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Psychosocial Aspects of Physical Activity and Fitness In Special-Population, Minority Middle School Children

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PSYCHOSOCIAL ASPECTS OF PHYSICAL ACTIVITY AND FITNESS IN SPECIAL-POPULATION, MINORITY MIDDLE SCHOOL CHILDREN.

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Special-population research predicting physical activity (PA) and fitness with minority middle school children from at-risk environments is rare. Hence, the purpose of our investigation was to evaluate the ability of important social cognitive and environment-based measures to predict PA and fitness with children with developmental delay, cognitive, and emotional impairments. Children **(***N* = 89, ages 11-15) completed questionnaires assessing social cognitive and environment-based constructs, self report PA, and completed fitness testing. Correlational results supported some hypotheses. The descriptive and correlational results also indicated commonalities with similar research on non special-population minority middle school children from at-risk environments.

KEYWORDS: health, special populations, cognitive disability, children, fitness

INTRODUCTION

The beneficial outcomes of adequate physical activity (PA) are well documented and include cognitive (e.g., enhanced neurocognitive function), emotional (e.g., reduced stress), and physiological (e.g., reduced heart disease) benefits (Friedenreich & Orenstein, 2002; Sibley & Etnier, 2003; USDHHS, 1996). For instance, it is thought that decrements in neuroplasticity, attention, and cognitive processing are associated with decreases in PA in people without disabilities (Colcombe & Kramer, 2003; Colcombe et al., 2003; Tomporowski, Davis, Miller, & Naglieri, 2008). Such cognitive difficulties are then thought to be exacerbated for individuals with pre-existing cognitive difficulties as a result of learning, attention and sensory impairments (Anderson & Heyne, 2010). As a result, the beneficial cognitive outcomes of PA for children with disabilities are particularly important relative to children without disabilities (Anderson & Heyne, 2010).

Unfortunately, research focused on the PA and fitness of individuals considered under the umbrella term special populations[1] is rare. More specifically, research on both adults and children with cognitive impairment, emotional impairment, and early childhood developmental delay is limited. For instance, in a 2008 review of research in the area of intellectual disabilities (ID) only 19 studies were found (Frey, Stanish, & Temple, 2008). Furthermore, researchers examining ethnic minority children labeled special population living in at-risk communities (e.g., the inner city) are even scarcer. Children designated as special population who are also minority children from inner cities are at greater risk, relative to Caucasian children from higher socio-economic status (SES) families, for overweight and obesity (Gordon-Larsen, Nelson, Page, & Popkin, 2006).

In their review, Frey et al. (2008) noted that the majority of research on youth with ID is fitness related and little research has been conducted on PA. However, they did note that eight out of 11 studies indicated that youth with ID engaged in less PA compared to youth without ID. Furthermore, in a national study examining school participation across PE, recess, playground games and sports, as well as non PA activities (e.g., art class), children with ID had the second lowest participation scores among 13 different disabilities ranging from hearing and vision impairments to neurological problems

(Simeonsson, Carlson, Huntington, McMillen, & Brent, 2001). Frey at al. (2008) suggested that a variety of psychosocial and behavioral factors associated with ID likely limits children's opportunities to engage in PA. For instance, physical education (PE) teachers often cite their own lack of professional preparation as a major barrier to providing PA opportunities to children with visual impairments (Lieberman, Houston-Wilson & Kozub, 2002) and parents agree (Stuart, Lieberman, & Hand, 2006). Fitzgerald (2005) has reported that some boys with disabilities felt ignored and teased during PE.

Taub and Greer (2000) have also indicated that children with disabilities in PE are teased, not allowed to participate, and are not picked for teams. Furthermore, Leiberman and Houston-Wilson (1999) have indicated that students with disabilities were often seen as over-protected by their parents, and lacked confidence as a result of limited experiences. Hence, they often came to PE class's afraid and lacking skills and confidence. According to Martin (in press) students with disabilities are often excluded by the PE teacher because of their disability. Similar arguments have been made for children with emotional impairments who often engage in disruptive behaviors in PE class (Jeltma & Vogler, 1985). In addition to emotional impairment, people with learning disabilities also do not get enough PA as they face various barriers to PA engagement and often need functional and social support (Messent, Cooke, & Long, 1998, 1999). Frey and colleagues (2008) have noted an absence of research on the determinants of PA in special-population children and have specifically called for research in this area. Similarly, Reid (2000) argued for the examination of PA as a dependent variable with a focus on theoretically meaningful correlates.

