PSYCHOMETRIC PROPERTIES OF THE CARING CLIMATE SCALE IN A PHYSICAL ACTIVITY SETTING

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KEYWORDS: Measurement, Youth programming, Multiethnic, Caring climate.
ABSTRACT: Scholars have emphasized the importance of creating a caring environment in physical activity settings. Given that there is currently no measure of a caring environment in the physical domain, the purpose of these two studies was to develop the *Caring Climate Scale* (CCS) and examine its psychometric properties. A caring climate is defined in this paper as the extent to which individuals perceive a particular setting to be interpersonally inviting, safe, supportive and capable of providing the experience of being valued and respected. In Study 1, 353 children in a sport camp completed the CCS. Exploratory factor analyses revealed an internally consistent single factor, labelled caring climate, and supported the validity of the measure. In Study 2, 395 sport campers completed the CCS and assessments of the programme's future involvement and reported value. Confirmatory factor analysis revealed support for a 13-item version of the CCS.

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Introduction

Research is providing increasingly more evidence that positive youth development is dependent on offering *intentional* programming. Participation alone does not result in growth and in fact may contribute to negative outcomes (Ewing, Gano-Overway, Branta, and Seefeldt, 2002; McLaughlin, 2000). Of particular importance are the characteristics of the settings in which programming occurs. The quality of relationships and social interactions that exist between and among youth and adults was identified in a National Research Council and the Institute of Medicine report on community programs and youth development as critical to fostering numerous social, academic, and psychological outcomes. Effective programs incorporate supportive relationships wherein social interactions are characterized by warmth, closeness, caring, support, guidance, good communication, secure attachment and responsiveness (Eccles and Gootman, 2002). These qualities are quite diverse but collectively they capture the psychological climate fundamental to positive development. An umbrella term that captures the essence of the qualities is 'caring'.

Caring has been identified as an important feature in the contextual life of young people (Noblit, 1993). Rhodes (2004) suggests that "caring youth-staff relationships" may be the most important factor determining the success of youth programs. Caring has also been identified as a key requisite in physical activity settings. Hellison (2003) regards caring as fundamental to engaging students in physical activity. Ennis (1999) suggests that establishing caring relationships are critical to "catch and hold the attention and interest of urban adolescents" to physical education (p. 165).

Larson (2006) suggests that physical education settings offer unique opportunities for caring to occur given the high level of interpersonal interaction. Despite the conceptual and philosophical importance of caring, researchers, particularly in sport and physical education settings, have tended to focus on achievement-related characteristics of the context (e.g., task-involving and ego-involving motivational climates). The ability to assess caring and explore its links with positive development would provide researchers, theorists, and practitioners a more complete understanding of the optimal environment to create in physical activity settings. Therefore, the purpose of the current investigation was to develop and validate a measure of participants' perceptions of a caring climate in the physical activity domain.

Delimiting the concept of caring is essential to adequate assessment and understanding. Noddings (1984, 1992, 1995) has written extensively on caring and the ethic of care in educational settings. She identifies caring as "stepping out of one's personal frame of reference and into the other's" (Noddings, 1984 p. 24). Essentially caring is a relation, something that one is engaged in, involving verbal and nonverbal cues as well as recognition of the motivation and intentions of individuals involved (Noddings, 1992). Noddings conceptualizes caring as containing two interrelated dimensions. First, caring for someone requires engrossment or attention. Engrossment and attention refer to the acts of fully attending to another, being open and receiving another in a bias free manner, or in more lay terms, *really* seeing, feeling, and caring for another. Engrossment also suggests that a caring person is nonjudgmental, does not attempt to shape another, and allows for a significant

amount of choice by the receiver of caring. Second, caring embodies motivational displacement. Motivational displacement refers to being empathetic, having concern for and giving priority to the needs of another. The needs of the care-receiver are given focused unyielding attention (Noddings, 1984, 1992, 1995). As an educational philosopher Noddings provides a strong rationale and foundation from which to consider the process and value of caring, but she does not address the very complex issue of measurement. With regard to the physical domain, having a tool to assess participants perceptions of the degree to which the environment is caring is an important next step in furthering this line of inquiry.

The education literature reveals that quantitative assessments of caring are very limited. Bulach, Brown, and Potter (1998) developed a 26-item Likert-type instrument to measure behaviors used by teachers to create a caring learning community. The instrument was created to identify caring behaviors and provide direction to teachers in the field wishing to create a caring environment. Based on a factor analysis conducted on the measure, five broad categories of caring behaviors emerged. These dimensions included the ability to reduce anxiety, willingness to listen, rewarding good behavior, being a friend, and appropriate use of criticism. Total instrument internal reliability was reported to be .80; however, consistency of the subcategories of caring behaviors was not reported. In addition, the theoretical or conceptual grounding of item creation was not clearly articulated. Lastly, the instrument focuses solely on teacher behaviors (e.g., "My teacher displays my work") and failed to capture other classroom generated contextual demonstrations of caring or perceptions of feeling cared-for by the care-giver.

