Perceived physical competence and body image as predictors of perceived peer acceptance in adolescents.

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Abstract:
The purpose of this study was to investigate the relationships among perceived physical competence, body image, and peer acceptance. Body image was considered as a possible mediator of the relationships between perceived physical competence and peer acceptance. Adolescents (N = 838) completed questionnaires. Direct and indirect effects of perceived physical competence and body image on perceived peer acceptance were explored using structural equation modeling. Gender differences were found and the structural mediation model was a reasonable fit to the data; the pattern of relationships in the model was different for adolescent males and females.

Keywords: appearance satisfaction | appearance orientation | peer | perception | structural equation model | physical competence | adolescents | peer acceptance

Article:
Peer acceptance and interaction have been identified as dominant factors influencing (affected by) adolescents' perceptions, attitudes, and behaviours (Smith, 1999; Ullrich-French & Smith, 2006; Weiss, 2008; Weiss & Smith, 2002b). Particularly because children and adolescents spend most of their time with friends, peer acceptance is linked strongly to their environments and encourages them to participate in particular activities in order to construct their lives better. For example, if they have a good relationship with their friends, and experience friend acceptance, trust, and communication, they are more likely to be motivated to be involved with their friends. Peers are conceptualized as same or near-age cohorts, such as classmates, teammates, or friends (Smith, 2006). The majority of developmental, educational, and sport psychology research targeting youth peer acceptance has emphasized either friendship or popularity (Berndt & Ladd, 1989; Gifford-Smith & Brownell, 2003; Weiss & Stuntz, 2004). Friendship involves having a close, mutual, dyadic relationship, whereas popularity is the experience of being liked or accepted by one's peers (Bukowski & Hoza, 1989; Smith, 2003). According to interpersonal theory (Sullivan, 1953), which has had a strong influence on the study of peer acceptance, both peer acceptance (popularity) and friendship are critical to youth development. In addition, based on social-cognitive theories to identify contextual and individual sources explaining youth

development, peer influence is referred to as the social contextual factor that affects youth beliefs and behaviours (Ullrich-French & Smith, 2006; Weiss, 2008). In these theoretical perspectives peer acceptance in sports and physical activities is vital for organizing children and ensuring adolescents have healthy lives.

When participating in sports and physical activities, children or adolescents practice with, compete with, and compare their capabilities to their peers who are of relatively equivalent social standing and power. Peers are a main draw for young people who participate in sport; peers help young people fulfil their interest in social comparison and judge their capabilities; and interventions have been successful in fostering social and moral development (Smith, 2006). Peers therefore, may play a unique and central role in shaping the quality and meaning of a student's sport experience.

Although peers have been highlighted in previous research, particularly in youth sport, the systematic study of peer groups, relations or interactions in sport is in its infancy (Gill & Williams, 2008). However, substantial indirect support exists to suggest that peer acceptance matters in sport and that sport matters to peer acceptance, and there is a relatively limited research base that directly targets peer acceptance in the sport context (Smith, 2006). For example, the literature on sport participation, motivation and preferred sources of competence information supports the idea that peer acceptance matters in sport. Smith (1999) examined the influence of peer acceptance on motivation and affective responses associated with physical activity among adolescents, and found that students who have close personal friendships within physical activity are more apt to like the activity, to be more motivated to achieve through hard work, and to be active participants. Weiss and Smith (2002a) indicated that a host of intervention programs grounded in sport and physical education have been successful in creating social and moral developmental changes in young people. This suggests that the sport context can be shaped to foster positive peer acceptance for children and adolescents.

The current study focuses on the role of perceived competence, which is linked strongly with motivation to be involved in sport and physical activity, and peer acceptance. Smith (2006) suggested that young people might believe that being good at sports is a means to peer acceptance and friendship, and that sport competence is a more effective means to obtain social acceptance than competence in other activities such as school. Research suggests that youth, especially boys, perceive competence in sport as important to their peer acceptance (Adler, Kless, & Adler, 1992; Chase & Dummer, 1992; Smith, Ullrich-French, Walker, & Hurley, 2006; Weiss & Duncan, 1992). In Chase and Dummer's (1992) study, boys reported that being good at sports was most essential to their social status. In addition, Ullrich-French and Smith (2006) reported that perceptions of social acceptance were positively correlated with perceived physical competence, and Weiss and Duncan (1992) found that the children's' perception of physical competence in the sport context was a predictor of peer acceptance.

