Comparison of Social Variables for Understanding Physical Activity in Adolescent Girls

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Objective: To evaluate social support and theory of planned behavior (TPB) constructs in explaining physical activity in adolescent girls. *Methods*: One thousand seven hundred ninety-seven 8th-grade girls completed a survey measuring social provisions, family support, TPB constructs, moderate-to-vigorous physical activity (MVPA), and team sport involvement (TSI). *Results*: Structural equation modeling (SEM) indicated statistically significant direct effects from TPB constructs and social provisions to intention; social provisions, family support, and intention to MVPA; and social provisions and family support to TSI. *Conclusions*: Social variables play a greater role in explaining TSI than in explaining MVPA in this sample.

Key words: social provisions, family support, theory of planned behavior, MVPA, sport team involvement

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The theory of planned behavior (TPB)[1] has become a mainstream social-cognitive framework for understanding adult and adolescent physical activity behavior. The TPB hypothesizes that the proximal determinant of volitional behavior is one's intention or conscious plan to undertake the behavior. The TPB includes perceived behavioral control or an individual's judgment of the ease or difficulty of performing the behavior for predicting incompletely volitional behaviors. Perceived behavioral control is hypothesized to have both direct and indirect (mediated through behavioral intention) effects on behavior.[1] The TPB also includes attitude (evaluative beliefs about performing a behavior) and subjective norm (beliefs about the pressure from significant others to undertake a behavior), hypothesized to influence behavior through effects mediated by intention.

Qualitative and quantitative reviews of studies that examine applications of TPB have supported the TPB for understanding physical activity behavior.[2-5] One observation from those reviews is that subjective norm has consistently exhibited a weak relationship with intention when controlling for attitude and perceived behavioral control. The relationship between subjective norm and intention has been

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either weak or nonsignificant. Thus, some researchers have suggested that subjective norm might not be the most theoretically relevant social influence of physical activity.[6-8] Social support, defined as perceptions of receiving assistance in performing a behavior, has been identified as a potentially stronger influence of physical activity behavior than subjective norm, particularly if the behavior is not under complete volitional control and requires social assistance to enact.[6-8]

Three studies have compared the relative utility of subjective norm and social support in understanding exercise behavior among adults.[6-8] The most recent[7] reported that (a) social support, but not subjective norm, significantly predicted exercise intention; (b) social support significantly predicted strenuous exercise behavior; and (c) social support exhibited discriminant validity from subjective norm. The strongest indicators of social support were reliable alliance, guidance, social integration, and friend support, whereas family support was the weakest indicator of social support.[7] This might suggest that either (a) family support is not as important an indicator of social support as global measures of social support and friend support or (b) family support should not be included within the same measurement model as an indicator of social support with global and friend-specific measures of support.

To our knowledge, no studies have directly compared the relative utility of subjective norm and social support along with other factors from the TPB in understanding physical activity behavior among adolescent girls. Such inquiry is important because physical activity declines precipitously in high school and is consistently lower among adolescent girls than boys, and physical activity rates are particularly low among Black adolescent girls.[9] One third of white girls and over one half of African American girls report no regular physical activity by ages 16-17 years.[10] Thus this study might serve as an important step in identifying a social influence of physical activity that can be targeted by an intervention. Moreover, previous studies have measured social support with a combination of global (or nonspecific) support measures and measures tapping family and friend support.[7] Global or nonspecific social support, as measured by the social provisions scale,

measures a diffuse perception of assistance from others in undertaking physical activity and might not be as strong a predictor of physical activity among adolescent girls as a more specific measure of perceived assistance from family members. Finally, no studies have examined the utility of subjective norm, social support, and family support for the purpose of understanding both physical activity behavior and team sport involvement. The latter requires a particularly strong level of familial support for regular and continued sport involvement.