Battistich and colleagues (Battistich, Solomon, Watson, and Schaps, 1997) utilize a self-report, Likert-type questionnaire to assess student autonomy and influence in the classroom (e.g., "In my class the teacher and students decide together what the rules will be") as well as caring and supportive interpersonal relationships in the classroom (e.g., "People care about each other in this school," "My class is like a family"). The researchers typically average the two subscales together to create a single indicator of students' sense of community within the academic setting (Battistich and Hom, 1997).

Battistich and colleagues' assessment of sense of community is broad, encompassing both autonomy focused items as well as interpersonal support and caring items. Additionally, the measure assesses community in two different contexts (in the classroom and in the school) and incorporates both personal and contextual aspects in the measure. For example, the personally focused item "The teacher lets *me* [italics added] choose what I will work on" and the contextually focused item "People care about *each other* [italics added] in this school" both appear in the measure. Including both types of items in one measure makes it very difficult to understand if variation in responses are due to feeling personally cared for and/or perceiving a context to be caring. Furthermore, the concept of school as community appears to be broader and inclusive of a more diverse range of constructs than is the focus of the present research.

In physical education Larson (2006) utilized a critical incident form to elicit students' descriptions of caring teachers. Content analysis revealed 11 categories of behaviors that were grouped into three subcategories. The subcategories were called

recognize me, help me learn, and trust/respect me. The main or collective category, referred to as paying attention to me, best characterized the range of responses. Larson's (2006) findings support Noddings (1984, 1992, 1995) contention that attention or engrossment are central in caring relationships. Furthermore her findings reveal that students do perceive caring acts within the physical education setting, suggesting the creation of a quantitative assessment of caring in the physical domain is quite relevant.

While limited research has been conducted examining a caring climate in a physical activity context, a strong body of work has assessed individuals' perceptions of the motivational climate in the physical domain utilizing Nicholls' theory of achievement motivation The motivational climate represents an individual's appraisal of the salient motivational goal structure and characteristics of a particular context, and variations in the motivational climate stem from the manner in which effort and ability are valued, recognized, and rewarded, (Ames, 1992; Newton, Duda and Yin, 2000). In a task-involving motivational climate effort and personal mastery are endorsed, cooperation among participants is encouraged, and everyone is made to feel that he/she plays an important role in the group. In an ego-involving motivational climate the demonstration of superior ability is rewarded, rivalry is encouraged, and mistakes are punished. Extensive research has revealed the benefits of creating a task-involving climate with regard to promoting adaptive motivational responses (Duda and Whitehead, 1999).

While one may argue that creating a task-involving climate reflects caring behaviors, (e.g., encouraging individuals to work hard to reach their personal potential), work in this area has focused on the achievement related aspects of the climate, and not directly

considered the caring nature of the climate which is based on perceptions of interpersonal warmth and support. Though the constructs of the motivational climate and a caring climate are distinct, conceptually logical relationships should emerge. A task-involving climate involves emphasizing individual improvement and should positively relate to a caring climate where the individual is prioritized, attended to, and valued. Endorsement of an ego-involving climate, on the other hand, requires that individual recognition be based on a hierarchical notion of ability and outcome and is contradictory to a caring climate. Thus, a caring climate should negatively relate to perceptions of an ego-involving motivational climate.

In sum, while scholars and researchers have emphasized the need for intentional programming as well as the importance of warm and supportive relationships in creating optimal settings and fostering positive youth development, little research on a caring climate has been conducted in the physical domain. Caring climate measures have been developed for use in an educational context, but they are limited in their applicability to the physical domain. To address these needs and limitations, the purpose of this project was to develop a self-report assessment of participants' perceptions of a caring climate in the physical domain, and examine its psychometric properties across two samples. The term *caring climate* was operationally defined as the extent to which individuals perceive a particular setting to be interpersonally inviting, safe, supportive, and able to provide the experience of being valued and respected. In Study One the *Caring Climate Scale* (CCS) was developed and its factor structure, validity, and internal reliability were examined. It was hypothesized that the measure would exhibit adequate face

validity and a single internally reliable factor characterizing perceptions of a caring climate would emerge. Additionally, convergent and discriminant validity were examined by correlating the new scale with the task- and ego-involving scales of the Perceived *Motivational Climate in Sport Questionnaire*. Specifically, a task-involving climate was hypothesized to be positively associated to the caring climate, supporting convergent validity, while an ego-involving climate was expected to negatively correspond with a caring climate, supporting discriminant validity. However, the magnitude of these relationships was expected to be small, indicating that the measure would be distinct from the motivational climate scales.

