicate the level of school level implementation. Elementary: 27 questions score= 0-33 points	The elementary mean composite score was 22.59 out of 33 points (ranging from 13.5-29.17) Indicate schools are meeting meal requirement standards. However, they need to increase minutes of health and physical education to meet guidelines.

KEY

US: United States
SWP: School Wellness Policy
NSLP: National School Lunch Program
WellSAT: Wellness School Assessment Tool

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TABLE 5: Evolution of the Wellness School Assessment Tools

Tool Name, Year of Development	Tool Version	Tool Purpose	Targeted Goal Areas	Scoring System
Schwartz et al.[21] Published: 2009 A comprehensive coding system to measure the quality of school wellness policies.	Test the range, internal reliability, and interrater reliability of a SWP coding system WellSAT.	Creation of a 96-item coding tool, evaluating the written strength and Comprehensiveness of the seven required goal areas for SWPs.	5 Sections: NEWP (n= 9), USS (n=7), NS (n=16), PEPA (n=14), and E (n=4)	0= The item is not mentioned 1= Item mentioned with confusing or weak wording 2= Item meets or exceeds expectations 3= Meets IOM Standards 4= An item ban is in place
Original Wellness School Assessment Tool (WellSAT 1.0).[22] Launched in 2010	Abbreviates version of the 96-item Comprehensive Coding System to Measure the Quality of School Wellness Policies.[19]	Quantitative assessment of strength and comprehensiveness of SWP.	5 Sections: NEWP (n= 9), USS (n=7), NS (n=16), PEPA (n=14), and E (n=4)	0= The item is not mentioned 1= Item mentioned with confusing or weak wording 2= Item meets or exceeds expectations 3= Meets IOM Standards 4= An item ban is in place
Updated Wellness School Assessment Tool (WellSAT 2.0).[23] Launched in 2014	Updated tool reflecting the current best practice in all areas of SWP. (USDA meal standards: 2012 and 2013, Competitive food standards: 2014). Updated food marketing, physical education and physical activity content areas. Improved compliance standards (SWP monitoring and evaluation).	Standardized method to collect and evaluate consistent and reliable SWP scores assessing quantitative values for SWP strength and Comprehensiveness.	6 Sections: NE (n=7), SM (n=14), NS (n=11), PEPA (n=20), WPM (n=15), IEC (n=11)	0= The item is not mentioned 1= Item mentioned with confusing or weak wording 2= Item meets or exceeds expectations
Wellness School Assessment Tool for Implementation (WellSAT-I 3.0).[24] Updated December 2014	Working draft to measure the degree of which the 50 policy-items from WellSAT are implemented within a school.	Interview school informants (principal, NE teacher, PE teacher, food service director , and district wellness committee member) as well as make onsite evaluations to assess SWP implementation	4 Sections: WP (n=9), Nutrition (n=23), Physical Activity (n=14), E (n=4)	0= Has not been implemented 1= Low Partially implemented 2= High Partially Implemented 3= Fully Implemented

KEY

WellSAT: Wellness School Assessment tool
SWP: School Wellness Policy
NEWP: Nutrition Education and Wellness Promotion
USS: Standards for USDA Child Nutrition Programs and School Meals
NS: Nutrition Standards for Competitive and Other Foods and Beverages
PEPA: Physical Education and Physical Activity
E: Evaluation
IOM: Institute of Medicine
USDA: United States Department of Agriculture
NE: Nutrition Education
SM: Standards for USDA School Meals
WPM: Wellness Promotion and Marketing
IEC: Implementation, Evaluation, and Communication
PE: Physical Education
WP: Wellness Promotion
E: Evaluation

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Chapter 2: MANUSCRIPT

INTRODUCTION

One in six children, aged two to nineteen, are currently classified as obese,[1] with one in fifteen being classified as extremely obese,[2] within the United States (US). Childhood obesity increases the risk of obesity as an adult and increases the risk for early onset of chronic diseases such as hypertension, diabetes, cardiovascular disease and metabolic syndrome.[3] School aged children spend an average of 32.5 hours every week in school,[4] making it a prime environment for supporting child obesity prevention efforts, as schools reach the majority of children and provide food and opportunities for physical activity.

In 2004, US Congress passed the Child Nutrition and Women, Infant and Children Reauthorization Act.[5] This act mandated all schools participating in the National School Lunch Program to develop a School Wellness Policy (SWP) and have a plan for implementation beginning in the 2006- 2007 academic year.[5] The Healthy, Hunger-Free Kids Act of 2010 added additional regulations, requiring schools to implement their written SWP and evaluate their school wellness efforts by the 2014-2015 academic year.[6] More recently, US congress passed the Final Rule of 2016.[7] This statute requires schools to develop a revised SWP and begin full implementation of that updated policy during the 2016-2017 academic year.[7] The Final Rule of 2016 also requires the evaluation of written SWP and SWP implementation, from local education agencies, every three years, ensuring local food authorities are compliant with SWP requirements.[7]

High quality SWPs have been shown to have the potential to reduce childhood obesity prevalence,[8] however, written SWP quality still remains low.[9,10,11,12,13,14,15,16,17] In

2013-2014, a national sample of written SWPs showed average strength scores at 25 out of 100 possible points (showing definitive, strong language) and 44 out of 100 possible points as the average comprehensiveness score (understanding requirement expectations).[16] In a study conducted by Moag-Stahlberg et al. as much as 79% of schools, in a national sample, did not include language to support implementation within their written SWP.[17] These finding indicate room for further improvement in overall written SWP quality.