The present report describes a study that compares the utility of subjective norm, social support, and family support along with attitude, perceived behavioral control, and intention for understanding both physical activity and team sport involvement among a large sample of adolescent Black and white girls. This study serves as a replication and extension of previous research with samples of adults.[6-8]

METHODS
Participants

Participants were recruited from 24 schools in South Carolina. The schools were randomly selected from 54 of the 214 schools within the 91 school districts of South Carolina that were eligible and willing to participate in a school-based intervention to increase physical activity and fitness. Eligibility was based on 2 criteria: (a) number of eighth-grade girls per school and (b) a nearly equal mix of Black and white girls in the school. There were 4044 girls enrolled in the 24 middle schools, and 44.4% of the girls volunteered to participate in the measurement portion of the study (N = 1797). The mean age of the girls was 13.6 years (SD = 0.6), their mean weight was 60.25 kg (SD = 16.22), height of 161.1 cm (SD = 6.73), and body-mass index of 23.07 kg/m^2 (SD = 5.48). The racial proportions were 49.9% Black, 45.8% white, and 3.6% other (Native American, Asian/Pacific Islanders, and Latina/Hispanic); 0.7% of the girls did not report race. The procedures were approved by an institutional review board; participants and the parents or legal guardians provided written informed consent. The measures were pilot-tested to ensure reading level and response format were appropriate. Participants completed the written questionnaires in

Table 1

Sample Items from the Questionnaires Measuring Attitude, Subjective Norm, Perceived Behavioral Control, Social Provisions, and Intention

Question-naire	Sample Items
Attitude	**Beliefs** If I were to be physically active on my free time on most days it would help me Spend more time with my friends. If I were to be physically active on my free time on most days it would make me less popular with my friends. **Values** Spending more time with my friends is (very bad to very good). Being less popular with my friends is (very bad to very good).
Subjective Norm	**Normative beliefs** My best friend thinks I should be physically active during my free time on most days. My physical education teacher thinks I should be physically active on my free time on most days. **Motivation-to-comply** I want to do what my best friend thinks I should do. I want to do what my physical education teacher thinks I should do.
Perceived Behavioral Control	For me to be physically active during my free time on most days would be Very easy Somewhat easy Neither easy not difficult Somewhat difficult Very difficult If I want to I can be physically active during my free time on most days. Agree a lot Agree a little Neither agree nor disagree disagree a little disagree a lot
Social Provisions	There are people I can count on to be physically active with me. I know people who enjoy the same physical activities that I do.
Intention	I intend to be physically active during my free time on most days. I am going to be active during my free time on most days.

groups of 6 to 10 girls in the spring of 1999. The instruments were administered by trained staff during the school day.

Measures

Example items from each of the social-cognitive measures are provided in Table 1. The entire set of items for each scale has been published elsewhere.[11-14]

Social provisions. The multidimensional measure of social provisions[11] included 24 items rated on a 5-point scale that ranged between Disagree a lot (1) and Agree a lot (5). The 24 items correspond to 6 four-item subscales: Reliable Alliance, Attachment, Guidance, Nurturance, Social Integration, and Reassurance of Worth. We only used the items for the Guidance, Nurturance, and Reassurance of Worth subscales as measures of social provisions in this report. Those subscales were common between Black and white girls and have either predicted adherence to a prescribed exercise program[15] or been used in studies of adolescent physical activity involvement,[16] are consistent with our definition of social support, and provide an opportunity for an examination of the possible moderating effects of race on the path coefficients in the final structural model.

Attitude, subjective norms, and perceived behavioral control. The unidimensional measure of attitude included 8 items that consisted of belief and corresponding value statements.[12,13] Belief statements were rated on a 5-point scale anchored by 1 (Disagree a lot) and 5 (Agree a lot). Value statements were rated on a 5-point scale with responses ranging from 1

(Very bad) to 5 (Very good). The attitude items were formed as a product of the belief and corresponding value item scores.[1] The unidimensional measure of subjective norm included 8 items that consisted of normative beliefs and corresponding motivation to comply statements.[12,13] The items were rated on a 5-point scale anchored by 1 (Disagree a lot) and 5 (Agree a lot). The subjective norm items were formed as the product of the normative belief and motivation to comply item scores.[1] The unidimensional measure of perceived behavioral control included 4 items.[12,13] Three items were rated on a 5-point scale with anchors of 1 (Agree a lot) and 5 (Disagree a lot). One item was rated on a 5-point scale with anchors of 1 (Very easy) and 5 (Very difficult). We reverse-scored the items such that higher scores reflect greater levels of perceived behavioral control.