In Study Two, the factor structure identified in Study One was confirmed and additional evidence for the convergent validity of the measure was examined. Given the importance of maximizing attendance in after school and out-of-school programs such as the National Youth Sport Program (NYSP) this study examined the link between perceptions of a caring climate and future anticipated participation as well as the reported personal value given to NYSP. The notion that individuals may be more likely to engage in a caring environment is not without precedent. Ennis (1999) reported that urban adolescents were more likely to be engaged in physical activity in contexts that were trusting and caring. Watson, Newton, and Kim (2003) found a positive link between caring for others and sport interest, enjoyment, and future anticipated involvement in a physical activity program. Therefore, it was hypothesized that perceptions of a caring climate would be related to a greater desire to participate in the NYSP in the future and value the NYSP. Both findings would support the convergent validity of the CCS.

Study One

Method

Participants

Youth enrolled in the National Youth Sport Program (NYSP) participated in this study. Participants were from two NYSP programs. Some youngsters participated in an NYSP in the western region of the U.S. and others were from an NYSP in the mid-southern region of the U.S. Both NYSP sites have offered programming for over 10 years.

353 participants included boys (n = 214) and girls (n = 138) aged 9 to 17 years (M_{age} = 12.18, SD = 1.55). One participant did not report gender information. A majority of the campers (82%) were born in the United States and their race/ethnicity included Black/African American (69%), Hispanic/Chicano (12%), White/Caucasian (1%), Asian (1%), Venezuelan (.2%), Samoan (.2%), Other/Mixed (5%), and 12% who chose not to identify their race.

The NYSP is a federally funded summer program that has offered physical activity opportunities for underserved youngsters for over 30 years. Program funding eligibility stipulates that 90% of camp participants be from underserved or low-income families. The free five-week summer program includes a minimum of 50 instructional hours in sport/physical activity and drug and alcohol awareness programming.

Procedures

The investigators met with all campers and invited them to participate in the study. For those campers who desired to participate, parental consent was obtained prior to the data collection. Given that the questions were intended to tap the campers' per-ceptions of the environment within their NYSP program data were collected during

the fifth and final week of camp. Participants were gathered in small groups and given a questionnaire packet including demographic information, the *Caring Climate Scale*, and a modified version of the *Perceived Motivational Climate in Sport Questionnaire*. It should be noted that two versions of the questionnaire packet were created by counterbalancing the measures in order to reduce response bias. The head researcher read aloud each item while research assistants circulated in order to answer any questions. The questionnaire required approximately 25 minutes to complete. Due to the nature of the questions on the survey (i.e., asking specifically about the environment created by the NYSP leaders), no NYSP personnel remained in the room during the data collection.

Measures

Demographic Information. Campers were asked to report their age, gender, and ethnicity.

Caring Climate. The *Caring Climate Scale* (CCS) was developed to measure the extent to which youngsters perceive the social and interpersonal context to be caring. More specifically, the CCS assesses the extent to which individuals consistently perceive a particular setting to be interpersonally inviting, safe, supportive, and able to provide the experience of being valued and respected. Stemming from the conceptual frameworks and literature related to caring in youth contexts (Cohen, 2001; Hellison, 1995; Noddings, 1984, 1992, 1995) as well as the researchers' practical experience working with youth, items were developed to reflect a sense of caring. Caring stems not only from the leader but also emanates from others within the group setting. Therefore, the initial items referred specifically to the leader as well as more general items that referred to feeling

cared for within the group. A total of 30 initial items were generated to assess a sense of caring among youth participants in physical activity settings, and particular attention was paid to insure that the items were appropriate for use in the physical domain. Individuals with expertise in sport psychology, pedagogy, and social psychology examined 1) the extent to which each item reflected and was consistent with the conceptual framework and the operational definition; and 2) the quality of each item in terms of clarity and simplicity. Based upon the experts' evaluations and comments on the initial items, 10 items were removed resulting in the retention of 20 items. Given that the data were to be collected in a summer camp setting, a stem specific to the setting (NYSP) was added to each item (e.g., "In NYSP, the leaders accept kids for who they are."). Youth were asked to respond to each item using a five point Likert-type scale (1 = strongly disagree, 3 = not sure, 5 = strongly agree). A mean scale score was computed.