Thus, young people believe that physical competence is valuable social currency, enabling both acceptance by the large peer group and opportunities for friendship (Smith, 2006; Ullrich-French & Smith, 2006). Overall, research on peer acceptance in sport is important because peers are directly involved in most adolescents' physical activity experience, and because the knowledge base on peer acceptance in sport is relatively underdeveloped (Smith, 2006).

Friendship and social functioning are not only related to perceived physical competence, but also have a positive relationship with adolescents' physical appearance and body image. Chase and Dummer (1992) found that girls reported that being pretty was most important to realizing their social status, followed by being good at sports; boys reported that being handsome was the second most important variable after sports. In addition, Schutz and Paxton (2007) found that body dissatisfaction and social physique anxiety were negatively correlated with positive aspects of friend acceptance (friend communication, friend trust, and peer acceptance). Overall, body image and social physique anxiety more strongly influence peer acceptance of female students compared with male students (Mack, Strong, Kowalski, & Crocker, 2007). Also, body image dissatisfaction has been found to be significantly related to perceived social problems and lower connectedness to others (French, Story, Downes, Resnick, & Blum, 1995). Thus, perception of physical appearance and body image is a key component of adolescent peer acceptance.

Furthermore, body perceptions are particularly relevant to sport and exercise psychology. Research examining adolescents' body image has revealed that physical capabilities are an important dimension of body image satisfaction for boys (McCabe, Roberts, & Morris, 1991). For example, Asci, Gokmen, Tiryaki, and Asci (1997) found that adolescents were likely to have higher body image satisfaction when they had higher perceived athletic competence. Also, MacKinnon et al. (2003) tested relationships among body attributes and psychological esteem, including perceived physical competence, and reported that body image was affected by athletic competence. Considerable research confirms that perceived physical competence has a positive relationship with body image (Ebbeck & Stuart, 1993; Fox, 2002; Lyu & Pyo, 2005; Richman & Shaffer, 2000). Therefore, in this study, we considered the relationships between perceived physical competence and body image.

Based on the research on perceived physical competence, body image, and peer acceptance, all variables are correlated with each other. In adolescents, perceived physical competence and body image are key factors in peer acceptance in sport settings; however, their combined association with peer acceptance is not well understood. The purpose of this study is to more clearly deliberate those relationships.

Considerable research has suggested that these variables differ depending on the students' gender. The research has consistently demonstrated that boys and girls perceive their physical capability in sport settings differently, and that males have higher perceived physical competence than females (Asci, Kosar, & Isler, 2001; Bois, Sarrazin, Brustad, Trouilloud, & Cury, 2004; Fredericks & Eccles, 2005; McKiddie & Maynard, 1997; Nicaise, Bois, Fairclough, Amorose, & Cogerino, 2007). For example, Nicaise et al. (2007) investigated the effect of teachers' feedback on psychological responses, including physical competence in physical education classes, and found that male students perceived their ability in classes higher than did female students.

Also, research indicates that gender is a salient factor in body image, which is an important predictor of self-esteem or self-satisfaction for adolescents (Guinn, Semper, Jorgensen, & Skaggs, 1997; Williams & Currie, 2000). Several researchers have reported that males have a more positive body image than females, whereas females are more dissatisfied with their body image than males (Cohn & Adler, 1992; Jung & Forbes, 2007). Hagger and Stevenson (2010)

and Smith (2004) found gender differences in social physique anxiety in adolescents. Female adolescents had higher social physique anxiety, which reflects an individual's concern with the presentation of the physique in situations in which others are perceived to be evaluating them. Furthermore, research in Korea has found gender influences on body image. Lyu (2009) found female adolescents were more interested in their appearance compared to males, and females perceived that they were obese although in reality they were of a normal weight or underweight. Jeong and Chu (2010) found gender influences on appearance satisfaction and orientation in body image.