Beyond the written SWP quality, another concern is the degree to which SWPs are being implemented. In a study conducted Snelling et al. data suggest that on average, elementary schools within the District of Columbia are only implementing 68% of Healthy School Act requirements.[18] In a different study by Schwartz et al. researchers found that only 40% of Connecticut School District's sample of SWPs were fully implemented.[19] Suggesting room for improvement at the school level, to gain full SWP implementation, which are in compliance with national requirements.

To date, three studies have explored the relationship between both the quality of written SWPs and the degree of SWP implementation.[19,20,21] Data from Schwartz et al. suggest there is a positive correlation between the quality of written SWP and the degree of SWP implementation.[19] Schwartz et al. used the Wellness School Assessment Tool (WellSAT)[22] to assess the quality of the written SWPs and the School Nutrition and Physical Activity Practices Survey to assess SWP implementation in 151 Connecticut school districts.[19] This research found mean written total strength to be at 38 out of 100 total points and mean written total Comprehensiveness to be at 55 out of 100 total points, with a mean of 40% full policy implementation.[19] Data from this study also suggested

there was a relationship between written SWPs and SWP implementation, such that stronger language in a SWP was predictive of greater SWP implementation.[19]

In addition to these findings, a study conducted by Francis et al. also assessed the relationship between written SWP and its implementation, however this focus was specifically addressing physical education and physical activity (PEPA) components of the SWP.[20] Francis et al. utilized the updated version of the WellSAT tool (WellSAT 2.0)[23] to assess written SWP strength and Comprehensiveness within the PEPA section of the scoring tool. The Alliance for a Healthier Generation's, Healthy Schools Program, self-assessment was used to measure PEPA implementation.[20] Seven school districts were included in this analysis and nine questions were matched between the two tools.[20] Francis et al. found overall written SWP strength and Comprehensiveness was low, however, there was a strong positive correlation between policy items that were written well and those policy items being reported as implemented.[20]

Barnes et al. assessed SWP implementation in six school districts with written SWPs that met all national SWP requierments.[21] Implementation was assessed via a review of policies and related documents, the development of a logic model to outline school's goals and activities, and conduction of two to three-day site visits at each district.[21] Barnes et al. found that even though all written requirements were met, some requirements had greater frequency of implementation than others did. Specifically, Barnes et al. saw greater implementation of written nutritional standards than the implementation of written nutrition education or physical activity opportunities.[21] These data suggest that having a comprehensive written SWP does not equate to all items being implemented.

Since the publication of these previous studies, evaluating both the quality of written SWPs and the degree of SWP implementation,[19,20,21] the WellSAT tool has been updated to match current regulations (WellSAT 2.0).[23] A complimentary tool has also been developed to assess SWP implementation, the Wellness School Assessment Tool for Implementation (WellSAT-i).[24] The WellSAT 2.0 assesses the quality of written SWPs by providing an indicator of strength within the written SWP language and the comprehensiveness of the policy.[23] Likewise, the WellSAT-i assesses the degree to which schools are implementing SWP items identified in the WellSAT 2.0 tool.[24]

To better understand the relationship between written SWPs and their implementation, there is a need for a comprehensive study that evaluates both written SWP quality, as well as the degree to which they are implemented. Therefore, the purpose of this study is to explore the relationship between the quality of written SWPs and the degree to which SWPs are implemented using the updated WellSAT and WellSAT-i tools.

METHODS

One hundred and ten public school districts were recruited to participate from eastern South Dakota (SD) during the 2017-2018 school year. Eastern was defined as any SD school district located to the east of the Missouri river. Elementary was self-selected by the school and ranged from kindergarten through sixth grade. Twenty-four elementary schools volunteered to participate, from twenty-two eastern SD school districts.

Researchers at South Dakota State University collaborated with the SD Department of Education (DOE) to contact superintendents and elementary school principals in eastern SD, via email, to recruit elementary schools within their district to

participate. Each email had a description of the study as well as a link to an electronic survey to confirm commitment and participation from interested schools. The survey requested a copy of their school's current SWP as well as staff contact information. Upon survey completion, elementary school principals and staff were contacted to assign an onsite visit date. Researchers evaluated the quality of the written SWP offsite and the degree of SWP implementation during their site visit for each participating school.

As an incentive for school participation, individualized report cards, highlighting the strengths and weaknesses of the SWP, the degree of SWP implementation, and resources for support, were created and sent to elementary school principals following the assessments. All schools were also entered into a raffle to win one of five $200 gift cards, awarded to the school's Parent-Teacher Association.

Participating school's demographics were collected for the 2017 reporting period via the SD DOE (Table 1). This included student enrolment at the school level, percentage of the student population on free and reduced lunch at the school level, the number of schools within the district, and the classification (Rural Urban Continuum Codes) of the school district.