Family support. The measure of family support included 5 items: (a) How often has a member of your family encouraged you to do physical activity or sports? (b) How often has a member of your family done a physical activity or played sports with you? (c) How often has a member of your family provided transportation to a place where you can do physical activities or play sports? (d) How often has a member of your family watched you participate in physical activities or sports? and (e) How often has a member of your family told you that physical activity is good for your health?. The items were rated based on the extent to which male adult(s), female adult(s), and other children provided support during a typical week on a 5-point scale with anchors of 0 (None) and 4 (Daily). The responses for male adult(s), female adult(s), and other children were summed to form the data for each of the 5 items. This measure consisted of a single factor with a content-justified correlated uniqueness between items 3 and 4 based on preliminary analyses with baseline data [χ^2 = 26.37, df = 4, RMSEA (90% CI) = 0.056 (0.037-0.077), NNFI = 0.97, CFI = 0.99].

Intention. The unidimensional measure of intention included 4 items.[14] The items were rated on a 5-point scale with anchors of 1 (Disagree a lot) and 5 (Agree a lot).

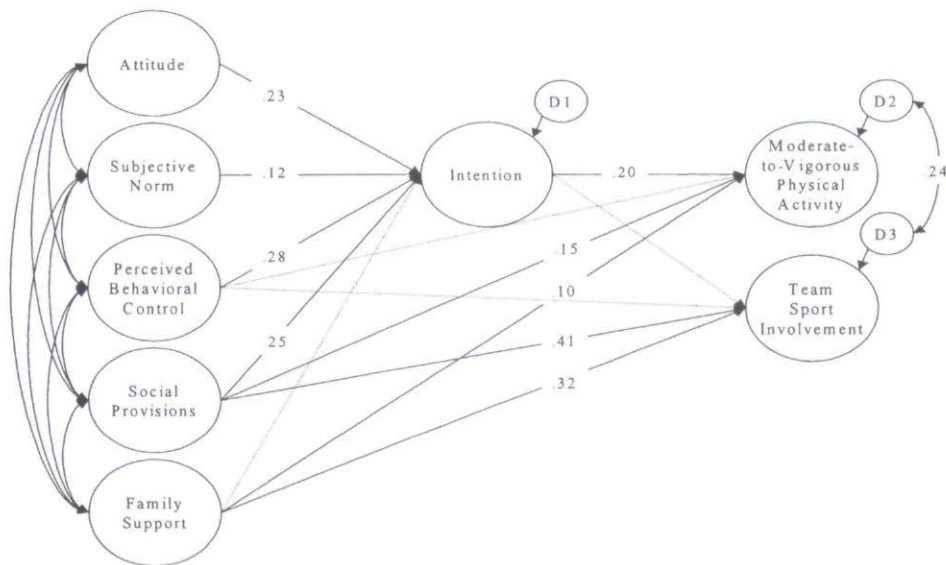***Moderate-to-vigorous physical activity.*** Moderate-to-vigorous physical activity (MVPA) was measured using the 3-day physical activity recall (3DPAR). The 3DPAR is a modification of the previous day physical activity recall.[17] The 3DPAR required participants to recall physical activity behavior from 3 previous days of the week; 2 weekdays and one weekend day. Data were reduced to the number of 30-minute blocks per day in which the main activity was 3 or more METs (ie, moderate-to-vigorous physical activity [MVPA]). The validity of the 3DPAR has been established based on correlations with a self-report measure of sport involvement[18] and an objective measure of physical activity.[19]

Team sport involvement. Team sport involvement (TSI) during the previous 12 months was measured by 2 items: (a) "During the past 12 months, on how many sports teams run by your school did you play?" and (b) "During the past 12 months, on how many sports teams run by organizations outside of your school did you play?"

