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The Effect of a School Nurse Intervention Program on Student Absenteeism in Jefferson
County Public Schools: A Pilot Study

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UK CON, Spring 2019

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Dedication

This work is dedicated to my husband Heath who has been so patient and supportive. You bless me with the kind of love that most people don't get to experience in their lives. To my daughters, Hannah, Millie and Samantha. You are such beautiful girls inside and out and I hope you will always work to right the wrongs you see in the world. To my dad and mom for being such loving parents, for making college non-optional, for handing down your passions for both teaching and nursing and for showing me that no one person is better than another.

Finally, I want to dedicate these efforts to Dr. Pat Calico and the late Dr. Forrest Calico. I am thankful for the time you have spent mentoring me. You exemplify love for your neighbors, community and the world around you. To Forrest for gently nudging me to places I did not think I belonged because he saw something in me. I have a special place in my heart for the both of you.

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To Karen Hatter, you spent so much time teaching me what children needed from adults working in the schools. Thank you for your visionary leadership and for making the connection between physical, social and emotional health and learning so evident.

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Abstract

Background: School attendance has a significant impact on student achievement. In early grades, students who miss 10% or more of school are considered chronically absent and at risk to be behind in reading. High school students with similar attendance patterns are less likely to enroll and stay in college after graduation. Evidence shows that the presence of school nurses can result in improved school attendance.

Purpose: The purpose of this pilot project was to implement a targeted school nurse intervention at an elementary, middle and high school in Jefferson County. The intervention included assessment by a registered nurse for children who were sick or hurt prior to school dismissal, care coordination for children with chronic illnesses and collection of data regarding identified themes surrounding absenteeism.

Results: There was no significant change in the number of overall missed school days but results indicated a statistically significant difference in absence rates for students with chronic health conditions when a registered nurse was present during the school day.

Conclusion: Care coordination by registered nurses at school can help decrease absenteeism in children with health care needs.

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The Effect of a School Nurse Intervention Program on Student Absenteeism in Jefferson County Public Schools: A Pilot Study

Introduction

Education is one of the strongest predictors of long-term health. Successful education can increase longevity, prevent sickness, decrease risk-taking behaviors and reduce health disparities (Freudenburg & Ruglis, 2007). Chronic absenteeism, defined as missing ten percent or more of school, is predictive of school failure and dropout (Balfanz & Byrnes, 2012; Kearney, 2007; London, Sanchez & Castrechini, 2016). Students who miss 10% or more of school during the early grades are less likely to read at the expected level by the end of third grade and more likely to be required to repeat a grade (Romero & Young-Sun, 2007). In 2016-2017 over 17,000 children (grades K -12) in Jefferson County Public Schools (JCPS) missed 10% or more of school (JCPS, 2016), thus increasing their risk for school failure or dropout and likelihood of poor health.

School nurses are an important solution to the problem of absenteeism. First, studies show improved school attendance when a nurse is present throughout the school day (Jacobson et al., 2016; Rodriguez, et al., 2013; Telljohann, et al., 2004a; & Telljohann, et al., 2004b). Other researchers have demonstrated that fewer students are dismissed from school when nurses are present (Allen, 2003; Pennington & Delaney, 2008; & Wyman, 2005). Case management, asthma programs and family support by school nurses are all interventions that decrease the amount of school missed (Bonaiuto, 2007; Cicutto, To & Murphy, 2013; Kerr, Price, Kotch, Willis, Fisher & Silva, 2012; Long, Whitman, Johansson, Williams & Tuthill, 1975).

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Purpose

The purpose of this project was to implement and determine the impact of targeted school nurse interventions on school attendance rates and chronic absenteeism among students in a public elementary, middle and high school in Jefferson County Kentucky.

The specific aims of this project were:

1. To determine if school nurse assessment prior to school dismissal for any ill student will reduce overall absenteeism.
2. To evaluate the effectiveness of care coordination for students with chronic health conditions on decreasing chronic absenteeism.
3. To identify commonly reported themes for absences among students with high absence rates.