Written SWP quality was assessed by evaluating the strength and comprehensiveness of a SWP via WellSAT 2.0.[23] This 78-item online evaluation, addresses six main content areas required by legislation to be in each SWP. This includes: Nutrition Education, Standards for United States Department of Agriculture (USDA) School Meals, Nutrition Standards, Physical Education and Physical Activity, Wellness Promotion and Marketing, as well as Implementation, Evaluation, and Communication.[24] These content areas were formed based on standards of the 2010

Healthy Hunger-Free Kids Act.[6] Tool questions are evaluated based on a zero to two-point scale: topic not mentioned (zero), topic mentioned (one), and plan to implement the topic (two).[23]

School wellness policy implementation was assessed via WellSAT-i.[24] This tool measures the degree to which the 78 policy items from WellSAT 2.0 are being implemented. The WellSAT-i requires direct school site observations of five questions regarding food and beverage marketing in schools; this was completed by both researchers, comparing what they saw, and scoring accordingly. With this, key informant interviews were conducted with the Principal, Designated District Level Official, Head of Curriculum, Health Teacher, Physical Education Teacher, Cafeteria Manager, Food Service Director, and Information Technology Specialist.[24] These interview were scheduled into the onsite visit day for anytime the staff had available. Some interviews consisted of two questions and were completed in a matter of minutes, where others were 32 questions and lasted over an hour, depending on the expertise of the key informant and the depth of detail each staff was willing to share about each question asked. Notes were taken and each interview was recorded to ensure accurate scores were given for each question. WellSAT-i questions were evaluated on a zero to three-point scale: no implementation (zero), low partial implementation (one), high partial implementation (two), and full implementation (three). Outcomes of this tool identify the degree to which each policy item is being implemented.[24]

DATA ANALYSIS

Both the WellSAT and WellSAT-i tools were individually completed by two trained researchers and then compared. If overall scores varied by less than ten points, the

scores from researcher one were used. If overall scores differed by more than ten points, both researchers went through the tool and through discussion, came to an agreement on each item score.

Like questions from each tool were matched, policy sections were designated by question and matched to the WellSAT 2.0 sections. Pearson correlations were used to identify the relationship between written policy (WellSAT) and implementation (WellSAT-i) for each question individually, for like sections, and for the total score of all matched questions. Stata 12.1® (Stata/IC 14, College Station, TX) was used for data analysis. Statistical significance was set at $p \leq 0.05$.

Frequencies tables were also created to better understand what policy items are being written and implemented, written but not implemented, not written but implemented, and not written or implemented in schools. Question scores of one of two on the WellSAT were grouped together and classified as "written", while a score of zero were classified as "not written". Likewise, question scores of one, two, or three on the WellSAT-i were grouped together and classified as "implemented", while scores of zero were classified as "not implemented". Total frequency of questions in each category, across all schools was calculated by adding all school responses in each category, for all 37 matched questions and dividing by 888; the total possible answers from each school for each question, 37 questions x 24 schools (Figure 1). The frequency of section questions in each category was calculated by taking the number of schools in each category, for each section, and dividing by the total possible answers for each section; for example: section one has four questions x 24 schools = 96 possible answers (Figure 2).

RESULTS

The highest scores for individual questions in the WellSAT tool were seen in the writing of free drinking water during meals (1.5±0.88) and the district addressing recess (1.5±0.83). While lowest individual question score was seen in the writing for a Comprehensive School Physical Activity Plan or CSPAP (0.08±0.41). The highest individual question scores for WellSAT-i were seen in the implementation of hours of training for cafeteria and food service staff each year (2.96±0.2) and students having access to free drinking water during meals (2.96±0.2). The lowest individual question score was for the implementation of minutes of physical education for each grade (0.25±1.02) (Table 2). When assessed question by question, there was a significant relationship between written policy items and their implementation in two of the 37 matched questions. The question regarding student to teacher ratio in physical education class had a moderate, negative correlation, ($r=-0.47$, $p=0.02$) and the question regarding a plan for updating best practices within a policy had a moderate, positive correlation ($r=0.43$, $p=0.04$) (Table 2).

When assessed by section, a significant relationship between the written policy quality and the degree of policy implementation was identified in one of the six matched sections. There was a moderate, positive correlation ($r=0.51$, $p=0.01$) in the Implementation, Evaluation, and Communication, section. However, there was no significant relationship found when using the total score from the matched questions ($r=0.06$, $p=0.78$) (Table 2).

Frequency of schools with written and implemented policy items, written but not implemented policy items, not written but implemented policy items, and no writing or

implementation of policy items are shown in Table 3 and Figures 1 and 2. Adequate time to eat school meals, free drinking water available during meals, and the district addressing recess had the highest frequency of being written and implemented. Schools addressing time per week of physical education instruction for all elementary school students and regulation for food served during classroom celebrations in elementary schools were most frequently written about but not implemented. Restrictions in the marketing of food and beverages in curricula, advertisements in school media, and during fundraisers were all most frequently implemented but not written about. Time per week of physical education instruction for all elementary school students and specific marketing to promote healthy food and beverage choices had the highest frequency of not being written or implemented. Across all schools, 43% of policy items assessed were being written in SWPs and implemented at the school level, 38% are being implemented but not written about, 10% are not being written or implemented and 9% are being written but not implemented.

DISCUSSION

The present study explored the relationship between written SWPs and the degree to which these policies are being implemented in elementary schools. These data suggest that having a strong and comprehensive written SWP does not lead to a higher degree of policy implementation, rejecting our hypothesis. Furthermore, across all schools, 43% of policy items were being written about and implemented and 38% of policy items were being implemented without being written about. These data suggest that schools are implementing many practices to create healthy school environments and highlights areas in which schools may need further assistance. Such as including all of their wellness practices

within their written SWP and implementing all of the items, they have included in their policy to create a cohesive wellness plan.