Perceived Motivational Climate. The *Perceived Motivational Climate in Sport Questionnaire* (PMCSQ; Seifriz, Duda, and Chi, 1992) was used to assess the extent to which the campers perceived a task or ego-involving climate in NYSP. The 21-item measure was slightly adapted for use in the NYSP program; the stem was changed from "On this team" to "In my group" and references to "coach" were changed to "leader." A sample-item from the task-involving scale (eight items) read "In my group, the group leader wants us to try new skills." and a sample ego-involving item (13 items) is "In my group, only the most athletic kids get noticed". Participants responded using a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). Mean scale scores were calculated for the perception of a task-

involving motivational climate as well as an ego-involving motivational climate. Previous research has supported the validity and reliability of this measure (Seifriz et al., 1992; Walling, Duda, and Chi, 1993). In the current investigation the task-involving and ego-involving subscales were found to have adequate internal reliability (α's = .72 and .75, respectively).

Results

Factor Validity and Internal Reliability of the Caring Climate Scale

An exploratory factor analysis (EFA) with maximum likelihood (ML) method was conducted to identify the underlying factor structure of the caring climate scale as well as the number of items that best represented this underlying structure (Berbing and Hamilton, 1996). The researchers developed the caring climate measure with a single factor in mind. However, if any additional factors emerged an oblique rotation would be used to interpret the factors given the researchers' belief that any additional factors, although distinct, would be correlated to some degree. The number of factors was determined by examination of the eigenvalues (> 1.0), the scree test, and the theoretical logic of the emerged factors. Once the potential factors were identified, interpretation of the factor was based on those items that achieved a factor loading of .55 or greater. This cutoff criterion is considered a good indicator (indicating 30% overlapping variance) of the concept being measured (Tabachnick and Fidell, 2001).

Prior to conducting the EFA the suitability of the correlation matrix was examined. The Kaiser-Meyer-Olkin measure of sampling adequacy was .94 and the Bartlett test of sphericity was significant (2981.4, $p <$ .0001) indicating the suitability of the data. In conducting the EFA three factors emerged

with eigenvalues above 1.0. However, examination of the scree plot demonstrated that one strong factor emerged from the data. Therefore, a second EFA was conducted forcing a single factor solution. This single factor represented a general notion of caring in the climate and accounted for 37% of the variance. However, examination of the factor loadings indicated that six items were below the .55 criterion (see Table 1). Based on reevaluation of each item's communality (i.e., its unique contribution to the single factor scale), and item-to-item correlations, these six items were removed in the subsequent analyses (Pett, Lackey, and Sullivan, 2003). A final EFA with ML method forcing a single factor solution was conducted and revealed a single factor accounting for 44% of the variance which is considered moderately acceptable (Fabrigar, Wegener, MacCallum, and Strahan, 1999) (see Table 1).

To determine the internal reliability of this revised 14-item measure an item analysis was conducted. The measure would be considered reliable if a) the inter-item correlations were between $r = .20$ and $r =$ .70; b) the item-total correlations were above $r = .40$; and c) Cronbach's alpha coefficient was above $\alpha = .70$ (Kidder and Judd, 1986). The scale was found to be internally reliable with a Cronbach alpha coefficient $\alpha = .92$, inter-item correlations ranging from $r = .24$ to $r = .66$, and corrected item-total correlations ranging from $r = .56$ to $r = .72$.

Descriptive Statistics

Descriptive statistics revealed that youth did perceive the climate created in the NYSP to be moderately caring. Additionally, according to the NYSP campers, a high task-involving climate and moderate ego-involving climate characterized the NYSP (see Table 2).

Caring Climate Scale Number and Item	Initial Analysis		Final Analysis	
	Factor Loadings	*h2*	Factor Loadings	*h2*
1. Kids are treated with respect.	.75	.57	.76	.57
2. The leaders respect kids.	.74	.55	.74	55
3. The leaders are kind to kids.	.71	.50	.70	.49
4. The leaders care about kids.	.68	.46	.69	.47
5. Everyone is treated with kindness.	.67	.44	.65	.43
6. Kids feel that they are treated fairly.	.66	.44	.66	.43
7. The leaders try to help kids.	.66	.44	.68	.46
8. The leaders want to get to know all the kids.	.66	.43	.66	.43
9. Everyone likes kids for who they are.	.65	.42	.64	.41
10. The leaders listen to kids.	.65	.42	.65	.43
11. The leaders accept kids for who they are.	.65	.42	.65	.42
12. Kids feel safe.	.61	.37	.60	.37
13. Kids feel comfortable.	.60	.36	.60	.36
14. Kids feel welcomed every day.	.58	.33	.58	.34
15. The leaders want kids to be successful.	.54	.29	—	—
16. Kids know everyone will be nice to them.	.53	.28	—	—
17. The leaders disrespect kids.	.48	.22	—	—
18. People miss them when kids are absent.	.47	.22	—	—
19. Kids feel like other kids care about them.	.43	.19	—	—
20. People make fun of each other.	.34	.12	—	—
Variance (%)	.37		.44	
Alpha Coefficient	.		.92	

Table 1. Factor Analysis of the Caring Climate Scale.