This project combined elements of interventions that have been shown to decrease absenteeism, including a targeted school nursing program which involves assessment by a registered nurse for students who are sick or hurt, care coordination for children with chronic illnesses, and collection of data regarding identified themes surrounding chronic absenteeism. Activities were implemented in one JCPS elementary, one middle and one high school by registered nurses assigned to each school. The potential impact of a targeted school nurse program in these Jefferson County Schools was a decrease in chronic absenteeism.

Background

School absenteeism is a significant risk factor for poor school performance (Balfanz & Byrnes, 2012) and eventual school dropout (Epstein & Sheldon, 2002). Those with more years of education have decreased incidence of smoking, less frequent alcohol consumption, lower incidence of obesity, and less drug use (Cutler & Lleras-Muney, 2006; Freudenburg & Ruglis,

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2007). Children who are chronically absent are at the greatest risk for poor school performance and face a higher risk for smoking, drug/alcohol use and obesity (Balfanz & Byrnes, 2012). In elementary school students, chronic absences negatively impact reading and math scores (Romero & Young-Sun, 2007); and high school students with a history of chronic absenteeism are less likely to enroll and stay in college (Rhode Island Department of Education, 2018; Balfanz & Byrnes, 2012).

Nationally 14% of children are chronically absent (United States Department of Education, 2016), as is the case in Kentucky (Rupard, et al., 2017). An average of 18% of Jefferson County Public School students are chronically absent with a range of 6% to 44% across high schools in the district (Jefferson County Public Schools, 2017). Chronic absenteeism is most common in adolescents (London et al. 2016). The problem is costly both to students and to districts as schools receive funding based on their average daily attendance (Kentucky Department of Education, 2018); thus, absenteeism results in decreased revenue to districts. In 2016-17, Jefferson County lost nearly \$9 million in funding due to absences with over 500,000 missed school days and over 3.3 million lost instruction hours (Jefferson County Public Schools, 2018). In 2017, students in the district scored below the state average in reading and math, with significantly lower performance by economically disadvantaged children (Kentucky Department of Education, 2018).

The presence of school nurses who implement targeted interventions has been shown to decrease the incidence of school absenteeism. Studies have demonstrated improved school attendance when a nurse was present throughout the school day (Jacobson, Meeder & Voskill, 2016; Rodriguez, Rivera, Periroth, Becker & Wang, 2013; Telljohann, Dake & Price, 2004a, & Telljohann, Price, Dake & Durgin, 2004b). Allen (2003), Pennington and Delaney (2008) and

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Wyman (2005) showed that fewer students were dismissed from school when nurses were on site. Case management, asthma programs, and family support are interventions that have been shown to decrease school absence (Bonaiuto, 2007; Cicutto & Murphy, 2013; Long, Whitman, Johansson, Williams, Tuthill, 1975; & Kerr, et al., 2012). These studies support activities targeted to decrease absenteeism, thereby improving academic outcomes and increasing funding to school districts.

Other solutions often recommended to improve student attendance include truancy interventions and the presence of registered nurses at school each day. Processes to address truancy are outlined by laws in each state and can include charges being filed against the student or the parent/guardian (London et al., 2016). However, such programs have not been effective in reducing chronic absenteeism and do little to offer supportive measures for barriers to school attendance (London et al., 2016). Regarding the placement of registered nurses in schools, review of studies by Allen (2003), Pennington and Delaney (2008) and Wyman (2005) showed that fewer students are sent home during the day when a nurse is present, but overall attendance is not consistently improved. Targeted support to students with chronic illnesses has also been shown to decrease absences (Bonaiuto, 2007), as has intervening for those children with a history of chronic absenteeism (London, et al., 2016).