Data Analyses

Analyses were performed using full-information maximum likelihood (FIML) estimation in AMOS 4.0 (SmallWaters Corp., Chicago, IL).[20] FIML was selected because there were missing data, which is a common in school-based research involving large samples. The extent of missing data ranged between 4.7 and 28.9% of cases per variable. The mean, median, and mode percent of missing data per variable were 9.4 (SD = 6.7), 5.2, and 4.7%, respectively. The largest percent of missing data was attributable to 2 items on the subjective norms scale that pertained to sister's (28.9% missing) and brother's (28.2% missing) beliefs. The extent of missing data for the 2 subjective norms items was reasonable because some participants did not have female or male siblings. The explanation for the remaining missing data is not known, but could be partially explained by absenteeism on the day of data collection as physical activity and social-cognitive data were not collected on the same day. FIML is an optimal method for the treatment of missing data in covariance modeling,[21] and it has yielded more accurate fit indices and parameter estimates under a variety of simulated missing data conditions than have other techniques such as pairwise and listwise deletion of cases.[21-23] Although researchers have not evalu-

Figure 1
Model Illustrating the Theoretically-based Relationships Among the Exogenous[a] and Endogenous[b] Latent Variables Tested[c]

Note.
a Exogenous = attitude, subjective norm, perceived behavioral control, social provisions, and family support
b Endogenous = intention, moderate-to-vigorous physical activity, and team sport involvement
c Latent variables were tested using latent variable structural equation modeling (LVSEM). Items and uniquenesses were not included to simplify the figure. Statistically significant relationships from the LVSEM analysis are provided as solid lines along with the standardized path coefficients.

ated fit indices from FIML estimation with ordered categorical data, maximum likelihood estimation has resulted in accurate fit indices with ordered categorical data of varying degrees of skewness and/or kurtosis.[24] The size of the sample was adequate to estimate the models.[25,26]

Model specification. The 2-step procedure was employed to test the theoretically based relationships among the latent variables.[27] The first step involved using confirmatory factor analysis (CFA) to test an overall measurement model. The individual measurement models for the attitude, subjective norms, and perceived behavioral control measures were unidimensional, as described by Motl et al;[12,14] there were correlated uniquenessses among 4 pairs of items on the subjective norms scale. The individual measurement model for the Social Provisions Scale consisted of 3 first-order factors and a single second-order factor plus an orthogonal method factor for the negatively worded items. The individual measurement for the family support measure was unidimensional with a single correlated uniqueness based on our preliminary analyses. The individual measurement model for the measures of intention, MVPA, and TSI were unidimensional, as described by Motl et al[14] The overall measurement model served as a baseline model for the structural model.

Table 2
Summary Descriptive and Distributional Statistics for Items on the Questionnaires Measuring Attitude, Subjective Norm, Perceived Behavioral Control, Social Provisions, Family Support, Intention, Moderate-to-Vigorous Physical Activity, and Team Sport Involvement

Questionnaire	M	SD	Kurtosis	Skewness
Attitude (8 items)	17.94	3.61	0.46	-0.66
Subjective Norm (8 items)	11.06	5.16	-0.22	0.30
Perceived Behavioral Control (4 items)	4.09	0.70	0.19	-0.74
Social Provisions (12 items)	3.71	0.65	-0.27	-0.24
Family Influences (5 items)	4.78	2.72	0.28	-0.64
Intention (4 i tems)	3.94	0.91	0.78	-0.99
Moderate-to-Vigorous Physical Activity (3 items)	1.06	1.47	9.59	2.43
Team Sport Involvement (2 items)	0.68	0.74	1.07	0.52

Note.
Scores for moderate-to-vigorous physical activity reflect the number of 30-minute blocks per day in which the main activity was 3 or more METs.

The second step involved using structural equation modeling (SEM) to test a structural model. The structural model depicted in Figure 1 consisted of theoretically based relationships among the exogenous (ie, independent variables not receiving, but emanating paths) and endogenous (ie, dependent variables receiving and emanating paths) latent variables. The individual measurement models for the attitude, subjective norm, perceived behavioral control, social provisions, and family support exogenous latent variables were specified as noted above. The individual measurement models for the intention, MVPA, and TSI endogenous latent variables were specified as noted above.