Variables	Means (SD)	Simple Correlations		
		1	2	3
1. Caring Climate Scale	3.80 (0.76)	1.00	.56**	-.36**
2. Task-involving Climate	3.98 (0.64)	1.00	-.19**	
3. Ego-involving Climate	3.12 (0.67)	1.00		

Note: ** *p* < .01

Table 2. Descriptive Statistics and Convergent Validity of Observed Variables

Convergent and Discriminant Validity

To examine convergent and discriminant validity of the CCS correlations were calculated between caring and task- and ego-involving climates. It was hypothesized that the caring climate would be distinct but positively related to a task-involving motivational climate (i.e., convergent validity) and negatively related to an ego-involving climate (i.e., discriminant validity). The correlational analysis demonstrated support for both convergent and discriminant validity; that is, the caring climate was positively correlated with the task-involving climate while being negatively related to the ego-involving climate (see Table 2). Therefore, those who perceived a caring climate were also more likely to perceive the environment as task-involving. However, it should be noted that the shared variance between these measures only ranged from 15% to 34% suggesting that the caring climate was distinct from the motivational climate, albeit moderately associated.

Discussion

The purpose of the first study was to develop a self-report questionnaire, the *Caring Climate Scale* (CCS), to assess the extent to which participants perceived a physical activity setting to be interpersonally inviting, safe, supportive, and able to provide an experience of being valued and respected. The CCS was designed based on the writings of Noddings (1984, 1992, 1995), Cohen (2001), and Hellison (1995). The initial items were validated by experts from multiple fields of study suggesting the items developed captured the notion of caring defined in the current study. This face validity was further supported by the exploratory factor analysis resulting in one single factor solution. The relatively robust internal reliability of the resulting single factor suggests that the participants responded to these items in a highly consistent manner lending support to the psychometric strength of the measure.

In addition to factorial validity, support was revealed for the convergent and discriminant validity of the CCS. The relationships between a perceived caring climate to perceptions of a task-involving and ego-involving motivational climate were significant, not particularly robust, and in the hypothesized directions. Thus, the CCS was related to perceptions of the motivational climate but was also distinct suggesting the CCS appears to measure a unique characteristic of the psychological climate. In summary, the findings from Study One supported preliminary psychometric properties for the CCS. Study 1 also contributes to the literature in sport and educational psychology by presenting a measure of the caring climate that is appropriate for use in physical activity settings. The CCS provides an alternative to the current measures that assess the caring environment in classroom and schoolwide contexts (Bulach et al., 1998; Battistich et al., 1997).

Based on the findings from Study One, Study Two had two primary purposes. The first purpose was to confirm the factor structure that was reported in the first study. It was hypothesized that adequate fit indices would result from the confirmatory factor analysis. The second purpose was to examine the convergent validity of the CCS in regard to two motivational variables, the campers' future anticipated involvement in the program and their reported value of participation in the program.

Study Two

Method

Participants

Youth in the National Youth Sport Program (NYSP) were invited to participate in this study. A total of 395 girls (n = 198)

and boys (n = 197) from two NYSPs were involved in this study. The majority of youth involved in NYSP were from low-income families given that NYSP program funding eligibility stipulates that 90% of participants be from underserved populations. The campers ranged in age from 9 to 16 years old (M_{age} = 11.80, SD = 1.54) and represented a variety of ethnic/racial groups (61% African American, 26% Hispanic Americans, 4% White Americans, .5% Asian American, .5% Vietnamese, .5% Samoan, .5% Native American, and 8% who did not identify their ethnic/racial group). A majority of the young people were born in the United States.

Procedures

The procedures used in Study One were utilized in this study. The questionnaire included demographic information, the *Caring Climate Scale*, and measures of campers' anticipated future involvement in NYSP, and the extent to which they value the NYSP experience. Although the questionnaire contained additional measures that were part of a larger research project, only those pertinent to this study are discussed.

Measures

Demographic information. To accurately describe the sample of young people who engaged in this study several demographic variables were measured including age, gender, ethnicity/race, and birthplace.

Caring Climate Scale (CCS). The revised 14-item questionnaire described in detail in Study One was utilized to assess perceptions of a caring context.

Future Involvement. A 3-item measure was constructed to discover whether youth involved in the NYSP anticipated wanting to participate in NYSP next summer (i.e., "I want to do NYSP again next year." "I am looking forward to NYSP next year." and "I

don't want to do NYSP next year."). Participants were asked to think about whether they wanted to be in NYSP next summer, read each statement, and then indicate on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree) how much they agreed with each statement. A mean scale score was computed with the third item noted above being reverse scored. Examination of the internal consistency of this measure revealed an acceptable level (α = .83).