The evidence-based intervention proposed in this project takes a proactive approach to attendance. Existing evidence was utilized to develop specific nursing interventions including routing all ill or injured student to the school nurse for assessment prior to school dismissal, (Allen, 2003; Pennington & Delaney, 2008, & Wyman, 2005). This nurse initiative is an important endeavor for JCPS as it will establish a consistent process for providing nursing services leading to better outcomes for students. Potential challenges included reluctance to

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implement a new procedure on the part of school nurses, lack of principal agreement to participate in a process for the nurse to see students prior to dismissal from school, and lack of time to implement a process for collection of themes from children with a history of chronic illness due to the volume of students and limited time of project period.

Addressing chronic absenteeism is important because JCPS has below average standardized test scores (Kentucky Department of Education, 2018), and higher rates of chronic absenteeism among students (JCPS, 2018); Rupard, et al., 2017). The expectation with implementation of a targeted school nurse program was decreased absenteeism from schools for the student population and for children with chronic illnesses. This project is important because a large amount of funding is spent on contracting with nurses from a staffing agency to provide essential nursing services. A program analysis completed in 2016 concluded with the recommendation that services for students be improved by changing the model to hire nurses through the district, as schools with JCPS-hired nurses had higher percentages of immunization compliance (Wunsch, 2016). Wunsch (2016) stated that “clearly, over 55,000 health office visits indicate a need for health services within our schools”.

Methods

Setting

The project was carried out in Jefferson County Public Schools (JCPS), an urban district in Louisville, Kentucky. The mission of JCPS is to educate children by providing valuable teaching and meaningful encounters in a setting that cares for and supports each child (JCPS, n.d.). JCPS serves children in grades K-12, 63% of whom live in poverty (JCPS, 2018).

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Participant schools selected as the settings for this study were one elementary, one middle and one high school that had at least 17% of children who missed 10% or more days of school. None of the schools had ever had a full-time school nurse.

Design

A quasi-experimental two sample pre-post design was utilized to evaluate the impact of targeted activities by a full-time registered nurse on student attendance in a high-absence elementary, middle and high school.

Sample/Participants

Key study participants were three registered nurses, one in each school. To examine the effect of registered nurse interventions on student presence at school, attendance data from February 2018 was compared with data from February, 2019 to assess chronic absenteeism pre and post intervention. A total of three schools were included in the analysis and attendance records were obtained from the electronic student data system.

Intervention

Targeted interventions included nurse assessment of ill or injured students prior to dismissal from school and provision of care coordination for children with chronic illnesses. Care coordination consisted of follow up with parents/guardians and health care providers to ensure needed medications were available at school and that conditions were well-controlled. Nurses also used a standard document to report reasons communicated to them by students about missing school.

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Procedures

Approvals from the University of Kentucky Institutional Review Board (IRB) and the Jefferson County Schools IRB were acquired prior to the collection of data. Informed consent to take part in the study was obtained from participating registered nurses who were then trained on protocols for the project, including criteria for school exclusion, processes for implementing health plans/coordinating care for children with chronic illness, and collection of information regarding identified themes associated with high amounts of missed school days. Common reasons for student absences reported in the literature were utilized to develop a form which registered nurses used to report explanations often heard for missing school (Sculles, 2013; Wallace, 2017). School chronic absenteeism data were obtained from reports generated by the student information system (Infinite Campus) for February 2018 and again for February 2019. Qualitative data were collected weekly from registered nurses regarding common themes conveyed when working with high absence students. Aggregate reports on chronic absenteeism were kept in a locked cabinet in the health services office of JCPS, as were subjective data reports from registered nurses

Data Collection

For the student attendance analysis, data were obtained from the electronic student information system, Infinite Campus where all student attendance data is stored. Registered nurses participating in the pilot submitted weekly documents listing common themes noted to be reported by students as reasons for absences. Forms were submitted each week and a copy of the questions can be viewed in Appendix A.

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Data Analysis

The difference in the percentage of chronic absenteeism per pilot school was analyzed pre and post nursing intervention using independent sample t-tests. All analysis was conducted using SPSS version 25; an [*alpha*] level of .05 was used for statistical significance throughout the study.

