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Underserved Adolescent Girls' Physical Activity Intentions and Behaviors: Relationships with the Motivational Climate and Perceived Competence in Physical Education

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This study investigated underserved adolescent girls' perceptions of the motivational climate in relationship to their perceptions of competence in urban physical education, self-reported physical activity, and future physical activity intentions. A total of two-hundred-seventy-six underserved (i.e., minority, urban, high poverty) adolescent girls completed questionnaires and a multi-step approach was used to test these relationships. First, a trichotomous model of the perceived motivational climate was tested using confirmatory factor analysis and results suggested a good fit of the data. Structural equation modeling analyses were then used to test both direct and indirect relationships between the perceived motivational climates in physical education, perceived competence in physical education, and physical activity outcomes. Findings revealed that the relationship between the perceived motivational climates and physical activity outcomes were best understood when perceived competence in physical education was accounted for as an intermediary factor.

Keywords: Perceived Competence; Urban Physical Education; Motivational Climate

Introduction

The social environment in physical education (PE), especially at the secondary level, has often been criticized for favoring males to the detriment of females (Larsson, Fagrell, & Redelius, 2009). Reinforcing physical activity stereotypes, curricular choices and class structures geared toward male aggression, and lowering performance expectations based on gender are all examples of how the social environment in PE can potentially reduce girls' feelings of physical competence and engagement in PE (Domangue & Solmon, 2010; McCaughtry, 2004). This type of PE environment can also make physical activity less appealing to girls (Kirk & Tinning, 2005). The authors of both empirical studies (e.g., McKenzie, Marshall, Sallis, & Conway, 2000) and systematic reviews (e.g., Fairclough & Stratton, 2005) suggest that adolescent boys are more apt to be physically active than girls in and out of PE. Some researchers suggest that only about a quarter of girls in high school meet recommended physical activity guidelines (Butcher, Sallis, Mayer, & Woodruff, 2008).

Underserved populations (i.e., ethnic minority, inner-city, low socio-economic status) are at an even greater risk for low levels of physical activity (Gomez, Johnson, Selva, & Sallis, 2004; Gordon-Larsen, McMurray, & Popkin, 2000; Martin & McCaughtry, 2008). These authors suggest that living in poverty, limited access to physical activity space, and neighborhood safety concerns are formidable barriers to physical activity for many underserved adolescents. The physical activity challenges that many underserved adolescents face outside of school places urban PE in a unique position. Specifically, urban PE is frequently one of the primary settings for underserved adolescents to obtain physical activity (Gordon-Larsen et al., 2000; Martin & McCaughtry, 2008). Because the social environment in PE is often male-centered, underserved adolescent girls may be exposed to an especially high risk of physical inactivity.

Motivational Climate

Achievement goal theory is a framework that can potentially help explain and predict relationships between social structures in PE and physical activity outcomes in underserved adolescent girls (Ames, 1992; Nicholls, 1989; Roberts, 2001). In achievement goal theory, the motivational climate represents situational factors associated with achievement cognitions, feelings, and behaviors (Solmon, 1996). Specifically, students can view the learning environment as emphasizing mastery, performance, or performance avoidance goal structures (Ames, 1992; Midgley, 2002; Roberts, 2001). A mastery climate focuses on class structures that stress personal competence, self-improvement, effort/persistence, understanding, and learning. Making mistakes is considered a normal aspect of learning in a mastery climate. In other words, a mastery climate creates an environment that supports individuals when they make mistakes by using the process to guide improvement and learning. Mastery climates are considered to be the most adaptive environments

for obtaining achievement outcomes (Braithwaite, Spray, & Warburton, 2011; Roberts, 2001).

A performance climate features class structures that emphasize showing high ability, competition, winning, and positive social comparison (Ames, 1992). Duda and Ntoumanis (2003) describe a performance climate in PE as a proving environment of physical competence and ability. In a performance climate, high ability is often demonstrated by winning with minimized effort (Nicholls, 1989). A performance avoidance climate emphasizes class structures that focus on the avoidance of showing low ability, losing, or receiving poor social comparisons. Mistakes are often equated to low ability and failure in a performance avoidance climate. In other words, a performance avoidance climate stresses a culture of protecting physical competence. Thus, motivational climates focus on improving (i.e., mastery), proving (i.e., performance), and/or protecting (i.e., performance avoidance) ability.