Similar to other findings, our study found that on average participating schools had low WellSAT scores for strength (23/100) and comprehensiveness (44/100). Piekarz et al. found written strength scores to be 25/100 and Comprehensiveness scores at 44/100 in a national sample of SWPs.[16] Indicating that even though our sample was relatively small and only from one rural state, findings remain consistent with data from a national sample.

Previous studies have identified a positive relationship between the quality of written SWPs and perceived policy implementation.[19,20] Schwartz et al. found that the strength of the wording in a written SWP was a predictor of full policy implementation. Also finding comprehensiveness of a written policy as a predictor of any degree of policy implementation[19] Francis et al. looked at the physical activity section of the written SWP and also found a relationship between the quality of writing in this section and the degree to which the policy was being implemented.[20] In contrast, our data did not identify a significant relationship between the quality of policy writing and implementation ($r=0.06$, $p=0.78$).

Previous studies utilized different tools to assess SWP implementation than the tool used in the present study.[19,20] Schwartz et al. used the School Nutrition and Physical Activity Practice Survey, which was mailed to a sample of principals.[19] Francis et al. used the Alliance for a Healthier Generation's, Healthy Schools Program assessment, which was given to school wellness councils to complete. This previously mentioned significant relationship between writing and implementation may be contingent on the individual staff

completing a survey and their perception of implementation, based on quality of writing within the policy. Potentially providing bias answers compared to actual policy implementation. The WellSAT-i questions are asked face-to-face with identified key informants for each question, based on their area of expertise and responsibilities within the school. Potentially reducing the degree of reporting bias by school staff. This tool also has items that require direct observation for marketing of food and beverages throughout the school. Five of the original 68 WellSAT-i questions required observations at the school level. All five were included in the 37-matched question analysis, all of which are in section five: Wellness Promotion and Marketing (Table 2). None of our direct observations differed from the answers given by school staff, during key informant interviews. It may be such that school administrators or school wellness committee members are more likely to perceive policy implementation favorably if their school written policy includes strong language related to specific practices. The WellSAT-i tool may also provide a better reflection of SWP implementation, as the individuals answering questions about implementation are answering individually, are likely directly charged with oversight of those items at their school, and may not be directly involved with the writing of those items in the written SWP.

There was a significant negative correlation between the writing of student to teacher ratio in physical education classes and its implementation. Indicating that the schools that wrote this in their SWPs were scoring lowest in implementation and the schools that were not writing this into SWPs were scoring highest in this items implementation. This writing may be due to schools wanting to implement this policy item, but lack the availability of resources such as physical education teachers, funding

and space designated to physical education. There was also a significant positive correlation between the question regarding if the school had a written plan for updating their SWP and taking action to make planned updates. Indicating schools who have a written plan for SWP revisions are also implementing this plan. This question is found within the section: Implementation, Evaluation, and Communication, which had a significant positive correlation between the matched sections. Indicating that schools who write about having a wellness committee that updates their SWP, are also the schools who implement these practices. This question, and the questions within this section, tend to be more direct practices with minimal implementation requirements; lending themselves to seamless implementation after being established in a written policy. Other sections and questions on other practices may require more resources, collaboration, and planning to implement.

This is the first study of its kind to assess the frequency of which items were being written about and implemented within the study population. Our data shows schools are writing and implementing 43% of the policy items assessed. Questions that are most frequently written about and implemented tend to fall into section two, Standards for USDA School Meals (62%); this may be due to the need for schools to follow the Code of Federal Regulations for the National School Lunch Program in order to receive Free and Reduced Lunch funding. This code allows this sections policy items to be assessed through documentation within SWPs. Furthermore, 38% of policy items assessed were being implemented but not written about. Indicating schools are implementing more than what they are writing in their policies, not giving themselves the credit deserved. This may be due to schools not recognizing the need to write certain best practice in their SWP, as

regulations are not given as specific line items that need to be met. Highlighting the need to provide schools with more detailed examples of best practice in each policy section so that policy implementation remains consistent from year to year. This may help schools build on their current SWP, by including what they are already doing and by adding new policy items based on best practice. Questions most frequently implemented but not written frequently fall into section five, Wellness Promotion and Marketing (77%). This may be due to schools following the Code of Federal Regulations for the National School Lunch Program throughout the whole school, rather than just in the cafeteria, and not duplicating this information within the SWP. Policy items that were not written or implemented (10%) indicate the need to continually support schools with their SWP writing, increasing their awareness of these items and to better offer education and strategies for policy item implementation. Questions that are most frequently not written or implemented are found in section six, Implementation, Evaluation, and Communication (18%). These practices may seem outside the scope of the SWP as they are logistical practices that discuss the administration of the policy and thus, schools may not be aware that these practices should be outlined and included within their written policy. Policy items that are being written but not implemented (9%) may be due to a lack necessary resources or knowledge on how to best implement what is currently in their SWP. Schwartz et al. noted that a lack of coordination and resources are major barriers to SWP implementation.[19] Questions that are most frequently written but not implemented are found in section one, Nutrition Education (25%). This may be due to schools frequently writing about education curriculums, however, it may be difficult to

implement these efforts throughout existing lesson plans. Indicating the need to offer schools continued support in SWP implementation techniques.