Reported Value of NYSP program. To assess the value participants placed on their engagement in NYSP three items were created to tap this construct (i.e., "Being part of NYSP is important to me", "It means a lot to me to be part of NYSP.", and "I really value being involved in NYSP."). When completing the items, campers were asked to reflect on how important NYSP has been to them and then read each item and indicate how much they agreed with the statement on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). This measure was found to have high reliability in this study (α = .87).

Results

Confirmatory Factor Analyses Results of CCS

A confirmatory factory analysis (CFA) using AMOS 6.0 was conducted to confirm the factor structure of the 14-item CCS obtained in Study One. A number of fit indices were utilized to determine the fit of the factor structure of the CCS to the data (Hu and Bentler, 1999; Marsh, Hau, and Wen, 2004). The standardized root mean squared residual (SRMR) and the root mean square error of approximation (RMSEA) were employed to examine the extent of unaccounted variance in the model. In addition, the proportionate improvement in fit of the

target model against a more restricted, nested baseline model was determined by Tucker-Lewis index (TLI) and comparative fit index (CFI). According to the structural equation modeling (SEM) literature, obtaining a resultant SRMR near .08, RMSEA of .06 with 90% confidence interval, and a TLI ad CFI close to .95 are recommended to establish the acceptable fit of the hypothesized model (Hu and Bentler, 1999; Marsh, Hau, and Wen, 2004).

The normality of the data was tested using Mardia's coefficient of multivariate kurtosis (Arbuckle, 1999). Mardia's coefficient of multivariate kurtosis was statistically significant (multivariate kurtosis = 124.83, critical ratio = 54.93, $p < .05$) indicating that the data violated the normality assumption. To remedy non-normality of the data, a bootstrapping approach was conducted. This method is a well recognized strategy in the SEM literature for dealing with non-normally distributed data (Byrne, 2001).

The initial CFA supported the single factor structure. Although all 14 items significantly loaded on the single factor and the fit indices indicated an adequate fit of the data, SRMR = .04, CFI = .93, TLI = .92, and RMSEA = .07 (90% confidence interval = .06 - .08), this measure was inspected for any possible misspecifications in the model. Examination of the modification indices revealed one item ("In NYSP, everyone is treated with kindness.") shared a fair amount of variance (error variance = 1.04) with other manifest indicators. When this item was carefully reviewed, it seemed to reflect a general caring climate, which could be echoed in many other items causing lack of uniqueness among indicators. Particularly, this item

shared a fair amount of variance with one item ("Kids feel that they are treated fairly."). Due to the apparent interdependence of this item with other manifest indicators, the item was eliminated from the model.

With the one item removed a second confirmatory factor analysis was conducted. Goodness of fit indices for the revised CCS revealed that eliminating the one general item from the model enhanced the model fit. Observed fit indices with the revised model met the cut-off criteria specified in the SEM literature, SRMR = .037, CFI = .96, TLI =

.95, and RMSEA = .06 (90% confidence interval = .05 - .07), providing support for the proposed factor structure of the CCS. All standardized and unstandardized factor loadings for the indicators were statistically significant (p < .05) with all unstandardized coefficient/standard error ratios above 1.96. In sum, the final version of the CCS contained a total of 13 items measuring the perceived caring climate in a physical activity setting. The 13-item CCS is presented in Table 3 along with the standardized factor loadings and error variances.

Items	Standardized Factor Loadings	Error Variance
1. Kids are treated with respect.	.71	.67
2. The leaders respect kids.	.62	75
3. The leaders are kind to kids.	.69	.70
4. The leaders care about kids.	.74	.55
5. Kids feel that they are treated fairly.	.62	.73
6. The leaders try to help kids.	.68	.53
7. The leaders want to get to know all the kids.	.66	.75
8. Everyone likes kids for who they are.	.65	.77
9. The leaders listen to kids.	.70	.68
10. The leaders accept kids for who they are.	.64	.72
11. Kids feel safe.	.67	.52
12. Kids feel comfortable.	.63	.70
13. Kids feel welcomed every day.	.67	.67

Note: All factor loadings were significant at p < .01. The item numbers are same as Table 1.

Table 3. CFA Factor Loadings and Error Variances of the Final Version of CCS.

Descriptive Statistics

The responses to the newly developed CCS exhibited adequate variability (M = 3.86, SD = .77) with a range of 4.0 and internal reliability (α = .92). Simple correlation coefficients revealed a significant relationship between the caring climate and reported future involvement whereas reported value of the NYSP program was not significantly related to the CCS (see Table 4).