A majority of the research focusing on the motivational climate in PE has not made the performance climate and performance avoidance climate distinction (e.g., Wallhead & Ntoumanis, 2004; Wang, Liu, Chatzisarantis, & Lim, 2010). Achievement goal theorists have made convincing arguments for the need to capture the approach-avoidance distinction in personal achievement goal orientations (Elliot, 1999). Midgley (2002) has extended this argument to the investigation of motivational climates. In a series of studies in classroom settings, Midgley and colleagues demonstrated the construct validity and reliability of measuring a trichotomous model of the perceived motivational climate that includes mastery, performance, and performance avoidance goal structures as well as the discriminate validity between goal structures and psychological goal orientations (see Midgley et al., 2000). The need to make the distinction between performance and performance avoidance climates is based on theoretical and measurement issues. Traditionally, achievement goal theorists have used a dichotomous model (i.e., mastery and performance) and outline the maladaptive nature of performance climates in relation to achievement outcomes (Ames, 1992). Both Elliot (1999) and Midgley et al. (2000) have argued that: 1) aiming/supporting normative competence can be adaptive in some cases; 2) goal structures that support normative competence are different than goal structures that stress the avoidance of normative incompetence; and 3) performance goals/climates are generally related to negative outcomes when they are measured with items that tap the avoidance of normative incompetence. There is clearly a need to examine different models of the motivational climate more closely.

Motivational Climate and Physical Activity

The emphasis on improvement, effort/persistence, and intrinsic motivation within a mastery climate is theorized to regulate physical activity behavior in PE (Parish & Treasure, 2003) and trigger plans for future physical activity (Biddle et al., 1999; Braithwaite et al., 2011; Ntoumanis & Biddle, 1999). Multiple researchers have reported a positive relationship between perceptions of a mastery climate and students' intentions to be physically active outside of PE (Biddle et al., 1999; Ntoumanis & Biddle, 1999) or engagement in future fitness activities in PE (Domangue & Solmon, 2010). Parish and Treasure (2003) reported a direct relationship between perceptions of a mastery climate and physical activity in PE: however, only a small percent of the variance (i.e., 3%) was accounted for. In a meta-analysis study of motivational climate intervention studies in PE, Braithwaite et al. (2011) reported a moderate effect size (g = .49) in the relationship between mastery climate interventions and health/fitness outcomes (e.g., exercise frequency, cardiovascular fitness).

Parish and Treasure (2003) did not find a relationship between perceptions of a performance climate in PE and physical activity with a sample of adolescent students. However, an argument can be made that because most researchers in the physical domain have measured perceptions of performance climates with a combination of approach and avoidance items/subscales, the relationship between a performance climate and physical activity outcomes is clouded. More investigation is needed to explore how perceptions of performance climates, when approach and avoidance distinctions are made, relate to physical activity outcomes.

When students believe they are physically competent in PE, they are more likely to develop positive attitudes toward physical activity (Silverman, 2005), have intentions to be physically active (Sproule, Wang, Morgan, McNeil, & McNorris, 2007), and participate in physical activity (Sebiston & Crocker, 2008). Girls appear to be especially cognizant of perceived competence when making their physical activity choices in and out of PE (Ennis, 2011). Kavussanu and Roberts (1996) report that the focus on self-improvement in mastery climates create realistic expectations that allows students to develop and maintain higher levels of perceived competence. More recent research has provided support for the link between perceptions of the motivational climate and perceived competence in PE (Domangue & Solmon, 2010; Ntoumanis, 2001).

There has been limited work to date that has investigated the motivational climate in urban PE settings (Wright, Li, & Ding, 2007). Diverging from traditional achievement goal theory assumptions, Wright and colleagues reported that both perceptions of a mastery climate and performance climate in urban PE had positive relationships with a sense of belonging in PE. Examining perceptions of the motivational climate in urban PE in relationship to perceived competence and physical activity outcomes is especially warranted with underserved adolescent girls because PE often represents a crucial physical activity opportunity.