Therefore, research studies geared toward understanding factors associated with the efforts of special-population at-risk children to be physically active and their fitness levels are of particular value. In a line of research with at-risk minority groups, Martin and colleagues (Martin, Hodges-Kulinna, Cothran, Dake, & Fahoome, 2005; Martin, Oliver, & McCaughtry, 2007; Martin, McCaughtry, & Shen, 2008; Martin & McCaughtry, 2008; 2009), accounted for an important amount of variance (e.g., 10%) in PA using psychosocial constructs. Additionally, research examining environmental constructs has found that a proxy (i.e., time spent outside) for the influence of the environment was significant in predicting PA for inner-city African American children (Martin & McCaughtry, 2008). While environmental constructs have garnered attention in recent PA research, most investigators have examined perceptions of the neighborhood built environment. Very few scientists (e.g., Robertson-Wilson, Lévesque, & Holden, 2007) have examined how the school environment (i.e., school building and campus) is related to PA and those researchers have not examined children designated as special population.

Examining the school environment is a particularly important consideration in at-risk communities because children often have limited facilities and equipment available to them outside of school, and play areas are likely to be poorly maintained or unsafe. When facilities and equipment are available, they are often in poor condition (McCaughtry, Martin, Kulinna, & Cothran, 2006).

We used social cognitive theory (SCT) to guide our study for theoretical and empirical reasons. We first investigated two forms of self-efficacy: barrier self-efficacy and proxy self-efficacy. Barrier self-efficacy reflects a sense of personal agency; whereas, proxy self-efficacy pertains to ones confidence in getting others to help them pursue their goals (Bandura, 1997). Dzewaltowski and colleagues have recently recommended that PA researchers assess multidimensional self-efficacy to discover which form of self-efficacy (e.g., barrier versus proxy) most strongly predicts PA (Dzewaltowski, Karteroliotis, Welk, Johnston, Nyaronga, & Estabrooks, 2007). Dzewaltowski et al. (2007) claimed that proxy efficacy is particularly important to assess in middle school children because they lack

control over school PA practices. Many researchers have found that barrier self-efficacy is related to PA in minority children. For example, Martin et al. (2008) found that barrier self-efficacy predicted PA in Arab American middle school children. Similarly, Beets, Piteti, and Forlaw (2007) found strong support for the relationship between barrier self-efficacy and PA with adolescent girls.

In a study of predominately African American fifth-grade students, children reporting strong self-efficacy for seeking support for their PA involvement were more likely to be vigorously physically active compared to less efficacious children (Saunders et al., 1997). Proxy self-efficacy may be particularly important to assess with children having impairments because relative to children without impairments, the need for adult functional support of their PA is more necessary.

We also measured social support as the connection between social support and PA has been consistently upheld in PA research. For example, Beets et al., (2007) found peer social support was a direct predictor of PA, maintaining that social support is multidimensional in that it is offered by distinct groups (e.g., parents). Supporting this view, they found that peer support was linked to PA while support from adults was not. Other researchers have reported similar positive associations between social support and PA (Davison, 2004; Sallis, Prochaska, & Taylor, 2000). However, we could find no research aimed at determining if social support derived specifically from school classmates is important for PA involvement or fitness in children designated as special-population. Classmate social support may be particularly relevant for children with cognitive or emotional impairments because numerous researchers have clearly indicated that a lack of support (e.g., neglect), as well as intentional rejection by peers, limits PA engagement.

As for the school environment, we examined both the physical and social school PA environment. The "physical" school PA environment refers to the physical and institutional features of the school. For instance, whether the school has a gym or outdoor areas conducive to PA or the size of those areas. In contrast, the "social" school PA environment targets the degree to which school personnel (e.g., teachers) are perceived to organize, encourage, promote, or supervise PA.

Although the neighborhood built environment has been linked to PA (e.g., Evenson, Scott, Cohen, & Voorhees, 2007), we are only aware of two research studies addressing the school environment (Martin, McCaughtry, Flory, Murphy, & Wisdom, in press; Robertson-Wilson et al., 2007). In their study of middle school children, Robertson-Wilson and colleagues (2007) found that students who considered their school environment to be PA friendly also reported using more school PA equipment and participated more often on school sports teams. Martin et al. (in press) found that the activity friendliness of both the social and built environment of the school was positively related to children's PA.