The structural model included (a) paths from attitude, subjective norms, perceived behavioral control, social provisions, and family support to intention; (b) paths from perceived behavioral control, social provisions, family support, and intention to MVPA and TSI; (c) correlations among attitude, subjective norms, perceived behavioral control, social provisions, and family support; and (d) a correlation between disturbance terms for MVPA and TSI.

Model fit. Model fit was assessed using multiple indices. We relied on the chi-square statistic[25,26,28] and the root mean square error of approximation (RMSEA),[29] Comparative fit index (CFI),[30] and non-normed fit index (NNFI)[31] to evaluate model-data fit. RMSEA values approximating 0.06 and zero demonstrated close and exact fit of the model, respectively.[29,32] CFI and NNFI values of 0.90[25,30,31] and 0.95[32] indicated minimally acceptable and good fit of the model, respectively.

Multigroup invariance analysis. We tested the invariance of the final structural model between samples of Black (n = 896) and white (n = 823) girls. This was performed with 3 nested models. The 3 nested models involved the invariance of the overall structure (ie, same pattern of fixed, freed, and constrained factor loadings, path coefficients, factor variances/covariances, and uniquenesses), substantive factor loadings (ie, equality of coefficients linking the items with latent variables), and then path coefficients (ie, equality of coefficients linking the latent variables). Invariance was evaluated by chi-square difference tests and comparisons of the RMSEA with 90% CI, CFI, and NNFI.[33]

RESULTS
Descriptive Statistics
The overall means and standard devia-

Table 3
Interfactor Correlations Among the Latent Variables in the Overall Measurement Model Tested With Confirmatory Factor Analysis

	Attitude	Subjective Norm	Perceived Control	Social Provisions	Family Influences	Intention	MVPA	TSI
Attitude	C							
Subjective Norm	0.483**	C						
Perceived Control	0.505**	0.272**	C					
Social Provisions	0.560**	0.411**	0.619**	C				
Family Influences	0.297**	0.463**	0.356**	0.601**				
Intention	0.567**	0.404**	0.580**	0.589**	0.390**	C		
MVPA	0.247**	0.146*	0.278**	0.325**	0.277**	0.334**	C	
TSI	0.263**	0.230**	0.336**	0.618**	0.584**	0.398**	0.394**	—

Note.
MVPA = moderate-to-vigorous physical activity. TSI = team sport involvement *P< .001; **P< .0001.

tions, as well as the overall mean estimates of univariate skewness and kurtosis, for the items on the questionnaires are provided in Table 2. The estimates of skewness and kurtosis did not identify any serious violations of normality, with the possible exception of the items for MVPA. The items for MVPA were leptokurtotic and positively skewed.

Confirmatory Factor Analysis
The overall measurement model was tested using CFA, and it represented a reasonably good fit (χ^2 = 2653.662, df = 948, RMSEA [90% CI] = 0.032 [0.030-0.033], NNFI = 0.92, CFI = 0.93). All of the interfactor correlations presented in Table 3 were statistically significant and ranged between 0.146 and 0.619 (M = 0.412, Md = 0.396). The factor loadings, uniquenesses, standard errors, z-statistics, and squared multiple correlations were of the appropriate sign and/or magnitude. The magnitude of the correlations demonstrated that it was feasible to test the theoretically based structural model to describe the interrelationships among the latent variables.

Structural Equation Model
We tested the hypothesized relationships depicted in Figure 1 using SEM. The model yielded a reasonably good fit (χ^2 = 2671.48, df = 952, RMSEA [90% CI] = 0.032 [0.030-0.033], NNFI = 0.92, CFI = 0.93).