The Present Study

Therefore, the purpose of this study was to investigate underserved adolescent girls' perceptions of the motivational climate in relationship to their perceptions of competence in PE, self-reported physical activity behaviors, and future intentions for physical activity. A multi-step approach was used to test these relationships. The first step was to examine the construct validity and reliability of the trichotomous (i.e., mastery; performance approach; performance avoidance) model of the perceived motivational climate. The second step was to test the direct relationships between the perceived motivational climate and physical activity outcomes without accounting for perceived competence in PE. We hypothesized that direct relationship between the perceived motivational climate and physical activity outcomes would produce a limited model, especially in highlighting the relationship between perceptions of the two performance climates and physical activity outcomes and overall explained variance. The third step was to test the

direct and indirect relationships among the perceived motivitional climate, perceived competence in PE, and physical activeity outcomes. We hypothesized that adding perceived competence in PE would produce a more robust understanding of the relationships between the motivational climate in urban PE and physical activity outcomes in underserved adolescent girls.

It should be noted that achievement goal orientations were not measured. The goal of this paper was to examine PE related factors associated with physical activity outcomes. Achievement goal orientations are considered more general psychological constructs that are established across a number of different contexts (Duda, 2005). In other words, achievement goal orientations develop from an array of social contexts (e.g., classroom, family, peers) whereas motivational climates and perceived competence in PE are more closely linked to the PE environment. Duda (2005) also reports that while there is likely interactive play between climates and achievement goal orientations, there is not strong evidence for this interaction in the current literature. Similarly, she notes that correlations between motivational climates and achievement goal orientations are typically low. On the other hand, there is strong evidence for the relationship between motivational climates and perceived competence (Domangue & Solmon, 2010; Kavussanu & Roberts, 1996; Ntoumanis, 2001) as well as perceived competence and physical activity outcomes (Sebiston & Crocker, 2008).

Method

Participants and Setting

Participants were two-hundred seventy six (N = 276) underserved adolescent girls from five different inner-city high schools in a large urban school district in the Midwest. Students in the sample were in grades 9-12 and had a mean age of 15.76 (SD = 1.34). The ethnic/racial breakdown of the sample was 72% African American, 19% Hispanic American/Latina American, 2% Asian American, 1% American Indian/Pacific Islander, and 6% Other. The large urban school district faced numerous barriers including arguably the high dropout rate in the US and severe economic challenges (Swanson, 2008). All students were enrolled in PE.

PE classes met three times per week for 55 minutes per class at all five schools. The Exemplary Physical Education Curriculum (EPEC; Michigan Fitness Foundation, 2005) was the mandated district-wide curriculum used in all PE classes. EPEC focuses on personal conditioning, wellness, lifelong physical activities, and social development. The curriculum was aligned with the NASPE (2004) content standards for quality physical education. The physical educators (n = 5) had an average of 21.49 (SD = 3.16) years of teaching experience and received professional development training for EPEC.

Measures

Motivational climate. Perceptions of the motivational climates in PE were measured with the classroom structures inventory of the Patterns of Adaptive Learning Scales (PALS; Midgley et al., 2000). The classroom structures inventory consists of three subscales: mastery goal structures (6 items), performance goal structures (3 items), and performance avoidance goal structures (5 items). Minor adaptations were made to the PALS to better represent PE goal structures. Sample items of the mastery goal structures subscale include "In PE class, it is really important to improve" and "In PE class, it is really important to understand the activities, not just perform them". Sample items of the performance goal structures subscale include "In PE class, doing better than others is the main goal" and "In PE class, being the best player is really important". Sample items of the performance avoidance goal structures subscale include "In PE class, it is really important not to make mistakes in front of other students" and "In PE class, it is really important to avoid losing to other students". Items were measured on a five point scale (1 = not at all true; 5 = very true).

Perceived competence in PE. Four items were used to measure students' perceived competence in PE (Xiang & Lee, 1998). "How good are you in PE" and "How good are you compared to others in your PE class" are sample items. A five point scale (1 = poor; 5 = very good) was used to measure each item. Xiang and Lee reported appropriate levels of reliability with PE students.

