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PHYSICAL ACTIVITY OF SCHOOL FACULTY AND RELATED PROFESSIONAL DEVELOPMENT

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ABSTRACT

The purpose of this study was to examine the possible influence of physical activity (PA) focused professional development (PD) sessions for school faculty on the PA they performed themselves or implemented in the classroom for their students. The relationship between perceived value of PD and the reported PA and perceived wellness of school faculty was also evaluated. A survey was developed using previously validated questionnaires and distributed electronically to school faculty in 82 schools in 23 school districts in the metropolitan area of Denver, Colorado, USA on two occasions during the 2014-15 academic year. Respondents were asked to self-report the amount of PA they participated in, their self-perceived health status, and their personal value of PD sessions among other questions. Many faculty members reported that they met PA guidelines and felt that they were in good overall health. Approximately 47% and 39% of respondents stated that PD had no effect on changing their own health habits or their students' health habits, respectively. There was no correlation between whether a respondent reported performing more PA and their perception of the value of PD. Because many respondents reported meeting PA guidelines indicating a personal value of PA, these results indicate that there may be an additional factor beyond a faculty member's personal value of PA that is influencing the teachers' perceived value of PD. A non-trivial number of respondents reported changes in health behaviors for themselves or their students due to PD sessions indicating that PD related to PA may be a useful tool in influencing the health behaviors of faculty and students if properly developed and implemented.

Keywords: *Classroom, student, teacher, exercise, role model.*

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1. INTRODUCTION

It is well known that children who perform physical activity (PA) on a regular basis benefit both physically by decreasing the risk for obesity and related chronic disease (Booth, Roberts, & Laye, 2012) as well as mentally (Healthy People 2020). It has also been established that children who participate in PA during school demonstrate more on-task behavior and create less classroom disruptions (Mahar, Murphy, Rowe, Golden, Shields, & Raedeke, 2006; Mahar, 2011; Ma, LeMare, & Gurd, 2014; Multender-Wijnsma, Hartman, de Greef, Bosker, Doolaard, & Visscher, 2015; Grieco, Jowers, Errisuriz, & Bartholomew, 2016). Furthermore, PA in schools has been shown to increase academic performance in the classroom (Mullender-Wijnsma et al., 2015; Fedewa, Ahn, Erwin, & Davis, 2015) as well as performance on standardized testing (Donnelly & Lambourne, 2011). Clearly, there are many benefits to implementing PA into classrooms on a regular basis.

PA among adolescents can be increased through the influence of positive role models and support from their schools (Babey, Wolstein, & Diamant, 2015). Schools represent an excellent opportunity to reach a majority of children in the United States, as about 50 million children are enrolled in public schools across the country (Snyder, de Brey, & Dillow, 2017). Classroom teachers are in a unique position to behave as positive role models for PA to many young students in their classrooms in order to increase the PA these students perform. These instructors may also be able to implement structured PA breaks for students into their classroom schedules.

Furthermore, the implementation of classroom exercise breaks has been shown to be an effective method to increase the amount of PA children participate in with little to no disruption to classroom academic instruction (Bailey & DiPerna, 2015). Teaching classroom instructors and school faculty how to implement these exercise breaks into their classroom on a daily basis could potentially increase the amount of PA that children participate in on a regular basis. One potential approach to increasing school faculty knowledge and implementation of PA is through professional development (PD) sessions. These sessions could potentially focus on increasing the amount of PA students perform through both increasing classroom PA and increasing the amount of PA school faculty performs as role models.

The purpose of this study was to evaluate the participants' view of the PD sessions and their belief about whether or not the PD session influenced either their own PA behavior or the PA opportunities that they implement for the students in their classrooms. Additionally, the self-reported PA and overall health of faculty of pre-kindergarten through 12th grade classrooms was evaluated in

correlation with the participant's value of PD. Additionally, the relationship between whether a participant seemed to value PA personally as demonstrated by their personal attainment of PA guidelines and that participant's reported value of the PD sessions was assessed. This relationship was used to determine whether a classroom teacher that personally values PA is more likely to value PA related PD sessions intended to influence the PA of their students. Overall, this study aims to evaluate the effectiveness of a potentially underutilized method of increasing PA for students through PD and personal attainment of PA for school faculty.