Though this structural model differed significantly from the overall measurement model (χ^2_{diff} = 17.82, df = 4, P=0.001), the RMSEA, NNFI, and CFI were overlapping between the 2 models and we could not identify any theoretically derived paths that could be added to improve the fit of the structural model. We then sequentially removed the nonsignificant paths because no substantively meaningful interpretation can be provided for the parameter estimates[27] and the final model with only significant paths still provided a reasonably good fit (χ^2 = 2678.31, df = 956, RMSEA [90% CI] = 0.032 [0.030-0.033], NNFI = 0.92, CFI = 0.93) that did not differ from the initial structural model (χ^2_{diff} = 6.83, df = 4, P= 0.15). The factor loadings, uniquenesses, standard errors, z-statistics, and squared multiple correlations were of the appropriate sign and/or magnitude. Attitude (γ_{11} = 0.23), subjective norms (γ_{12} = 0.12), perceived behavioral control (γ_{13} = 0.28), and social provisions (γ_{14} = 0.25) demonstrated statistically significant direct effects with intention. Social provisions (γ_{24} = 0.15), family support (γ_{25} = 0.10), and intention (β_{21} = 0.20) demonstrated statistically significant direct effect with MVPA. Only social provisions (γ_{34} = 0.41) and family support (γ_{35} = 0.32) exhibited statistically significant direct effects with TSI. The correlations (φ=s) between attitude, subjective norms, perceived behavioral control, social provi-

sions, and family support were all statistically significant. The variables accounted for 49% of the variance in intention, 14% of the variance in MVPA, and 44% of the variance in TSI.

Multigroup invariance. We tested the invariance of the final structural model between groups of Black (n = 896) and white (n = 823) girls based on 3 nested models. There was evidence for the invariance of the overall model (χ^2 = 3788.09, df = 1912, RMSEA [90% CI] = 0.024 [0.023-0.025], NNFI = 0.91, CFI = 0.92), substantive factor loadings (χ^2 = 3908.06, df = 1950, RMSEA [90% CI] = 0.024 [0.023-0.025], NNFI = 0.91, CFI = 0.92), and path coefficients (χ^2 = 3933.86, df = 1959, RMSEA [90% CI] = 0.024 [0.023-0.025], NNFI = 0.91, CFI = 0.92) between groups of Black and white girls. The chi-square difference tests were all statistically significant (P<.05), but the RMSEA point estimates with 90% CI and NNFI values were overlapping across models, and the values of the CFI did not change (ΔCFI = CFI$_{constrained\ model}$! CFI$_{unconstrained\ model}$) across the 3 models; a criterion of !0.01 has been reported to be robust for testing the multigroup invariance of covariance models.[32] Hence, the constructs and paths between constructs did not differ between groups of Black and white girls.

DISCUSSION

This study compared subjective norm, social provisions, and family support for predicting intention, MVPA, and team sport involvement within the TPB among adolescent Black and white girls. One primary finding was that subjective norm and social provisions were significant predictors of intention, and social provisions and intention were significant predictors of MVPA. The finding that social provisions was a stronger predictor of intention than subjective norm and that social provisions directly and indirectly predicted MVPA is consistent with previous studies (eg, Rhodes et al, 2002). Theoretically, the social-provisions construct should be applicable for explaining behaviors that are under incomplete volitional control because social provisions pertain to perceptions of social aid and assistance. Hence, social provisions could replace subjective norm when applying the TPB for understanding physical activity among adolescent girls.

Another primary finding was that family support more strongly predicted team sport involvement than MVPA. This is not surprising because the family support scale tapped into instrumental support and encouragement for physical activity, and family involvement (instrumental support and encouragement) is a large influence of an adolescent's ability or capacity to attend practices and sporting events/competitions/meets. So, the finding that family support was more strongly predictive of TSI than MVPA was expected and is consistent with previous studies.[34] Though the social provisions construct was a predictor of intention and MVPA, it was a stronger predictor of team sport involvement. Most measures of social support for physical activity have focused on the source (eg, family and friends) and specific types of support (eg, instrumental such as providing transportation for being physically active and encouragement for being active). In comparison, the social provisions scale is a global measure of social support and, in this study, included multiple types of social support, namely instrumental (guidance), appraisal (reassurance of worth), and reciprocity (nurturance). Because the concepts tapped by the social provisions scale are predictors and benefits of participating in team sports, the relationship between social provisions and team sport participation is expected. Team sports are social and group oriented by definition, whereas MVPA in adolescent girls may or may not be social in nature or involve groups. This, in part, may explain the why social provisions has a stronger direct effect on team sport involvement than on MVPA.