Variables	Means (SD)	Simple Correlations		
		1	2	3
1. Caring Climate Scale	3.86 (0.77)	1.00	.40**	.08
2. Expected Future Involvement	3.97 (1.04)		1.00	.05
3. Value of Program	3.85 (1.05)			1.00

Note: ** p < .01; All variables ranged from 1 to 5.

Table 4. *Descriptive Statistics and Simple Correlation Coefficients of Observed Variables.*

Convergent Validity of CCS

The second purpose of Study Two was to examine the convergent validity of the CCS to motivational indicators including anticipated future involvement and perceived value of the program. To overcome the shortcomings of simple correlational tests, Borshboom and colleagues have recommended using a more robust method to examine the validity of a measure, namely SEM (Borsboom, Mellenbergh, and Heerden, 2004). Utilizing SEM, it was hypothesized that the perceived caring climate would positively predict these motivational indicators.

The results of the SEM showed acceptable model fit indices, SRMR = .035, CFI = .97, TLI = .97, and RMSEA = .04 (90% confidence interval = .03 - .05). More specifically, the caring climate was positively linked to the children's intention to participate in the program in the future. Although there was a positive link from the caring climate to reported value of the NYSP program, this relationship was not statistically significant (see Figure 1).

Discussion

The purpose of Study Two was to further explore the validity and reliability of the *Climate Caring Scale* by conducting a confirmatory factor analysis and examining the convergent validity of the measure. The CFA on the 14 item measure identified in Study One revealed a reasonable fit. After removing one general item from the measure, the scale was found to demonstrate a good fit of the data. The maximum likelihood estimates suggested that each item in the measure was correctly assigned to the notion of a setting being perceived as caring. These findings further refined the measure and lend support

to the conceptual viewpoint of the current study that the multiple characteristics of a caring climate (Noddings, 1984, 1992, 1995) can be viewed as a single general notion of the construct.

The internal reliability of the resultant 13 item Caring Climate Scale was strongly supported suggesting that participants responded extremely consistently to the items. Using structural equation modeling, convergent validity was partially supported, in line with predictions. The *Caring Climate Scale* was positively and significantly associated with desire for future involvement in the camp but not with valuing the program. In line with previous research linking a sense of belonging

and levels of participation (Anderson-Butcher and Conroy, 2002) as well as motivation (Goodenow, 1993), perceiving the climate to be caring was affiliated with continued plans to be involved in the program.

The lack of a significant link between perceptions of a caring climate and value might be explained by the role of NYSP in the lives of the youth that attend. NYSP is truly an oasis for many of the youth. They are given the opportunity to travel daily to a college campus, their meals/snacks are provided, and they play sports and swim for five weeks during the summer. It is a valued respite, whether it is perceived as caring or not, from their sometimes tumultuous lives.
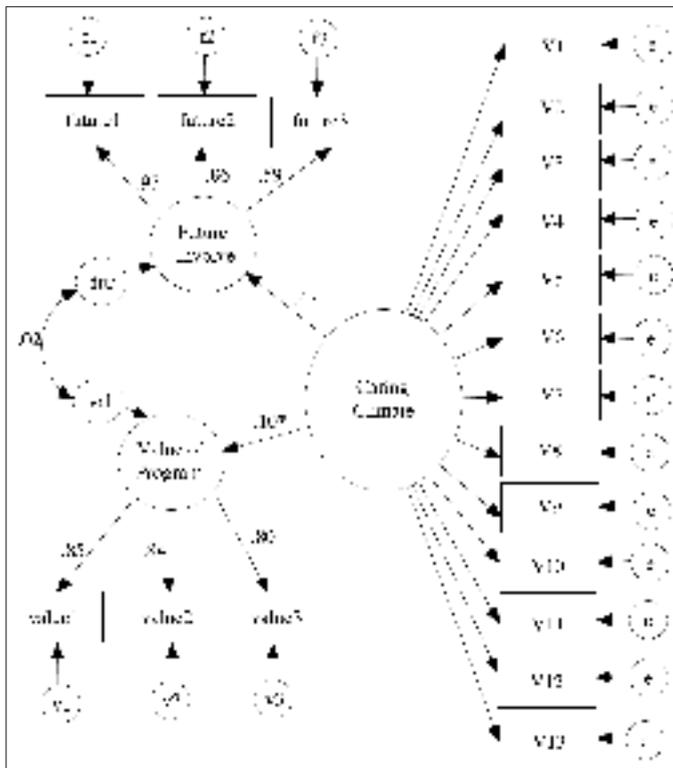

Figure 1. SEM results of Caring Climate Scale and motivational indicators.
Note: (*) indicated statistically insignificant links.

Conclusions

These two studies reflect an initial attempt to quantitatively measure the concept of a perceived caring climate in the physical activity domain and test the psychometric properties of the newly developed *Caring Climate Scale*. The findings support the initial validity and reliability of the scale.