2. METHODS AND MATERIALS

This study was a secondary analysis of survey data collected by Kaiser Permanente of Colorado that was stripped of all identifying information prior to being shared with the authors of this paper. The Staff Survey (SSV) was developed using several different components from previously validated questionnaires (Craig, Marshall, Sjostrom, Bauman, Booth, Ainsworth, Pratt, Ekelund, Yngve, Sallis, & Oja, 2003; Grow, Saelens, Kerr, Durant, Norman, & Sallis, 2008; Centers for Disease Control and Prevention, 2017). The survey assessed demographic information including age, gender, race and ethnicity, height and weight, role in the school (e.g., teacher, administrator, etc.), grade level taught, as well as PA and perceived health status. Faculty members were also asked about their participation in PD sessions and the influence of these sessions on their PA or the PA they offered to students in their classrooms. PD sessions were implemented on a school-by-school basis without a uniform structure or materials.

The SSV was administered online two separate times during the 2014-15 academic year: once during the 2014 fall semester (November-December 2014) and once during the 2015 spring semester (May 2015) in 82 schools in 23 school districts in Colorado. At each administration the online system prompted all faulty to complete the SSV. Faculty was allowed approximately one month to complete the SSV. In total, 1,278/6,752 surveys were completed and returned, representing an 18.23% response rate.

Data were examined, and all outliers and unreasonable responses were removed for a final total of 1,193 usable responses. After outliers were removed, descriptive statistics were calculated for all variables of interest such as PA levels, the influence of PD on the teachers' own PA, and the influence of PD on the PA of students. This analysis was reviewed by the Northern Arizona University Institutional Review Board and was deemed to be nonhuman research due to the lack of any identifying information.

3. RESULTS

The majority (83.2%) of respondents were female and reported being Caucasian or white (88.2%) and non-Hispanic/Latino (92.6%), and reported working primarily as a teacher (63.6%). The average age of respondents was 44.0 ± 10.8 years of age. See Table 1 for additional details about respondent characteristics and physical activity.

Table 1: Respondent characteristics and PA for the 2014-15 academic year (N = 1,193)**

Characteristic	Fall 2014	Spring 2015	2014-15 Academic Year
Age (*M* ± SD)	43.3 ± 10.8	45.3 ± 10.7	44.0 ± 10.8
BMI (*M* ± SD)	26.2 ± 5.5	25.7 ± 5.1	26.0 ± 5.4
*Sex			
Male	131 (17.3%)	69 (15.3%)	200 (16.8%)
Female	625 (82.6%)	368 (81.6%)	993 (83.2%)
*Race/Ethnicity			
Hispanic/Latino	61 (7.9%)	30 (6.7%)	91 (7.4%)
White/Caucasian	679 (87.6%)	399 (89.3%)	1078 (88.2%)
Black/African American	9 (1.1%)	4 (0.9%)	13 (1.1%)
Asian/Pacific Islander	18 (2.3%)	8 (1.8%)	26 (2.1%)
Indian/Alaskan Native	8 (1.0%)	6 (1.3%)	14 (1.1%)
*Primary Role in School			
Teacher	288 (72.7%)	104 (47.2%)	392 (63.6%)
Administrator	19 (4.8%)	14 (6.4%)	33 (5.3%)
Staff/Other	89 (22.5%)	102 (46.4%)	191 (31.0%)
*PA Guidelines			
Met	503 (64.6%)	314 (69.3%)	817 (66.3%)
Not Met	276 (35.4%)	139 (30.7%)	415 (33.7%)

Note: *Categorical data are presented as N (%). **All values may not equal 100% due to missing responses and rounding.

Most respondents (66.3%) reported that they met PA guidelines for adults of at least 150 minutes per week of moderate to vigorous PA (Haskell, Lee, Pate, Powell, & Blair, 2007; US Department of Health and Human Services, 2017). In addition, the majority of respondents reported good perceived overall health status, with the most common response being "good" (37.9%), followed by "very good" (35.7%), "fair" (12.1%), "excellent" (10.3%), and "poor" (1.0%); no response was given by 3.1% of respondents.

Many respondents reported that PD sessions did not have an impact on their PA habits (47.1%) or the PA of their students (38.7%) through changes made in the classroom. Regardless, many respondents (43.7%) had made a few or

several changes in their classrooms with the intention of positively changing the health of their students, and an additional 17.6% of respondents were thinking about or planning on making changes to their classroom PA. See table 2 for additional data about responses.