In brief, our major purpose was to examine important social, cognitive, and school environmental constructs to determine if they predicted PA and fitness in special-population at-risk minority middle school children. Assessing a broad range of constructs (i.e., social, cognitive, & environmental) allowed us to determine the relative importance of each one. We hypothesized that children with strong proxy and barrier self-efficacy, positive perceptions of PA classmate social support, and who view the school environment as facilitative of PA would report more PA, and exhibit greater fitness, compared to children with less favorable perceptions.

A secondary goal was examining our data for gender differences. Researchers examining PA and related psychosocial variables have found a consistent pattern of gender differences: boys are more active than girls and report greater efficacy (Martin et al., 2008). Given the significant sociocultural norms that validate sport and PA as a masculine activity, we also expected that boys

would provide more PA support to their male classmates compared to girls. Similarly, if girls internalize messages suggesting that PA is primarily a male activity, they might offer limited support to their female classmates. Thus, we expected boys to report more classmate social support than girls. Given the exploratory nature of the school environment aspect of our study, we offer no apriori hypotheses as to whether gender differences in perceptions of the school environment would emerge.

METHOD

Participants and Setting

A sample of eighty-nine minority middle school children with recognized disabilities from four schools in four different suburban school districts in a Midwestern state in the USA participated. Children were designated as special education students. Due to strict school confidentiality regulations we were unable to obtain detailed information on each child's specific impairment. However, we were able to ascertain that children in the current study were considered to be cognitively impaired, emotionally impaired or had an early childhood developmental delay as determined by the state Department of Education Office of Special Education and Early Intervention Services. More specifically low IQ and reading test scores were largely responsible for children being designated as mildly cognitively impaired; whereas, behavior difficulties in the affective domain led to an emotional impairment designation.

Children were in grades 6, 7, or 8 and ranged in ages from 11 to 15 years (M = 12.0, SD = .92). Breakdown by gender was 29.2% female (n = 26) and 70.8% male (n = 63). Racial distribution was 100% minority as follows: African American (89%), Hispanic American (8%), Arab American (1%), and Multiple Race (2%). Schools were located in the school districts in some of the most economically-depressed cities in the state. Nineteen to 53% of the families with children in our study were living in poverty (U.S. Census Bureau, 2008).

Instruments

A team ranging from five to eight data collectors provided individual assistance to each student. In almost all cases, students were read each question aloud and a variety of examples were provided to illustrate the meaning of the question. All questions have been used with similarly aged children, but to our knowledge have not been used with children designated as special population students (Duncan, Duncan, & Strycker, 2005; Dzewaltowski et al., 2007; Martin et al., 2005, 2007, 2008; Robertson-Wilson et al., 2007).

Demographic Scale.

The demographic information provided by students included their school name, grade level, age, gender, and race.

Social Cognitive Theory Measures.

Barrier self-efficacy (BSE). Children responded to four items on a seven-point likert scale. Items were taken from valid and reliable youth PA self-efficacy scales used previously (Barnett, O'Loughlin, & Paradis, 2002; Saunders et al., 1997; Trost, Saunders, & Ward., 2002b). A sample item was, "How confident are you of participating in physical activities that make you breathe hard or feel tired when you have a lot of homework to do." Anchors were "not at all confident" (1) and "very confident" (7). All items were summed and divided by four to obtain an overall barrier self-efficacy score ranging from one to seven.

Proxy self-efficacy (PSE). Children responded to three items on a six-point scale. We used three items from the six-item Proxy Efficacy for Physical Activity (PEPA) – School scale developed by Dzewaltowski et al. (2007) for use with middle school children[2]. We did not use three items that pertained to after-school programs because participants in our study did not attend after-school programs. A sample item was, "How sure are you that you can get the school staff or your teachers to plan physical activities for you and your classmates." Anchors were "not at all sure" (0) and "completely sure" (5).

All items were summed and divided by three to obtain an overall proxy self-efficacy score ranging from 0 to 5. Dzewaltowski et al. (2007) provided extensive evidence (e.g., confirmatory factor analysis) for the reliability and validity of the PEPA scale.

Classmate social support (CSS). Children were asked four questions on a five-point scale from the "Friends" subscale developed by Duncan et al. (2005). We made two minor changes. First, we changed "friends" to "classmates" because we were only interested in participants' perceptions of their classmates' support of PA. Second, we eliminated one question addressing transportation because the children were too young to drive. Duncan et al. (2005) obtained items from valid and reliable social support scales used previously in research with children (Sallis, Taylor, Dowda, Freedson, & Pate, 2002). A sample question was: "How much do your classmates talk with you about your physical activity." Anchors were "never" (1) and "very often" (5). All items were summed and divided by four to obtain an overall score for classmate social support ranging from one to five.