Physical activity intentions. Intentions for physical activity were measured with the following two items: "I intend to be physically active everyday next week" and "I am planning on being physically active everyday next week". The two items were measured on a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). These two items have been used in previous school-based studies examining physical activity intentions (e.g., Rhodes, Macdonald, & McKey, 2006).

Physical activity. The Physical Activity Questionnaire for Adolescents (PAQ-A) was used to measure physical activity (Kowalski, Crocker, & Kowalski, 1997). The eight items of the PAQ-A use a seven day recall format (e.g., "In the last seven days, on how many days right after school did you do sports, dance, or play games in which you were very active"). For each item, adolescents are asked to identify how many days in the past week they were physically active (i.e., 0, 1 - 2, 3 - 4, 5 - 6, 7 or more). The first item consists of a physical activity checklist containing approximately 20 different physical activities. The mean of all eight items for each individual student was used as a total physical activity score. The PAQ-A has demonstrated sound reliability, construct validity, and concurrent validity (Kowalski et al., 1997).

Procedures

First, permission was granted by the University Institutional Review Board, school district, and teachers to conduct the current study. Next, parents provided informed consent and students provided ascent. A trained research assistant who was familiar with the PE teachers and had prior experience administering data collection with the students involved in the study directed the data collection. The research assistant visited PE classes, explained the study and questionnaires to the students, and supervised/answered students questions until all participants completed the questionnaires. The students completed the questionnaires during one class period of PE.

Data Analysis

Data were initially screened for outliers and distribution characteristics. Cronbach's alpha coefficients were calculated to evaluate internal consistency of all subscales. Confirmatory factor analysis (CFA) was used to examine the construct validity of the motivational climate subscales of the PALS. Descriptive statistics and simple correlations were then calculated.

Finally, structural equation modeling (SEM) with maximum likelihood estimation procedures was used to investigate the fit of the data to the proposed models and simultaneously examine relationships among variables. Specifically, two separate models were tested. In model one, we investigated the direct relationships between perceptions of the motivational climate and physical activity outcomes. In model two, perceived competence in PE was added as an intermediary variable in the relationship between perceptions of the motivational climate and physical activity outcomes. In the measurement model, partially aggregated indicators (i.e., parcels) were created for the perceived mastery climate and physical activity latent variables (Little, Cunningham, Shahar, & Widaman, 2002). Parcels provide advantages to obtaining a parsimonious model by stabilizing parameter estimates and increasing the reliability of indicators (Coffman & MacCallum, 2005). Specifically, a random assignment technique was used to create three parceled indicators for perceptions of the mastery climate (six items) and self-reported physical activity (eight items) latent variables.

Evaluation criteria outlined by Hu and Bentler (1999) and Kline (2006) were used to determine how well the proposed measurement models fit the data in the CFA and SEM. The specific indexes/cutoffs to determine the fit of the measurement model to the data were: χ^2/df ratio (<3), root mean square error of approximation (RMSEA; <.06 = good fit; <.08 = acceptable); Comparative Fit Index (CFI; >.95 = good fit; >.90 = acceptable); and the Tucker-Lewis Index (TLI; >.95; >.90 = acceptable). A minimum standardized factor loading of >.40 for indicators was also used to evaluate the measurement model (Kline, 2006).

A preliminary Multivariate Analysis of Variance (MANOVA) was used to examine the possibility of between-school variance for the study variables. School was used as the independent variable while all six study variables were entered as dependent variables. Results from the MANOVA were not significant (Wilks' λ = .91; p = .22) suggesting between-school variance was not significantly different among schools.

Results

Confirmatory Factor Analysis

Results from the CFA that examined the construct validity of the trichotomous perceived motivational climate model are presented in **Figure 1**. Findings yielded a good fit of the data to the proposed trichotomous model (Hu & Bentler, 1999; Kline, 2006). Standardized factor loadings ranged from .53 - .89 suggesting that each indicator loaded on its intended latent variable. Fit indices also highlighted a good fit of the data to the model. Specifically, the χ^2/df ratio was under two, both the CFI and TLI were equal to or above .95, and the RMSEA was below six.