Emerging themes were identified from nurse reports and evaluated to determine if common categories of factors hindering school attendance were observed. Data from each registered nurse were transcribed by the researcher and categorized based on commonalities

Results

Sample Characteristics

A total of 3 RN participants were included in the sample for school nurse interventions. Three school sites were included, one elementary, one middle and one high school. The majority of students qualify for free/reduced lunch at 92.60%, 80.3% and 83.3% respectively, signifying high levels of poverty in each participating school. Student enrollment in the schools included 391 at the elementary school, 619 at the middle school and 1,213 at the high school. The average number of visits to the nurse's office during the project period was 17 per day at the elementary school, 28.5 at the middle school and 3.7 per day at the high school.

Nurse Interventions

There was no significant change in the number of overall school absences for all schools (see Table 1). Similar findings were noted for chronic absenteeism (see Table 2).

The second project objective was focused on the impact of registered nurse care coordination for students with chronic illnesses. The percentage of health conditions identified in students increased at each school once a nurse was in the building daily. Table 3 outlines the difference

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between identified health conditions pre and post intervention. The mean number of days students with chronic illnesses were absent decreased across all schools from 15.87 to 8.91 at the elementary level, 13.12 to 9.37 at the middle school level and 22.3 to 16.93 at the high school. These changes were all statistically significant. Results can be viewed in Table 4.

Factors that contribute to Student Chronic Absenteeism

The third objective of the project was to explore attitudes among high-absence students and determine if these factors differ between school levels. The most common reasons nurses reported students gave for missing school were for illness, contacting parents without seeing the nurse first, school drama and for bullying. Results per school and district level can be viewed in Table 5.

Discussion

The purpose of this study was to determine the impact of targeted interventions by school nurses on attendance, including chronic absenteeism in a public elementary, middle and high school in Jefferson County, Kentucky. While there was a decrease in mean absences for elementary and high school students, the change was not significant. However, a significant improvement in school attendance was observed among students with identified health conditions among all schools.

School Nurse Assessment

Although results for overall attendance, including chronic absenteeism, did not show statistical differences, mean absenteeism rates improved at the elementary and high school levels but increased slightly higher at the middle school level. Variance in the number of office visits may have influenced nursing assessment and time spent with patient. The nurse placed in the middle school averaged nearly eight times as many visits per day as the high school nurse. The

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substantial volume of clinic flow may have impacted the amount of time the nurse had to spend on parent contacts, patient teaching or coordination of care which could have impacted student attendance.

Care Coordination

An increase in identification of health conditions coupled with positive findings relating to reduction of absenteeism in participating schools support the value of having a registered nurse on site throughout the school day to help coordinate student health care. These findings support similar results noted by Bonaiuto (2007), Cicutto et al (2013), Kerr, et al (2012) and Long, et al (1975) and should be considered in any district initiatives to improve school attendance.

Qualitative Reports

Commonly noted reason for absences by project participants varied between school types. Illness was often a factor at the elementary levels, as was bullying and drama at school. Middle school reasons included illness, drama at school and not liking school. Of primary concern at the high school level was students leaving school without being assessed by the nurse first despite the change in procedure communicated by the principal at the start of school.

Limitations

Several limitations were identified in the design of this study. Registered nurses were recruited through a nurse staffing agency which provides nurses for JCPS on a contractual basis. These nurses are evaluated by someone other than the school district and they are not typically well integrated into the school culture. This may have impacted nurse interest/ability regarding carrying out project activities. Another limitation involved the middle school site. After two months the nurse who was initially hired left the position and was replaced which interrupted the ability to develop relationships with students. Finally, there was a relatively high percentage of

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students enrolled in the English/Second Language (ESL) program, for whom English was not the primary language spoken by the student or in the home. Language barriers may have impacted communication between the nurses, students and families.

Recommendations for The Future

Recommendations for future research include continuing the study for a period of at least two to three years. Additional time will permit nurses to build relationships with students, families and staff. Allowing the school community time to gain trust will facilitate relationships and connections that will encourage communications between parents and the school nurse. It will also integrate the nurses into the school, which will be more likely to prompt teachers to send children to the nurses prior to allowing them to call home.