Together, these data support the need to develop a tool that will assist schools in knowing what practices they should include in their written SWP at a greater level of detail and provide support for how to feasibility implement these practices within their schools.

CONCLUSION

To date, the majority of support for SWPs is focused on helping school districts write strong and comprehensive policies. Such supports include model policies, developed by state agencies and online toolkits to assist in the development and updates of SWPs. This study suggests that supports should be expanded to not only help schools with writing quality SWPs, but to also help schools with practical strategies to implement the items within their policy, and how to capture all school wellness efforts in their written policies.

LIMITATIONS

This study had limitations that should be considered. First, this study was conducted in part of the validation process of the updating of the WellSAT tool and WellSAT-i tool creation. Only processing data from 37 matched questions between the tools, when there were 78 questions assessed within the written policy from the WellSAT tool and 68 questions assessed during the school site visits, from the WellSAT-i tool. This offers a snapshot of questions from each section; however, it is not as comprehensive as it will be once both tools are updated. With this, WellSAT-i is still measuring perceived implementation by all staff interviewed, just as previous studies have done. However, our interviews were conducted face to face with multiple members of school staff, rather than

emailed survives to a school representative, and included observations within the school. Potentially reducing the level of bias that may be present in staff reporting of perceptions for SWP implementation. Despite these limitations, these findings highlight the need for further exploration into the ways in which schools could best utilize support in order to effectively write SWPs and implement their wellness efforts.

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Table 1: School Demographics

School	Total Students (school level)	Free and Reduced Lunch %	Number of Schools in the District	Classification
A	138	34.0	5	Rural
B	577	25.3	7	Rural
C	214	18.8	6	Rural
D	211	30.3	6	Rural
E	130	24.6	3	Rural
F	152	30.9	3	Rural
G	183	21.6	3	Rural
H	232	39.9	3	Rural
I	205	20.0	9	Rural
J	110	23.4	3	Rural
K	116	36.2	3	Rural
L	136	54.5	3	Rural
M	94	28.7	3	Rural
N	112	27.7	3	Rural
O	110	33.0	3	Rural
P	167	8.1	31	Urban
Q	671	29.5	31	Urban
R	305	19.7	3	Rural
S	89	65.8	3	Rural
T	116	43.1	3	Rural
U	261	22.2	3	Rural
V	449	18..7	4	Rural
W	129	44.7	3	Rural
X	357	40.8	6	Rural
Range	89 - 671	8.1% - 65.8%	3 - 31	--
Average	219	30.1%	6	--

Table 2: Matched WellSAT and WellSAT-i by Questions, Section, and Total

WellSAT and WellSAT-I Item Description	WellSAT Mean ± SD	WellSAT-I Mean ± SD	Correlation Coefficient	Statistical Significance
Section 1: Nutrition Education	--	--	r= 0.08	p= 0.71
There is a standards-based nutrition curriculum, health education curriculum, or other curriculum that includes nutrition.	1.38 ± 0.71	1.04 ± 1.20	r= 0.24	p= 0.26
All elementary school students receive nutrition education.	0.83 ± 0.70	1.92 ± 1.35	r= 0.12	p= 0.57
Links nutrition education with the school food environment.	1.33 ± 0.82	0.92 ± 0.97	r= 0.20	p= 0.35
Nutrition education teaches skills that are behavior-focused.	1.29 ± 0.75	1.38 ± 1.01	r= -0.15	p= 0.48
Section 2: Standards for USDA School Meals	--	--	r= 0.09	p= 0.67
Addresses access to the USDA School Breakfast and Lunch Program.	0.50 ± 0.72	2.63 ± 1,01	r= 0.27	p= 0.21
Ensures adequate time to eat.	1.25 ± 0.79	2.54 ± 0.51	r= -0.13	p= 0.53
Ensures annual training for food and nutrition services staff in accordance with USDA Professional Standards.	1.00 ± 0.98	2.96 ± 0.20	r= 0.22	p= 0.31
Free drinking water is available during meals.	1.50 ± 0.88	2.96 ± 0.20	r= -0.12	p= 0.58
Section 3: Nutrition Standards for Competitive Foods	--	--	r= 0.03	p= 0.87
Regulates food served during classroom parties and celebrations in elementary schools.	0.96 ± 0.81	0.66 ± 0.87	r= -0.02	p= 0.92
Addresses availability of free drinking water throughout the school day.	1.33 ± 0.92	3.00 ± 0.00	--	--
Regulates food sold for fundraising at all times (not only during the school day).	0.83 ± 0.76	2.54 ± 0.93	r= 0.19	p= 0.36
Section 4: Physical Education and Physical Activity	--	--	r= -0.34	p= 0.10
Addresses time per week of physical education instruction for all elementary school students.	0.88 ± 0.90	0.25 ± 1.02	r= 0.21	p= 0.32
Addresses teacher-student ratio for physical education classes.	0.67 ± 0.96	2.42 ± 1.02	r= -0.47	p= 0.02
Addresses qualifications for physical education teachers for grades K-12.	0.92 ± 0.83	2.88 ± 0.61	r= -0.28	p= 0.19
District provides physical education training for physical education teachers.	0.79 ± 0.88	2.58 ± 0.93	r= -0.38	p= 0.07
District addresses the development of a comprehensive school physical activity program (CSPAP) plan at each school.	0.08 ± 0.41	1.71 ± 1.43	r= -0.25	p= 0.23
District addresses before and after school physical activity for all K-12 students.	0.92 ± 0.72	2.46 ± 0.93	r= 0.32	p= 0.13
District addresses recess.	1.50 ± 0.83	2.83 ± 0.64	r= -0.16	p= 0.44
Recess (when offered) is scheduled before lunch in elementary schools.	0.88 ± 0.90	2.08 ± 1.06	r= 0.28	p= 0.18
Addresses physical activity breaks for all K-12 students.	0.88 ± 0.85	2.13 ± 0.95	r= -0.03	p= 0.88
District provides physical activity training for all teachers.	0.75 ± 0.79	1.46 ± 1.38	r= 0.07	p= 0.75
Joint or shared-use agreements for physical activity participation at all schools.	1.04 ± 0.95	2.38 ± 1.01	r= 0.16	p= 0.45
Section 5: Wellness Promotion and Marketing	--	--	r= 0.12	p= 0.57
Encourages staff to model healthy eating/drinking behaviors.	1.00 ± 0.88	2.17 ± 1.13	r= 0.13	p= 0.54
Encourages staff to model healthy physical activity behaviors.	1.04 ± 0.86	1.88 ± 1.26	r= -0.04	p= 0.87