Descriptive Statistics

Descriptive statistics, internal consistency estimates, and simple correlations are presented in **Table 1**. The internal consistency estimates ranged from .75 - .89. All variables except self-reported physical activity had mean scores above the mid-point of its respective scale. The mean scores ranged from a high of 4.02 (i.e., perceptions of a mastery climate) to a low of 2.60 (i.e., self-reported physical activity). Therefore, on average, the girls reported being physically active approximately 2 - 3 times per week. The strongest correlations were between perceptions of a performance approach motivation climate and perceptions of a performance avoidance motivation climate (r = .63), perceived competence in PE and physical activity (r

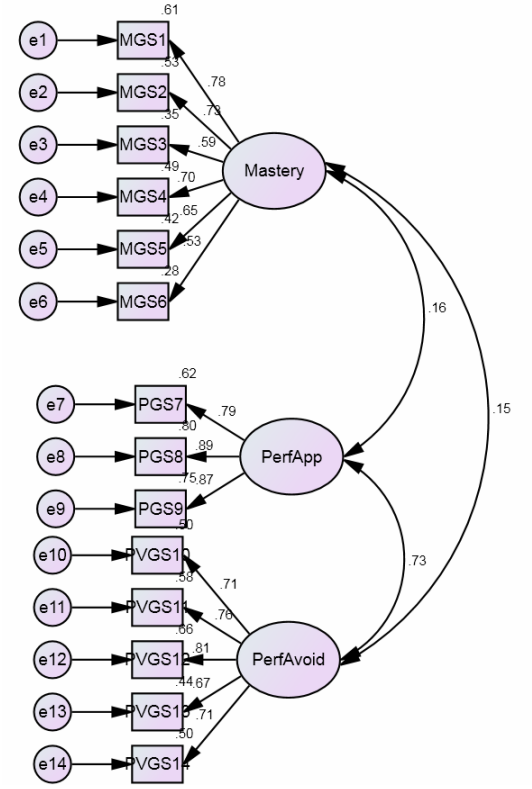

Figure 1.
Confirmatory factor analysis results of the perceived motivation climate trichotomous model. Mastery = perceptions of a mastery climate; PerfApp = perceptions of a performance approach motivational climate; PerfAvoid = perceptions of a performance avoidance motivational climate. Fit indices suggest good fit of the proposed model: χ^2/df ratio = 134.15/74 = 1.81; CFI = .96; TLI = .95; RMSEA = .054 [.039 - .069].

Table 1.
Descriptive statistics, cronbach's alpha coefficients, and simple correlations of all variables.

Variable	*M* (*SD*)	α	1	2	3	4	5	6
1. Mastery	4.02 (.63)	.83	-					
2. PerfApp	2.65 (1.14)	.89	.14*	-				
3. PerfAvoid	2.64 (0.98)	.86	.12*	.63**	-			
4. Perceived Comp	3.49 (0.83)	.85	.25**	.15*	.08	-		
5. Future Intentions	3.61 (0.80)	.75	.35**	.12	.05	.47**	-	
6. Physical Activity	2.60 (0.67)	.75	.15*	.13*	.05	.47**	.41**	-

Note: M = mean; SD = standard deviation; α = Cronbach alpha; Mastery = perceived mastery motivational climate; PerfApp = perceived performance approach motivational climate; PerfAvoid = perceived performance avoidance climate Perceived Comp = perceived competence in PE; Future Intentions = future intentions for physical activity. *p < .05; **p < .01.

= .47) and perceived competence in PE and physical activity intentions (r = .47).