School physical activity environment. Children responded to 20 questions constituting the "Questionnaire Assessing School Physical Activity Environment" (Q-Space) developed by Robertson-Wilson et al. (2007). Robertson-Wilson et al. (2007) developed the Q-Space to assess middle school students' perceptions of the school physical activity environment. The Q-Space has two subscales. The 12-item physical school PA environment subscale determines students' perceptions of how physically "friendly" the school is. Items reflect equipment and facility quality and quantity, access, and programming (e.g., PE classes). An example item is: "The indoor areas (e.g., gym) at my school are in good condition." The eight-item social school PA environment subscale reflects students' views of the social PA environment. For instance, questions address whether teachers believe PA is important and whether activity areas are supervised by teachers. An example item is: "Teachers supervise students being physically active at recess or lunch breaks at my school." Anchors were "strongly agree" (1) and "strongly disagree" (5). Items were summed and divided by 12 or eight for average physical and social subscale scores, respectively. Robertson-Wilson et al. (2007) established adequate internal consistency (α = .81-.86), test-retest reliability, and construct validity. When interpreting results it is important to note that higher scores on this scale represent less positive perceptions of the school environment.

Physical Activity and Fitness.

Physical activity (PA). We employed the Godin Leisure-Time Exercise Questionnaire (GLTEQ: Godin & Shephard, 1985), which yields reliable and valid scores. Students read the header, "How many times in an average week do you do the following kinds of exercise for more than 15 minutes during your free time?" and responded to the next three statements: Strenuous Exercise (Heart beats rapidly), Moderate Exercise (Not exhausting) and Mild Exercise (Minimal effort). We used the phrase "breathe hard or feel tired" to enhance the children's understanding. In addition, sample activities that are consistent with each exercise category were provided to further assist students' understanding. Students' answers for strenuous, moderate and mild exercise were then multiplied by nine, five, and three Metabolic Equivalents (METS) units respectively (Godin & Shephard, 1985). The GLTEQ has been successfully employed with similar-aged minority children in previous research (Martin et al., 2005, 2007, 2008) and has been validated with children using objective measures of PA (Jacobs, Ainsworth, Hartman, & Leon, 1993).

Cardiovascular fitness (CF). Cardiorespiratory fitness was determined with the Progressive Aerobic Cardiovascular Endurance Run (PACER). The Cooper Institute for Aerobics Research (1987, 1999) developed the PACER to measure children's cardiovascular fitness (i.e., an estimate of VO_2 max). The PACER is part of the Fitnessgram and has produced reliable and

valid scores in children (Morrow, Jackson, Disch, & Mood, 2000) and has been used with similarly aged children (Martin et al., 2005). The PACER test has shown acceptable concurrent validity with measured VO_2 max. Criterion referenced validity has also been established between measured VO_2 max and estimated VO_2 max from the PACER. Furthermore, equivalent reliability scores have indicated that most individuals were correctly classified for cardiorespiratory fitness using the PACER test (Plowman & Yan-Shu, 1999).

Muscular strength and endurance fitness. Muscular strength and endurance were determined with the 90° push-up (PSU) test. The Cooper Institute for Aerobics Research (1987, 1999) also developed the PSU and testing protocols as part of the Fitnessgram. The PSU has produced reliable and valid scores in young children (Sherman & Barfield, 2006).

Procedures

We received permission from the University Internal Review Board, the school districts, school principals, the full time physical education (PE) teachers and obtained parental assent to conduct our study. Throughout the day, classroom and PE teachers brought their students to the gym. Students designated as special population students were identified as such. After instruction and modeling of the PACER and PSU test, students then completed both of these fitness tests. Questionnaires were completed after the fitness testing. Classroom teachers typically assisted the data collectors by helping to organize and manage students. It took students an average about 45 minutes to complete the survey.

Data Analysis

The Statistical Package for the Social Sciences 16.00 was used for all analyses.
We first examined internal reliability via alpha coefficients and then conducted descriptive analyses and bivariate correlations. Next, we examined gender differences using a Multivariate Analysis of Variance (MANOVA). All variables (i.e., proxy and barrier self-efficacy, classmate social support, social and physical school environment, self-reported PA, Pacer and PSU test scores) were analyzed simultaneously. We then conducted a standard multiple regression (MR) analysis in which all the independent variables (IVs) were entered simultaneously to predict PA (Tabachnick & Fidell, 2001). Two more MRs were conducted with the predictor variables from the first MR, in addition to PA, used to predict the PACER and push-up scores.