Addresses staff involvement in physical activity opportunities at all schools.	0.67 ± 0.76	2.21 ± 0.93	r= -0.02	p= 0.92
Addresses food not being used as a reward.	1.13 ± 0.90	0.96 ± 1.00	r= 0.25	p= 0.24
Addresses using physical activity as a reward.	0.71 ± 0.91	2.21 ± 0.98	r= -0.03	p= 0.90
Addresses physical activity not being withheld as a punishment.	1.21 ± 0.98	2.04 ± 0.86	r= 0.30	p= 0.15
Specifies marketing/ways to promote healthy food and beverage choices.	0.50 ± 0.66	1.13 ± 1.23	r= 0.35	p= 0.09
*****Restrictions of marketing of food and beverages on signs, scoreboards, sports equipment.	0.83 ± 0.41	2.29 ± 1.12	r= -0.25	p= 0.25
*****Restrictions of marketing of food and beverages in curricula, textbooks, websites used for educational purposes, or other educational materials (both printed and electronic).	0.83 ± 0.41	2.79 ± 0.72	r= 0.06	p= 0.78
*****Restrictions of marketing of food and beverages on exteriors of vending machines, food or beverage cups or containers, food display racks, coolers, trash and recycling containers, etc.	0.83 ± 0.41	2.42 ± 1.10	r= 0.11	p= 0.62
*****Restrictions of marketing of food and beverages on advertisements in school publications, on school radio stations, in-school television, and computer screen savers and/or school-sponsored Internet sites, or announcements on the public announcement (PA) system.	0.83 ± 0.41	2.83 ± 0.64	r= 0.06	p= 0.80
*****Restrictions of marketing of food and beverages on fundraisers and corporate-sponsored - programs that encourage students and their families to sell, purchase or consume products and/or provide funds to schools in exchange for consumer purchases of those products (Box Tops).	0.13 ± 0.45	1.46 ± 0.72	r= -0.18	p= 0.39
Section 6:Implementation, Evaluation and Communication	--	--	r= 0.51	p= 0.01
Establishes an ongoing district level wellness committee.	1.00 ± 0.78	1.58 ± 0.93	r= 0.24	p= 0.26
District wellness committee has community-wide representation.	1.08 ± 0.88	1.67 ± 0.96	r= 0.24	p= 0.26
Addresses a plan for updating policy based on best practices.	0.25 ± 0.61	1.58 ± 1.25	r= 0.43	p= 0.04
Total for All Sections	--	--	r=0.06	p=0.78

Key: Section and total for all sections, correlation is highlighted in gray and precede the questions found within each section.
*Indicating questions that also required direct observations at the school level.

Table 3: WellSAT and WellSAT-I Frequency of Schools in each Category per Question