Structural Equation Modeling

The main purpose of the current study was to investigate relationships among perceived motivational climates in PE, perceived competence in PE, and physical activity outcomes for underserved adolescent girls. We tested two separate SEM models in order to accomplish this task. In the first model, the direct relationships between the girls' perceptions of the motivational climates and physical activity outcomes were examined. Results for this direct model are presented in **Figure 2**. Examination of the measurement model revealed a good fit of the data (Hu & Bentler, 1999; Kline, 2006). Standardized factor loadings ranged from .57 - .89, the χ^2/df ratio was less than two. Furthermore, CFI and TLI estimates were close to .95 and the RMSEA was just below .06. Findings from the structural model revealed that perceptions of a mastery climate were related to both future intentions for physical activity (β = .44, p < .01) and self-reported physical activity (β = .17, p < .05). Perceptions of a performance approach climate were related to physical activity (β = .21, p < .05) while perceptions of a performance avoidance climate were negatively associated with self-reported physical activity. There was no significant relationship between perceptions of performance approach or performance avoidance motivational climates and future intentions for physical activity. Perceptions of the three different motivitional climates accounted for 21% of the variance in future intentions for physical activity and 5% of the variance in self-reported physical activity.

In the second model, perceived competence in PE was added to the model (see **Figure 3**). Results again yielded support for the measurement model. Standardized factor loadings ranged from .60 - .89 and the χ^2/df was well below two. The CFI and TLI estimates were well above .95 and the RMSEA was .039. Examination of the pattern of relationships revealed that perceptions of a mastery climate had positive direct relationships with perceived competence (β = .27, p < .01) and future intentions for physical activity (β = .29, p < .01). The standardized indirect effect between perceptions of a mastery climate and self-reported physical activity was β = .15. Perceptions of a performance approach climate had a direct relationship with perceived competence in PE (β = .36, p < .01) and indirect relationships with future intentions (β = .18) and physical activity (β = .20). Perceptions of a performance avoidance climate had a negative relationship with perceived competence in PE (β = −.20, p < .01) and limited indirect relationships with future intentions (β = −.11) and self-reported physical activity (β = −.10). Perceived competence in PE had robust relation- ships with both future intentions (β = .55, p < .01) and physical activity (β= .52, p < .01). In this model, 15% of the variance was accounted for in perceived competence in PE, 44% of the variance in future intentions, and 31% of the variance in self-reported physical activity.

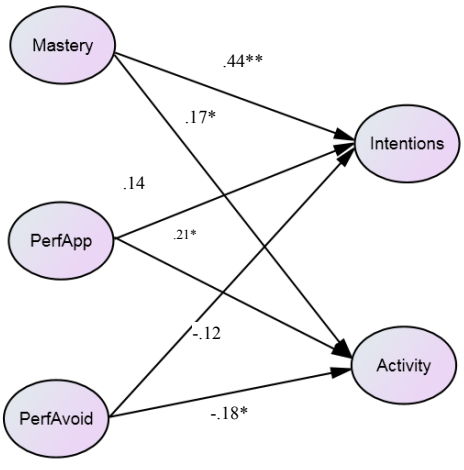

Figure 2.
Standarized path coefficients from structural equation model of direct relationships among perceptions of the motivational cliamte in physical education, self-reported phsyical activity, and future intentions of physical activity. Fit indices suggest good fit of the proposed model: χ^2/df ratio = 131.50/68 = 1.93; CFI = .96; TLI = .94; RMSEA = .058 [.043 - .073]. The R^2 values for future intentions for physical activity = .21; R^2 values for self-reported physical activity = .05.

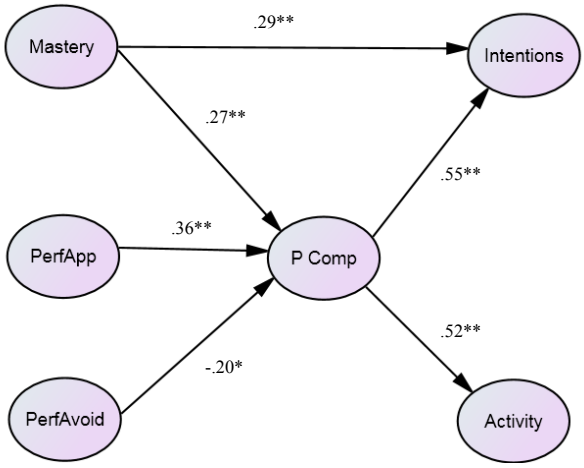

Figure 3.
Standarized path coefficients from structural equation model of relationships among perceptions of the motivational cliamte in physical education, percieved competence in phsyical education, self-reported phsyical activity, and future intentions of physical activity. Fit indices suggest good fit of the proposed model: χ^2/df ratio = 179.66/126 = 1.43; CFI = .98; TLI = .97; RMSEA = .039 [.025 - .052]. The R^2 values for perceived competence in physical education = .15; R^2 values for future intentions for physical activity = .44; R^2 values for self-reported physical activity = .31.