Scholars, researchers, and practitioners have advocated for the importance of a warm and supportive context when attempting to foster optimal development in youth (Eccles and Gootman, 2002; Rhodes, 2004). While the CCS can be used to assess the caring climate in various youth activity contexts (i. e., the items are not especific to physical activity), it was developed to provide an appropriate tool for sport psychology researchers to explore to a greater degree the social emotional impact of physical education, physical activity, and sport on youth.

While the psychometric findings for the CCS are promising, it is critical that further study is pursued. The development of this caring measure drew on Noddings' theoretical work, research conducted within the education setting, and researchers' experience working in youth sport settings, it may be that other aspects of caring salient to individuals participating in physical activity settings may emerge in future research. The inclusion of qualitative methods to explore the concept of caring could address this issue and provide important insight into youngsters' experiences in the physical domain.

In addition, although the initial analysis using EFA of the CCS helped identify a single factor that accounted for significant variance in the data, the CFA procedures further identified additional variance that remained after the factor was taken into account. Thus, the measurement model was slightly modified during confirmatory factory analyses, which warrants further investigation of the factor structure of the CCS utilizing additional samples.

Finally, conducting additional structural analyses (e.g., measurement invariance) of the CCS with a variety of samples would be informative relative to the psychometrics of the instrument. The youth in this study were involved in recreational physical activity. It would be useful to examine the factor structure, the validity and reliability of the measures in different settings (e.g., physical education, competitive sport, and exercise settings), with participants of different skills levels (e.g., novice, skilled, and elite athletes), and with different groups (e.g., gender, ethnicity, SES, the impact of caring in leadership settings).

Noddings (1995) reflected on the nation's ardent push for solely focusing on academic standards in middle school by stating that, "… we will not achieve even that meager success [academic success] unless our children believe they themselves are cared for and learn to care" (p. 675). A similar dynamic might be occurring in physical activity settings. It may equally be unlikely that we are able to increase our youngster's physical activity status and foster their development *unless* we learn to care and our youngsters feel cared for. The development of the *Caring Climate Scale* may serve as a useful tool in understanding and maximizing the experience of youngsters in physical activity settings.

PROPIEDADES PSICOMÉTRICAS DE LA ESCALA DE CLIMA DE CUIDADOS EN ACTIVIDAD FISICA

PALABRAS CLAVE: Cuestionario, Planificación de entornos juveniles, Multirracial, Clima de apoyo y afecto.

RESUMEN: Los académicos subrayan la importancia de crear entornos de apoyo y afecto en ámbitos de educación física. Dado que no existe un instrumento de medida de este tipo de clima en dichos entornos, el principal objetivo de esta investigación consistió en desarrollar una escala de medida de esta variable (*Caring Climate Scale;* CCS) así como en examinar sus propiedades psicométricas. La variable clima de afecto y apoyo fue definida como el grado en el que un entorno   específico se percibe como atrayente, de apoyo y capaz de posibilitar el sentirse valorado y respetado. En el estudio 1, 353 participantes en un campamento deportivo completaron el cuestionario. Análisis factoriales exploratorios demostraron la existencia de un factor único (clima de afecto y apoyo) y apoyaron la validez de la escala. En el estudio 2, 395 jóvenes completaron la escala así como medidas de participación futura y el valor percibido del programa. Análisis factoriales confirmatorios apoyaron la versión de 13 ítems del CSS.

PROPIEDADES PSICOMÉTRICAS DA ESCALA DE CLIMA DE SUPORTE EM CONTEXTOS DE ACTIVIDADE FISICA

PALAVRAS-CHAVE: Questionário, Planificação de contextos juvenis, Multi-étnico, Clima de suporte, Actividade física.

RESUMO: Os académicos realçaram a importância de criar climas de suporte nos contextos de Actividade Física. Visto não existir um instrumento de medida apropriado para avaliação neste domínio, o objectivo destes dois estudos consistiu no desenvolvimento de uma escala de medida desta variável (*Caring Climate Scale*; CCS) e na análise das suas propriedades psicométricas. A variável clima de suporte foi definida neste trabalho como o grau em que os indivíduos percepcionam um determinado contexto como sendo seguro, apelativo do ponto de vista interpessoal e capaz de proporcionar percepções pessoais de valorização e respeito. No estudo 1 completaram o questionário 1353 crianças de um acampamento desportivo. As análises factoriais exploratórias demonstraram a existência de um factor único (clima de afecto e de apoio) e apoiaram a validade da escala. No estudo 2, 395 jovens completaram a escala, indicaram a sua intenção de participação futura e o valor percebido do programa. As análises factoriais confirmatórias apoiaram a versão de 13 itens do CCS.

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