RESULTS

Descriptive Statistic, Reliability and Validity

Means, standard deviations, ranges, skewness, kurtosis, and internal consistency (i.e., Cronbach's alpha; Cronbach, 1951) for all variables are presented in Table 1. Cronbach's alpha was greater than .70 for three of the five scales. The classmate social support and the proxy self-efficacy scales were borderline (α = .63, .64). Although alpha's between .60 and .70 are often viewed as low, they are acceptable for initial exploratory research, thus we did not disregard the data generated by these two scales (George & Mallery, 2003). Convergent validity is evident when constructs correlate with other constructs that are theoretically similar (Campbell & Fiske, 1959). In the current study the significant correlations between both efficacies (r = .47), between both school environment scales (r = .58) and among proxy self-efficacy, classmate social support and the school social PA environment (r = .25, -.33, -.42) are all supportive of convergent validity.

Table 1 Means, Standard Deviations, Ranges, Skewness, Kurtosis, and Alpha's for Social Cognitive Theory Variables & Physical Activity

Variable	*M*	*SD*	Range	Skewness	Kurtosis	Alpha
BSE	4.63	1.40	1.25-7.0	-.28	-.48	.70
PSE	3.03	1.39	0.0-5.0	-.43	-.40	.63
CSS	2.82	1.00	1.0-5.0	.10	-.40	.64
SSPA	2.21	.73	1.0-4.25	.52	-.11	.77
PSPA	2.29	.75	1.0-4.12	.27	-.55	.76
PA	73.65	41.53	00.00-239	1.33	3.10	NA
PAC	16.90	9.00	03.00-57	2.03	5.34	NA
PSU	7.68	6.17	00.00-21	.55	-.69	NA

Note. BSE = Barrier Self-Efficacy, PSE = Proxy Self-Efficacy, CSS = Classmate Social Support, SSPA = Social School Physical Activity Environment, PSPA = Physical School Physical Activity Environment, PA = Physical Activity in Metabolic Equivalent Units (METS), PAC = PACER Score, PSU = 90° Push-Up Test

Gender Differences

The MANOVA examining for gender differences was significant, [F (7, 81) = 4.77, p<.001, partial eta squared (η^2) = .29]. ANOVA follow-up tests revealed three out of seven differences. There were no differences on the two fitness variables as boys and girls completed similar PACER circuits and pushups and no PA differences. No differences existed between boys and girls for barrier or proxy self-efficacy. However, boys [F (1, 87) = 18.65, p<.001, η^2 = .18] reported more (M =3.09) classmate support than girls (M =2.16). In contrast to the above findings, girls [F (1, 87) = 5.26, p<.05, η^2 = .057] reported stronger perceptions of the social PA school environment (M =2.48) than boys (M =2.10). Girls also reported a more favorable opinion (M =2.68) of the physical school PA environment (F (1, 87) = 10.52, p<.05, η^2 = .108) compared to boys (M =2.14). The three effect sizes (η^2 = .057 to .177) are small (Cohen, 1988).

Correlations

Bivariate correlations are presented in Table 2. A few notable patterns emerged. First, no psycho-social constructs were related to self-reported PA. However, PA was significantly related (r = .22) to muscular strength and endurance (i.e., pushups), but not to cardiovascular endurance (i.e., PACER test). The second pattern of results involved a series of significant correlations among the psycho-social constructs in the expected directions. For instance, the largest correlation (r = .58) was between children's perceptions of the social PA school environment and the physical school PA environment. Children who viewed the school social environment favorably for PA also tended to view the school built environment positively. As might be expected, classmate social support for PA was also positively correlated with the social PA school environment. Similarly, perceptions of efficacy were related, as children who had efficacy to overcome barriers to PA were also confident of their ability to elicit support for PA from the school staff (r = .47). The three regression equations using the five psychosocial variables to predict PA and the five psychosocial predictors and PA to predict fitness (i.e., push-ups and PACER test scores) were not significant.

Table 2 Correlations among all Psychological Variables, PA, and Fitness.