Discussion

The findings of this study provide both theoretical and practical insights about relationships between urban PE and physical activity outcomes in underserved adolescent girls. One contribution of this study was the testing of a trichotomous model of the perceived motivational climate in PE. In the physical domain, use of the approach/avoidance framework has focused on achievement goal orientations. As Duda and Ntoumanis (2003) note:

Insight into motivational processes in PE will always be restricted if we only examine students' goal orientations. There is

a dynamic system going on here that we need to come to grips with in our research designs. More insight is necessary regarding how PE teachers convey the "messages" about achievement goal focus to students and how, when, and in which cases students start to internalize these messages and think, feel, and act accordingly (p. 431).

Midgley and colleagues (2000) created an instrument to distinguish between perceptions of performance and performance avoidance classroom structures, but to date its application in PE has been missing. Results from the CFA supported the construct validity of the trichotomous model. Furthermore, clear divergences in the pattern of relationships between perceptions of a performance climate and perceptions of a performance avoidance climate and outcome variables were present. Our results supported Elliot's (1999) theorizing that more often than not, maladaptive outcomes are associated with perceptions of performance avoidance structures.

The high mean score for perceptions of a mastery climate was a pleasant surprise. It is possible that the teachers' implementation of the EPEC curriculum contributed to this finding, although we do not have direct evidence. The teachers of this study were experienced and had sustained professional development experiences with EPEC. The EPEC curriculum emphasizes personal development, lifelong sports, and aligns to NASPE (2004) content standards. The EPEC focus on the individual appears to match key ingredients of a mastery climate (e.g., focus on improvement and process of learning). On the other hand, the low amount of physical activity reported by these underserved girls was in line with previous research findings (Gordon-Larsen et al., 2000). The participants of this study were clearly not meeting recommended guidelines for physical activity (USDHHS, 2008). Other researchers have also targeted underserved girls because they are at-risk for physical inactivity, obesity, and morbidity (Robinson et al., 2008; Wilson et al., 2008). Although this was not an intervention-based study like Robinson et al. (2008) or Wilson et al. (2008), both sets of researchers reported the severe need for more physical activity research targeting underserved adolescent girls.

Relationships among Variables

Examination of the relationships among the perceived motivational climates in PE, perceived competence in PE, and physical activity outcomes provides some interesting topics of discussion. First, comparison of the two SEM models highlights the importance of perceived competence in PE, when examining the relationship between perceptions of motivational climates in PE and physical activity outcomes. For example, only a minimal amount of the physical activity variance (5%) was explained by the direct relationships between the perceived motivational climate and physical activity, mirroring past research (Parish & Treasure, 2003). The fact that 26% more variance was explained in self-reported physical activity when perceived competence in PE was included suggests that it is a key intermediary factor when considering how perceptions of the motivational climates in PE are related to physical activity in underserved adolescent girls.

Interestingly, in the direct model perceptions of a performance climate and perceptions of a mastery climate had similar positive relationships with self-reported physical activity. The major difference between the two types of approach-oriented perceptions of the motivational climate was the relationship with intentions for future physical activity. Interpretation of the standardized beta coefficient revealed that perceptions of a mastery climate increased the likelihood for self-reported physical activity by almost half of a standard deviation. Perceptions of a mastery climate still appeared to be more advantageous than perceptions of a performance climate in relation to the physical activity outcomes: however; physical educators who are able to create approach-oriented motivational climates with goal structures that support both personal and normative success would likely also see an increase in underserved adolescent future intentions for physical activity and to a limited degree, self-reported physical activity. More investigations are needed to determine the optimal balance between mastery and performance class structures to promote physical activity outcomes in PE.