Rhodes et al[7] found that social support, but not subjective norm, predicted both intention and, to a lesser extent, strenuous exercise behavior in a sample of undergraduate male and female college students. The lack of a significant effect of subjective norms on intention in the study by Rhodes et al[7] might be explained by a relatively small sample size (N = 173). In the present study, social provisions and subjective norms were both predictive of intention, and social provisions was predictive of MVPA among a large cohort of adolescent girls (N = 1797). Hence, our results were very similar to those of Rhodes et al, despite the differences in the sample characteristics, measures of TPB constructs, and the focus on moderate-to-vigorous physical activity rather

than strenuous exercise. The study populations differed (college students in the previous study versus adolescent females in this study). Several of the scales used differed, including the measures for physical activity and social support. Rhodes et al[7] measured "strenuous physical activity" using the Godin Leisure-Time Exercise Questionnaire,[35] whereas we used the 3DPAR and participation in team sports. In the Rhodes et al study, the measure of social support combined elements of family support, friend support, and social provisions, whereas we separated the measures for family support and social provisions.[7] Our measure of social provisions included items reflecting the constructs of reciprocity (nurturance) and appraisal (reassurance of worth) support, which were not included in Rhodes et al. Hence, the observation that social provisions could replace subjective norm when applying the TPB for understanding physical activity is a fairly robust finding.

Although not the primary focus of this study, we found that both perceived behavioral control and attitude were strong predictors of intention, but perceived control did not have a direct effect on MVPA; its effect was mediated by intention. Considering only TPB constructs, MVPA appears to be under volitional control in this sample of adolescent girls because there are no direct effects from perceived behavioral control to MVPA. However, when social provisions and family support are included with TPB constructs, then MVPA does not appear to be under complete volitional control. Few studies have examined the influence of perceived behavioral control on physical activity in youth. Our results are not consistent with those of a study with sixth-grade students[36] that reported perceived behavioral control predicted objectively measured MVPA directly and indirectly through intention. Although this study suggests MVPA was not under volitional control in the sixth-grade sample, the model explained little variance in intention or MVPA for sixth-grade students.[36] Two earlier studies using the theory of planned behavior did not measure physical activity behavior, precluding an assessment of the effects of attitude, subjective norm, and perceived behavioral control on physical activity behavior.[37,38]

Social variables appear to play a limited role in predicting MVPA in this sample

of adolescent girls. This may be due in part to lack of clarity in defining and measuring these constructs. For example, the source (eg, peers, parents, or other adults), type (eg, perceived expectations of others, encouragement from others, or providing direct assistance), and direction (eg, encourage or discourage physical activity) of social influence are rarely distinguished. There may also be important social network characteristics to consider, including the role of reciprocity (eg, providing as well as receiving support). Future work examining the influence of social variables on physical activity in adolescent girls should refine the measures for subjective norm and further develop measures for social support based on social support and social network conceptual models.

Because participation in physical activity differs among different racial/ethnic groups,[9] we compared the relationships between the Black and white girls. The invariance analysis provided support for the comparability of the structure, factor loadings, and path coefficients across race. Hence, the social cognitive and physical activity latent variables were measured similarly, and their relationships with physical activity were comparable, for the 2 groups of girls.

The results of this study indicate that social support may be an important influence on team sport involvement in adolescent girls. This study used 2 measures to tap into the multidimensional nature of social support, including one source (family) and several types of support, as well addressing the construct of reciprocity. Further work with measures of social support that more fully tap into the dimensions of source, type, and direction of support may provide a better understanding of the role of social influence and social support on physical activity in adolescent females. Public health interventions that increase social support for physical activity in adolescent females may have potential to reduce the decline in physical activity reported for this age group.

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