	BSE	PSE	CSS	SSPA	PSPA	PA	PAC
PSE	.47**						
CSS	.28**	.25*					
SSPA	-.30**	-.42**	-.33**				
PSPA	-.12	-.22*	-.13	.58**			
PA	-.08	-.03	.20	-.07	.01		
PAC	.12	.13	.07	-.03	-.03	-.02	
PSU	.06	.02	.13	-.15	-.22*	.22*	.33**

Note. BSE = Barrier Self-Efficacy, PSE = Proxy Self-Efficacy, CSS = Classmate Social Support, SSPA = Social School Physical Activity Environment, PSPA = Physical School Physical Activity Environment, PA = Physical Activity in METS, PAC = PACER Score, PSU = 90° Push-Up Test
*Note. * = Significant at .05*

Post Hoc Analyses

Given the range of scores on the various psychosocial and environment constructs we decided, a posteriori, to see if differences among them existed. A series of ten paired t-tests (with a Bonferroni correction) revealed eight significant differences. All possible pairs were significantly different from each other except the difference between proxy self-efficacy and class social support and between the two school PA environment subscales.

DISCUSSION

The major purpose of this investigation was to predict special-population at-risk minority middle school children's PA and fitness levels. A brief overview of the descriptive findings is provided as a context for subsequent findings. In contrast to many results from prior research (e.g., Morrow et al., 2000; Sherman & Barfield, 2006), the boys did not score higher on cardiovascular or muscular strength and endurance measures than the girls although the means were in the expected directions. Based on absolute scores and Fitnessgram Healthy Fitness Zone norms, both boy's and girl's mean scores for the PACER and PSU tests, for their age group, were below the lowest range of the fitness zones. For instance, girls' (M = 6.3) mean pushup scores were below the lowest healthy fitness zone range of seven. Boys (M = 8.3) mean pushup scores were just above the lowest healthy fitness zone range of seven. Girls' (M = 14.7) mean PACER scores were at the low end of the healthy fitness zone range of 9-54. Finally, boys (M = 17.8) mean PACER scores were well below the lowest healthy fitness zone range of 30-94.

Participant's self-report of PA were also low. Girls ranged from 5.3 to 3.6 PA sessions for at least 15 minutes of mild, moderate and strenuous PA, respectively, in an average week. Boy's PA ranged from 4.8 to 4.5. A visual comparison of the means indicates the girls did more milder and moderate PA; whereas the boys reported more strenuous PA. These results are comparable to previous research with non special-population at-risk minority children (Martin et al., 2005, 2007, 2008). Extrapolating the PA findings to an average week suggests that children participated in a minimum of 3-4 hours of PA per week, which is below the recommendation of one hour per day (Strong et al., 2005; USDHSS, 2000).

With regard to the social, cognitive, and environmental variables, there was a consistent theme to the children's perspectives, as the mean scores for all the variables hovered slightly above or below the mid-point of the scale. All four means on the

five point scales ranged from 2.2 to 3.0. Barrier self-efficacy was slightly above the middle (M = 4.6) of the seven point scale. In brief, the children were not particularly critical of the school PA environment, nor did they strongly endorse it as being PA friendly. The highest mean of 3.0 for proxy self-efficacy suggested that the students were confident in getting teachers to help them. They expressed only moderate amounts of self-efficacy in their ability to overcome common barriers to PA. Mean proxy self-efficacy levels were comparable to those expressed by urban, rural and suburban sixth graders from Kansas (Dzewaltowski et al., 2007).

The post hoc results suggested that, in general, students tended to express the strongest self-perceptions in psychological constructs (i.e., proxy and barrier), particularly barrier self-efficacy, followed by socially grounded perceptions (i.e., classmate social support) and then environment based constructs (i.e., school built and social environment for PA). In summary, as a group, these children lacked fitness, were not very active, and were neither overwhelming positive nor negative in their perceptions of the school PA environment. They seemed to have stronger proxy and barrier self-efficacy relative to the other constructs.

With respect to our major research question, we were unable to account for any variance in PA with the MR analyses so the following discussion centers on the correlation results. The first obvious pattern of correlation results is that, with a few exceptions, both fitness tests (i.e., PACER and push-ups) were unrelated to PA and all the psychosocial and environment-based constructs. The one exception to this pattern were the significant, albeit low, correlations between the pushup test and the PA and physical school PA environment scores. Students able to do more pushups reported doing more PA and viewed the physical school PA environment as more PA friendly compared to the students doing less pushups.

The second pattern of correlations involves all of the psychosocial and environment-based variables where there were numerous significant and moderate-sized correlations in the expected directions. For example, students who expressed strong barrier self-efficacy also tended to report strong proxy self-efficacy and were also likely to report strong classmate social support and view the school social PA environment supportively.