The negative relationship between perceptions of a performance avoidance motivational climate and self-reported physical activity in the direct model was aligned to the assumptions of approach/avoidance achievement goal theory (Elliot, 1999; Midgley, 2002). Avoidance mentalities have a long association with negative achievement outcomes (McClelland, 1973). PE climates that are viewed as performance avoidance contexts where explicit or implicit structures punish students for showing low ability or making mistakes appears to be detrimental to underserved girls' physical activity. Specifically, with this type of perception PE may actually represent another barrier to underserved girls' physical activity.

As hypothesized, results from the indirect model provided a more comprehensive picture of the associations between the perceived motivational climate in PE and physical activity outcomes for these underserved adolescent girls. All three perceptions of the motivational climate in PE had relationships with the girls' perceived competence in PE. Perceptions of a performance climate and mastery climate were positively related to perceived competence. While it was expected for an "improveing outlook" (i.e., mastery) of goals structures in PE to be associated with increased perceived competence (Roberts, 2001; Wallhead & Ntoumanis, 2004), it was somewhat surprising that a "proving outlook" (i.e., performance) was, too. It is possible that perceptions of a performance climate in PE may provide opportunities for underserved girls to obtain social recognition and positive feedback for their physical competence. A "protective outlook" was negatively related to perceived competence in PE. There appears to be a fine line between perceptions of a performance climate and performance avoidance climate (r = .63) that results in quite distinct outcomes.

It should be noted that our results represent a "snapshot" of the perceived motivational climate in PE. It is unclear how promoting performance climates or performance avoidance climates over time would be related to perceived competence in PE and physical activity in underserved adolescent girls. It is possible that perceived competence could and likely would decrease for girls who consistently perceive failure in meeting normative goal structures (Roberts, 2001). Similarly, the perceptions of a performance climate—perceived competence relationship in PE could potentially erode if minimal skill development or learning was taking place for low skilled students. Having trained and experienced teachers implement the accountability-based EPEC curriculum may help explain the positive link between perceptions of a performance climate and perceived competence in this study.

Perceptions of a mastery climate had both direct and indirect

relationships with future intentions for physical activity across the two models. From an achievement goal theory perceptive, this may be due to the mastery climate focus on the process and personal improvement (Solmon, 1996). In other words, when PE goal structures stress the importance of the process over the outcome, there appears to be a greater association with making plans to be active in the future. Making immediate plans to be physically active could potentially help many underserved adolescent girls seek out opportunities that minimize physical activity barriers (Gomez et al., 2004). High school physical educators teaching in the urban context should be especially aware of the benefits that implementing motivational climate perceived as mastery-oriented can have for adolescent girls because the social environment in PE often places them at a disadvantage for obtaining physical activity outcomes (Cheypator-Thompson, You, & Hardin, 2000; Domangue & Solmon, 2010).

The girls' perceived competence in PE had robust effects on their intentions to be physically active and physical activity behavior. Perceptions of a mastery climate may be especially effective at providing girls with more equitable physical activity opportunities in PE that produce feelings of physical competence in that domain. In fact, the development of achievement goal theory was closely tied to understanding how to create more equitable experiences for students and athletes (Nicholls, 1989; Roberts, 2001). Based on our findings and theorizing from Ennis (2011), investigating the motivational climate in conjunction with the domain specific characteristics of the PE context (e.g., instruction, curriculum) may provide a clearer picture on how to increase the perceived competence of a wider variety of students in PE including underserved adolescent girls.

In conclusion, this study is not without limitations. The cross-sectional design and reliance on self-report data are clear limitations. Future research would benefit from including systematic observations of the PE learning environment, prospective and longitudinal research designs, as well as more objective measures of physical activity (e.g., accelerometers). However, results from this study do provide meaningful information about how school-based settings can positively contribute to the physical activity patterns and future intentions of underserved adolescent girls. Support for the achievement goal theoretical model tested in this study highlights practical strategies for urban PE teachers to increase important cognitive mediators of physical activity. Future researchers should continue to investigate theoretical models that provide structure to expanding the current knowledge-base about enhancing the levels of physical activity for underserved adolescent girls.

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