Policy Section	WellSAT and WellSAT-I Matched Question	Not Written or Implemented	Written but not Implemented	Not Written but Implemented	Written and Implemented
Section 1: Nutrition Education	There is a standards-based nutrition curriculum, health education curriculum, or other curriculum that includes nutrition.	3 (12.5%)	8 (33.3%)	0 (0%)	13 (54.2%)
	All elementary school students receive nutrition education.	3 (12.5%)	4 (16.7%)	5 (20.8%)	12 (50%)
	Links nutrition education with the school food environment.	3 (12.5%)	8 (33.3%)	2 (8.3%)	11 (45.8%)
	Nutrition education teaches skills that are behavior-focused.	0 (0%)	4 (16.7%)	4 (16.7%)	16 (66.7%)
Section 2: Standards for USDA School Meals	Addresses access to the USDA School Breakfast and Lunch Program.	3 (12.5%)	0 (0%)	12 (50%)	9 (37.5%)
	Ensures adequate time to eat.	0 (0%)	0 (0%)	5 (20.8%)	19 (79.2%)
	Ensures annual training for food and nutrition services staff in accordance with USDA Professional Standards.	0 (0%)	0 (0%)	11 (45.8%)	13 (54.2%)
	Free drinking water is available during meals.	0 (0%)	0 (0%)	6 (25.0%)	18 (75.0%)
Section 3: Nutrition Standards for Competitive Foods	Regulates food served during classroom parties and celebrations in elementary schools.	3 (12.5%)	10 (41.7%)	5 (20.8%)	6 (25.0%)
	Addresses availability of free drinking water throughout the school day.	0 (0%)	0 (0%)	7 (29.2%)	17 (70.8%)
	Regulates food sold for fundraising at all times (not only during the school day).	2 (8.3%)	0 (0%)	7 (29.2%)	15 (62.5%)
Section 4: Physical Education and Physical Activity	Addresses time per week of physical education instruction for all elementary school students.	11 (45.8%)	11 (45.8%)	0 (0%)	2 (8.3%)
	Addresses teacher-student ratio for physical education classes.	0 (0%)	2 (8.3%)	16 (66.7%)	6 (25.0%)
	Addresses qualifications for physical education teachers for grades K-12.	0 (0%)	1 (4.2%)	9 (37.5%)	14 (58.3%)
	District provides physical education training for physical education teachers.	0 (0%)	2 (8.3%)	12 (50%)	10 (41.7%)
	District addresses the development of a comprehensive school physical activity program (CSPAP) plan at each school.	8 (33.3%)	1 (4.2%)	15 (62.5%)	0 (0%)
	District addresses before and after school physical activity for all K-12 students.	1 (4.2%)	1 (4.2%)	6 (25.0%)	16 (66.7%)
	District addresses recess.	0 (0%)	1 (4.2%)	5 (20.8%)	18 (75.0%)
	Recess (when offered) is scheduled before lunch in elementary schools.	2 (8.3%)	0 (0%)	9 (37.5%)	13 (54.2%)
	Addresses physical activity breaks for all K-12 students.	1 (4.2%)	1 (4.2%)	9 (37.5%)	13 (54.2%)

	District provides physical activity training for all teachers.	4 (16.7%)	6 (25.0%)	7 (29.2%)	7 (29.2%)
	Joint or shared-use agreements for physical activity participation at all schools.	2 (8.3%)	1 (4.2%)	8 (33.3%)	13 (54.2%)
	Encourages staff to model healthy eating/drinking behaviors.	2 (8.3%)	1 (4.2%)	7 (29.2%)	14 (58.3%)
	Encourages staff to model physical activity behaviors.	2 (8.3%)	4 (16.7%)	6 (25.0%)	12 (50%)
	Addresses staff involvement in physical activity opportunities at all schools.	0 (0%)	1 (4.2%)	12 (50%)	11 (45.8%)
	Addresses food not being used as a reward.	5 (20.8%)	4 (16.7%)	3 (12.5%)	12 (50%)
	Addresses using physical activity as a reward.	1 (4.2%)	2 (8.3%)	13 (54.2%)	8 (33.3%)
	Addresses physical activity not being withheld as a punishment.	0 (0%)	0 (0%)	9 (37.5%)	15 (62.5%)
Section 5: Wellness Promotion and Marketing	Specifies marketing/ways to promote healthy food and beverage choices.	9 (37.5%)	3 (12.5%)	5 (20.8%)	8 (33.3%)
	Restrictions of marketing of food and beverages on signs, scoreboards, sports equipment.	3 (12.5%)	0 (0%)	20 (83.3%)	1 (4.2%)
	Restrictions of marketing of food and beverages in curricula, textbooks, websites used for educational purposes, or other educational materials (both printed and electronic).	1 (4.2%)	0 (0%)	22 (91.7%)	1 (4.2%)
	Restrictions of marketing of food and beverages on exteriors of vending machines, food or beverage cups or containers, food display racks, coolers, trash and recycling containers, etc.	3 (12.5%)	0 (0%)	20 (83.3%)	1 (4.2%)
	Restrictions of marketing of food and beverages on advertisements in school publications, on school radio stations, in-school television, and computer screen savers and/or school-sponsored Internet sites, or announcements on the public announcement (PA) system.	1 (4.2%)	0 (0%)	22 (91.7%)	1 (4.2%)
	Restrictions of marketing of food and beverages on fundraisers and corporate-sponsored -programs that encourage students and their families to sell, purchase or consume products and/or provide funds to schools in exchange for consumer purchases of those products.	0 (0%)	0 (0%)	22 (91.7%)	2 (8.3%)
Section 6: Implementation Evaluation and Communication	Establishes an ongoing district level wellness committee.	3 (12.5%)	1 (4.2%)	4 (16.7%)	16 (66.7%)
	District wellness committee has community-wide representation.	3 (12.5%)	1 (4.2%)	5 (20.8%)	15 (62.5%)
	Addresses a plan for updating policy based on best practices.	7 (29.2%)	0 (0%)	13 (54.2%)	4 (16.7%)

Key: Listed as number of schools (n=24) in each section, followed by this number in terms of percentage in parenthesis.