The above results support Bandura's (1997) triadic reciprocal causation model which posits bi-directional influences among psychological (i.e., self-efficacy), social (i.e., social support) and environmental (i.e., school physical structure) constructs. For example, classmate and adult social support can clearly enhance students' self-efficacy through verbal persuasion and role modeling. Similarly, gyms, playgrounds, and equipment provide opportunities to engage in PA, which can lead to mastery experiences and enhanced self-efficacy.

The finding that classmates' social support is important (i.e., related to self-efficacy) is, to our knowledge, one of the first research efforts that has focused specifically on at-risk special-population minority middle school students. This finding adds to the extant literature on the value of social support in PA contexts with adolescents (e.g., 10-15 years old). For example, researchers have found that peer support is positively related to PA (Beets, Vogel, Forlaw, Pitetti, & Cardinal, 2006; Duncan et al., 2005; Martin & McCaughtry, 2008). However, none of these researchers geared their assessments of social support specifically to school classmates. There is limited research on the influence of the school environment on youth PA. Thus, we were also interested in determining how children's perceptions of the school PA environment might be related to PA. The three out of four significant correlations between the two efficacy measures and the two environment measures indicates that environments have the potential to influence efficacy. Alternatively, it seems reasonable that high-efficacy children may overlook environmental shortcomings (e.g., poorly maintained gym) and see the school

environment more favorably than low-efficacy children.

A secondary purpose of the current study was to determine whether gender differences existed. Similar to research with non special-population children, boys reported more social support for PA. This finding suggests that wide ranging socio-cultural influences promoting PA more strongly for boys versus girls are likely also operating for special-population children. In contrast, girls viewed the school environment more favorably than did boys. It would appear that boys may be more critical of the PA environments than girls. While speculative, it may be that the activities favored most strongly by boys (e.g., basketball) are more influenced by the environment (e.g., poor basketball courts), compared to activities that are more common with females. Alternatively, boys may be more familiar with the various PA related features and practices of the school resulting in a more critical perspective. These findings indicate that it is important to be cognizant of gender differences in PA research.

Some limitations of our research efforts should be recognized. The uneven gender ratio and highly specific (i.e., special population, at-risk, inner city, minority middle school children) and small sample, means our results are very likely to be sample specific. Also, given the correlation design of the study, causality cannot be supported. Research based on self-reported information from young children introduces the possibility of measurement error and social desirability biases in their answers. Such limitations are also more likely to be applicable to children in the current study who have cognitive and emotional, and developmental delay impairments. Finally, best practice fitness testing for individuals with disabilities suggests familiarization trials along with a pacer for running tests (Pitetti & Fernhall, 2005). Although participants had done both fitness tests twice before in the previous 12 months they did not use a pacer in the cardiovascular fitness testing.

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(Abstract)

PSYCHOSOZIALE ASPEKTE VON KÖRPERLICHER AKTIVITÄT UND FITNESS IN SONDERGRUPPEN, KINDER EINER MINDERHEITEN-MITTELSCHULE

Forschung über Sondergruppen, die die körperliche Aktivität (kA) und Fitness von Kindern einer Minderheiten-Mittelschule aus einer risikoreichen Umgebung bestimmen wollen, sind selten. Folglich war das Ziel unserer Studie, die Fähigkeiten wichtiger sozial-kognitiver und umweltbezogener Messinstrumenten zur Vorhersage von kA und Fitness bei Kindern mit Entwicklungsverzögerung, kognitiven und emotionalen Beeinträchtigungen zu evaluieren. Die Kinder (*n* = 89, Alter 11-15) beantworteten Fragebögen, die soziale, kognitive und umgebungsbezogene Konstrukte messen, machten Angaben über ihre körperliche Aktivität und absolvierten Fitnesstests. Ergebnisse der Korrelationen bestätigten einige der Hypothesen. Die Ergebnisse der deskriptiven Statistik und der Korrelationen ergaben zudem Übereinstimmungen mit vergleichbaren Untersuchungen an Kindern aus Minderheiten-Mittelschulen aus risikoreicher Umgebung, die nicht Sondergruppen angehören.