Conclusion

The goal of this study was to demonstrate the impact of targeted registered nurse interventions on school absenteeism in a public elementary, middle and high school in Jefferson County, Kentucky. In nearly six months the overall attendance, including chronic absenteeism, decreased at the elementary and high school sites, although results were not statistically significant. School attendance was improved in those students with health conditions across all project schools, suggesting that care coordination by registered nurses can help decrease chronic absenteeism in children with health care needs.

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Table 1 *All absences before and after presence of RN at school*

| All Absences | | | |
|---------------------|-----------------------------------|------------------------------------|-----------------|
| School | Pre-intervention Mean (SD) | Post-intervention Mean (SD) | <i>p</i> |
| Elementary | 7.3 (6.42) | 6.78 (6.38) | .177 |
| Middle | 6.85 (6.5) | 7.24 (7.12) | .301 |
| High | 13.75 (15.05) | 12.85 (14.02) | .108 |

Table 2 *Chronic absences before and after presence of a RN at school*

| Chronic Absences | | | |
|-------------------------|-----------------------------------|------------------------------------|-----------------|
| All Absences | Pre-intervention Mean (SD) | Post-intervention Mean (SD) | <i>p</i> |
| Elementary | 7.3 (6.4) | 6.7 (6.38) | .184 |
| Middle | 17.39 (6.0) | 17.85 (6.89) | .549 |
| High | 24.67 (16.2) | 24.33 (15.3) | .712 |

Table 3 *Percentage of students at school with identified health conditions pre/post intervention*

| | Identified Health Conditions 2017-2018 | Identified Health Conditions 2018-2019 | Change in number of students | % of school population with chronic health conditions pre intervention | % of school population with chronic health conditions post intervention |
|------------|---|---|-------------------------------------|---|--|
| Elementary | 30 | 101 | 71 | 6.85% | 25.8% |
| Middle | 75 | 170 | 95 | 12.8% | 27.5% |
| High | 106 | 166 | 60 | 8.1% | 13.7% |

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Table 4 *Chronic absence in students with health conditions pre and post placement of nurses*

| Absences in Students with Chronic Health Conditions | | | |
|--|-----------------------------------|------------------------------------|-----------------|
| All Absences | Pre-intervention Mean (SD) | Post-intervention Mean (SD) | <i>p</i> |
| Elementary | 15.87 (12.8) (n=101) | 8.91 (7.7) | .00 |
| Middle | 13.12 (11.9) (n= 166) | 9.37 (8.99) | .001 |
| High | 22.3 (18.97) (n=191) | 16.93 (16.9) | .004 |

Table 5 *Most common reasons reported by students for missing school*

| Reasons Students Give for Wanting to Miss School | | | |
|---|---|---|-------------------------|
| Elementary | Illness (100%) | Bullying (86%) | Drama at school (86%) |
| Middle | Illness (100%) | Drama at school (92%) | Don't like school (92%) |
| High | Staff letting students call home (100%) | Direct contact to parent by student (65%) | Illness (47%) |
| All schools | Illness (80%) | Staff letting students call home (64%) | Drama at school (55%) |

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Appendix A

Weekly Absence Reporting Worksheet Questions

1. Date
2. School type:
 - a. Elementary
 - b. Middle
 - c. High
3. Please check reason students give for wanting to miss school
 - a. Bullying
 - b. Drama at school
 - c. Treated differently by teachers and staff
 - d. Feel not liked by staff
 - e. Staff letting students call home to check out when not needed
 - f. Direct contact to parents by student(s)
 - g. Illness
 - h. Worrying/anxiety
 - i. Upset
 - j. Like to stay home
 - k. Family stressors
 - l. Don't like school
 - m. Bereavement
 - n. Concerns for safety
 - o. Perception of not being liked
 - p.** Others

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