Table 2: Influence of PD activities (N = 1,280)**

Question/Response	Fall 2014	Spring 2015	2014-15 Academic Year
How much did the PD influence changes in your personal health?*			
None	341 (47.2%)	206 (46.9%)	547 (47.1%)
Thinking about making changes	61 (8.4%)	23 (5.2%)	84 (7.2%)
Planning some changes	81 (11.2%)	42 (9.6%)	123 (10.6%)
Made a few changes	190 (26.3%)	134 (30.5%)	324 (27.9%)
Made several changes	50 (6.9%)	34 (7.7%)	84 (7.2%)
How much did the PD influence changes in your students' health?*			
None	269 (37.9%)	173 (40.0%)	442 (38.7%)
Thinking about making changes	64 (9.0%)	33 (7.6%)	97 (8.5%)
Planning some changes	63 (8.9%)	41 (9.5%)	104 (9.1%)
Made a few changes	210 (29.6%)	132 (30.6%)	432 (30.0%)
Made several changes	103 (14.5%)	53 (12.3%)	156 (13.7%)

Note: *Categorical data are presented as N (%). **All values may not equal 100% due to missing responses and rounding.

The correlation between the amount of PA a respondent performed and whether they felt influenced by PD was evaluated using a Spearman correlation in SPSS. It was found that there was no correlation between the amount of PA a respondent completed and whether the PD had influenced changes in their own PA or the PA of their students (See table 3).

Table 3: Correlation of the total minutes of MVPA to respondents' perception of PD

Question	Pearson Correlation
How much did professional development activities influence changes that you made regarding your physical health and wellness practices?	.036
How much did the professional development activities influence changes that you made regarding your students' physical health and wellness (e.g. increase classroom brain breaks, increase in physical movement with your students)?	.009

Note: * indicates $p < .001$

4. DISCUSSION

The purpose of this study was to evaluate the PA levels and self-reported health status of teachers and school faculty, as well as the possible influence of PD on PA levels for both the teachers themselves and for their students. As indicated above, most of the teachers are meeting PA guidelines and reported that they have good overall health, but many respondents did not feel influenced by PD to change PA habits either for themselves or in their classrooms. Additionally, there was no correlation between whether a respondent seemed to personally value PA as indicated by the amount of PA they performed and whether that respondent felt influenced to change PA either for themselves or for their students as a result of the PD.

Because children spend so much of their time in school, the classroom is a great setting to increase the amount of PA children perform, and to educate children about PA so they can form positive lifelong habits. One approach to increasing PA for children in the school setting is to integrate PA into classrooms and enable teachers and faculty to facilitate and model PA. These objectives could possibly be obtained by adapting a PD program so that it is perceived as more valuable to teachers. If more effectively implemented, PD could be better utilized to make changes to the amount of PA offered in a classroom and to improve teachers' personal PA habits so they may serve as positive role models to students.

Respondents that reported performing more PA did not value the PD any more than those who reported performing less PA. This indicates that there was an additional factor beyond a respondent's personal value of PA that influenced their perceived value of the PD. Possible factors could be teachers not having input in planning the PD, or short detached lessons rather than a continuous, ongoing, and long-term process that is integrated into the culture of the school (Torff & Sessions, 2008; Bayar, 2014). According to survey responses, it appears that a non-trivial number of respondents made changes to either their own PA or PA implemented in their classrooms as a result of PD, indicating that it was somewhat effective. Revising the PD program to make it more universally valuable to school faculty may influence a greater number of faculty members to make changes regarding PA for both themselves and for their students. More data about the faculty's responses to the PD implemented through this program would be useful to determine what changes need to be made in order to improve PD.

Possible limitations of this study include the self-reported design of the PA surveys, which could result in incorrect values. The PD sessions were also not uniform, which does not allow an understanding of what components of PD may be effective within this study design. Additionally, respondents from the fall

semester may not be the same respondents from the spring semester, so the data are not longitudinal in nature. Still, these findings are helpful to funders, school faculty, and researchers attempting to improve the health of the school environment. Overall, a number of respondents reported that PD influenced changes in their own or their students' PA, indicating that PD sessions could be a valuable tool in increasing the amount of PA performed by both school faculty and their students if it is adapted and implemented successfully.

5. CONCLUSION

This article adds knowledge about a possibly underutilized approach to educating teachers and school faculty about PA and PA implementation in classrooms. Using this information, it may be possible to increase the amount of PA children are participating in by restructuring classroom based activities and increasing the amount of PA opportunities provided in the typical school classroom. Teachers could also be influenced to perform PA themselves and thus serve as positive role models to students.

Our research indicates that PD sessions are somewhat effective and may provide a great opportunity to impact the activity and health of children and adolescents if these sessions are improved to be more valuable to teachers. Future research should determine which components of PD are effective in increasing PA in the school setting, so that uniform and effective PD programs can be utilized in many more schools. Overall, this article is useful to school faculty, researchers, and other funders that are trying to increase the amount of PA children participate as a primary evaluation of a potential method to influence classroom activities that is currently underdeveloped and underutilized.

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