SCHLÜSSELWÖRTER: *Gesundheit, Sondergruppen, kognitive Beeinträchtigung, Kinder, Fitness*

(Résumé)

ASPECTS PSYCHO-SOCIAUX DE L'ACTIVITE ET DE LA CONDITION PHYSIQUES AU SEIN D'ENFANTS MINORITAIRES ET PARTICULIERS EN ECOLE ELEMENTAIRE

La recherche au sein de population particulière prédisant le niveau d'activité et de condition physiques d'enfants minoritaires d'école élémentaire en milieu à risques est rare.C'est pourquoi, le but de cette étude était d'évaluer l'importance des mesures sociales cognitives et environnementales sur l'activité et la condition physiques des enfants ayant un retard développemental, cognitif et des problèmes émotionnels. Des questionnaires évaluant les relations sociales cognitives, environnementales et le niveau d'activité physique ont été complété par 89 enfants qui ont également participé à un test d'évaluataion physique. Certaines corrléations supportent nos hypothèses. Les corrélations et résultats descriptifs démontrent également une certaine convergence avec des études similaires sur des populations minoritaires non particulières en milieu à risque.

MOTS CLES: santé, population particulière, déficience cognitive, enfnats, condition physique.

(Аннотацця)

ПСИХОЛОГИЧЕСКИЕ И СОЦИОЛОГИЧЕСКИЕ АСПЕКТЫ ФИЗИЧЕСКОЙ ДЕЯТЕЛЬНОСТИ И ФИТНЕСА СПЕЦИАЛЬНОГО НАСЕЛЕНИЯ, НЕСОВЕРШЕННОЛЕТНИХ ДЕТЕЙ СРЕДНЕЙ ШКОЛЫ ГРУППЫ РИСКА

Исследования, прогнозирующие физическую деятельность несовершеннолетних детей средней школы группы риска, встречаются редко. Таким образом, целью нашего исследования явилась оценка социально, когнитивно и экологически важных способностей, прогноз физической деятельности и результатов фитнес-тестирования детей с задержкой развития, когнитивными и эмоциональными нарушениями. Дети (N = 89, возраст 11-15) заполнили анкеты, оценивающие социальные, когнитивные и экологические особенности, провели самоотчет физической деятельности, и прошли фитнес-тестирование. Корреляционные результаты подтверждают некоторые гипотезы. Описанные и коррелирующие результаты также указали, общность с аналогичными исследованиями на несовершеннолетних детях средней школы группы риска.

КЛЮЧЕВЫЕ СЛОВА: здоровье, дети группы риска, познавательная инвалидность, фитнес

(Resumen)

ASPECTOS PSICOSOCIALES DE LA ACTIVIDAD FÍSICA Y FITNESS EN CHICOS DE POBLACIONES ESPECIALES, LA MINORÍA DE ESCUELA MEDIA.

Las investigaciones sobre poblaciones especiales con objeto de una predicción de la actividad física (AF) y el fitness con niños de minorías en secundaria en entornos de riesgo, son poco frecuentes. Por lo tanto, el propósito de nuestra investigación fue evaluar la importancia social de la capacidad cognitiva y las medidas basadas en el contexto para predecir la AF y la aptitud de los niños con retraso en el desarrollo, con retraso cognitivo y con problemas emocionales. Los niños (N = 89, edades 11-15) completaron cuestionarios evaluando las construcciones cognitivas y sociales basadas en el contexto, el auto informe de AF y unas pruebas de fitness. Los resultados

correlacionales apoyaron algunas hipótesis. Los resultados descriptivos y correlacionales también indicaron coincidencias con una investigaciones similares sobre los niños sin discapacidad en edad escolar de una población minoritaria en ambientes de riesgo.

Palabras clave: salud, poblaciones especiales, discapacidad cognitiva, niños, fitness

(Resumo)

ASPECTOS PSICOSSOCIAIS DA ATIVIDADE FÍSICA E APTIDÃO FÍSICA EM POPULAÇÕES ESPECIAIS, MINORIAS E ESTUDANTES DO 2º E 3º CICLOS

A investigação em populações especiais sobre atividade física (AF) e de fitness em crianças em risco de grupos minoritários do ensino básico ambientes é rara. Assim, o objetivo da nossa investigação foi avaliar a capacidade de importantes medidas sócio cognitivas e do envolvimento para predizer a AF e a aptidão física em crianças com atraso no desenvolvimento e problemas cognitivos e emocionais. As crianças (N = 89, idades 11-15 anos) preencheram questionários para avaliar constructos sócio cognitivos, do envolvimento, de auto-relato da AF e testes de aptidão física. Os resultados correlacionais apoiam algumas hipóteses. Os resultados descritivos e correlacionais também indicaram semelhanças com pesquisas semelhantes em populações não-especiais de crianças de minorias em ambientes de risco.

PALAVRAS-CHAVE: saúde, populações especiais, deficiência cognitiva, criança, fitness