FIGURE 1: TOTAL FREQUENCY OF QUESTIONS IN EACH CATEGORY, ACROSS ALL SCHOOLS

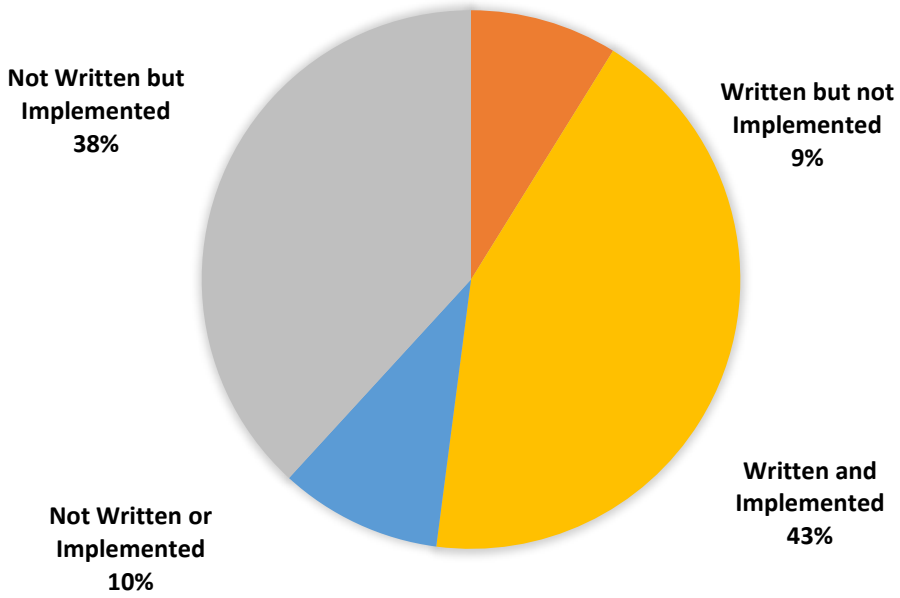
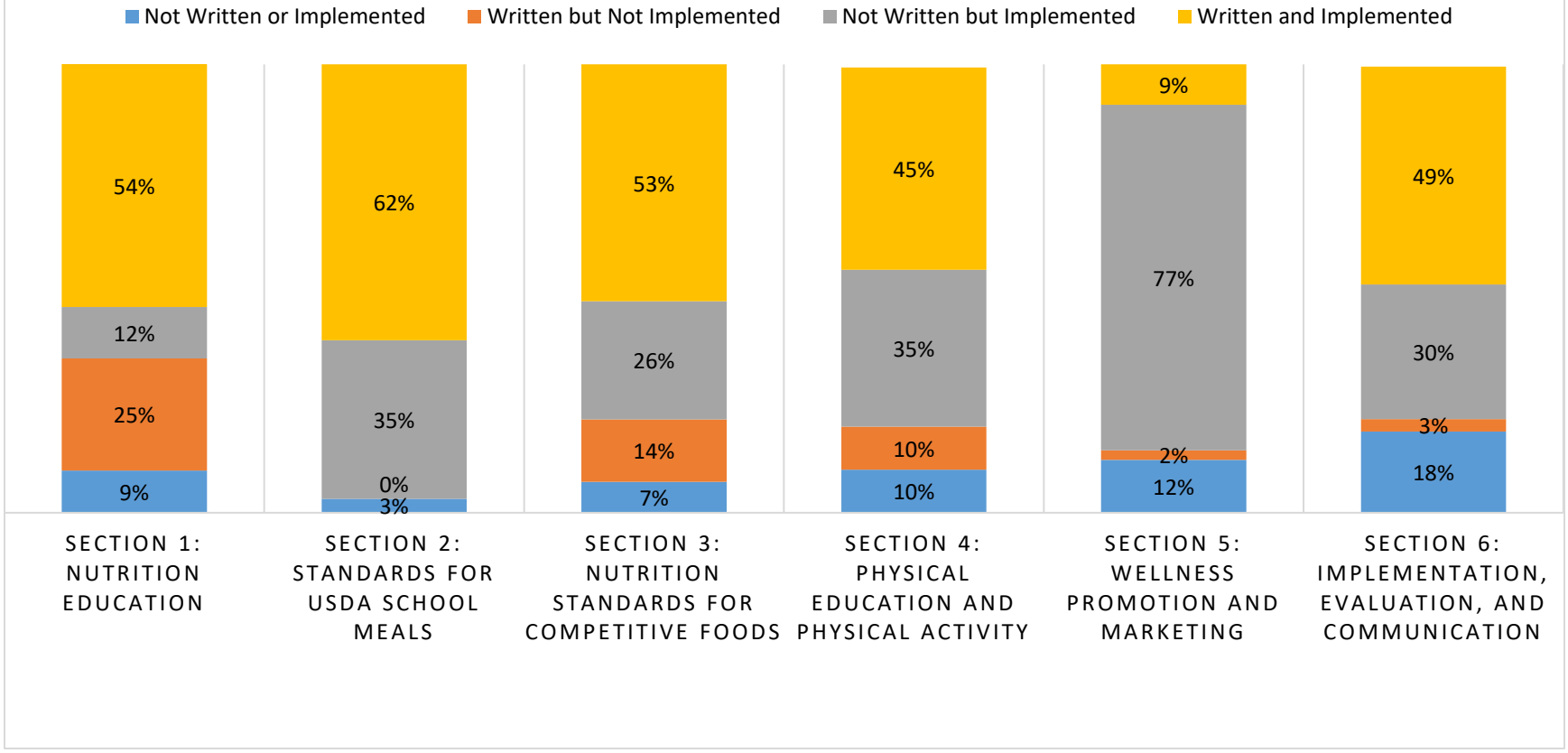


FIGURE 2: FREQUENCY OF SECTION QUESTIONS IN EACH CATEGORY



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