In addition, from a very early age significant differences are found in the peer relationships of girls and boys (Rose & Rudolph, 2006; Rudolph, Ladd, & Dinella, 2007; Weiss & Smith, 2002b). Girls' friendships typically are characterized by greater exchange of emotional provisions than those of boys (Maccoby, 1990, 1998). Other research found that compared to boys, girls reported that their friendships involved more closeness, affection, and nurturing (Bukowski, Hoza, & Boivin, 1994; Lempers & Clark-Lempers, 1992; Parker & Asher, 1993).

Several studies found gender differences in the relationships among these variables. Lee (2009) used structural modelling with body image, social concept, and clothing behaviours and found direct and indirect effects in the models differed according to gender. Additionally, Lyu (2009) found gender differences in the relationships among perceived physical competence, preference of physical activity, and body image with adolescents. Male adolescents who preferred physical activity were more interested in their appearance than males who didn't prefer physical activity, while females were interested in their appearance regardless of preference for physical activity.

In addition, many studies have indicated that female students, compared to male students, more often prefer same-sex classes and perform better in these than coeducational classes (Leonard, 2006; Lyu & Gill, 2011; Zittleman, 2006). Female students reported more positive and adaptive perceptions in same-sex classes and they felt more comfortable and enjoyed class more with same-sex peers (Lyu & Gill, 2011). These studies suggest that research is needed to explore gender influences on the pattern of relationships for male and female adolescents. Therefore, in this study we considered gender differences in perceptions, as well in patterns of relationships among perceived physical competence, body image, and perceived peer acceptance.

Consequently, the purpose of the current study was to examine how adolescents' perceptions of their physical competence and body image predict perceived peer acceptance. Based on previous theoretical and empirical research, we considered two hypotheses:

Hypothesis 1: Perceived physical competence would predict body image and perceived peer acceptance in adolescents.

Hypothesis 2: The relationships between students' perception of physical competence and peer acceptance would be mediated by their body image.

Therefore, in this study the proposed structural model presents both the direct effect of perceived physical competence on body image and perceived peer acceptance, and also an indirect effect of perceived physical competence on perceived peer acceptance via the meditation of body image.

That is, perceived physical competence simultaneously directly predicts perceived peer acceptance and also predicts body image, which in turn predicts perceived peer acceptance. Improving adolescents' perception of physical ability and body image might be a logical first step in helping their perceived peer acceptance.

However, several other models could also fit the current data. For example, according to research on sources of physical competence information (Horn, 2004; Horn & Amorose, 1998; Lyu & Pyo, 2007), students are influenced by their friends when they evaluate their abilities in sports and physical activity. In particular, peers' feedback or praise in physical education class tends to be considered approval of physical skills. Therefore, social factors such as peer interactions in physical education could influence perceived physical competence and body image. Indeed, peers are particularly important to adolescent motivation. Therefore, we proposed four alternative hypothesized models, and analyzed which model would best fit these data: [model 2] PC and BI predict perceived peer acceptance; [model 3] BI simultaneously directly predicts perceived peer acceptance and also predicts perceived physical competence, which in turn predicts perceived peer acceptance, perceived physical competence is a mediator between perceived physical competence and perceived peer acceptance; [model 4] perceived peer acceptance simultaneously directly predicts BI and also predicts perceived physical competence, which in turn predicts BI; and [model 5] perceived peer acceptance simultaneously directly predicts perceived physical competence and also predicts BI, which in turn predicts perceived physical competence.

Method

Participants

The participants were 838 (466 males and 372 females) students in Korean middle schools. Students ranged in age from 11 to 14 ($M = 13.49$, $SD = 0.98$). The sample was recruited from six schools that agreed to participate. The approximate percentage of participants from each grade level was as follows: Grade 7, 40%; Grade 8, 34%; and Grade 9, 26%. Participants were informed that the completed questionnaire would assist researchers and physical education teachers in better understanding their thoughts and feelings about physical ability. All participants were assured that participation in this study had no bearing on their physical education grade, and their anonymity would be respected. Parental and student consent were obtained for all participants to comply with university human subjects protocol.

Instruments

Perceived physical competence.

Students' perceived physical competence was assessed according to the Hierarchical Physical Competence Scale (HPCS), which Lyu (2008) developed based on the Physical Self-description Questionnaire (PSDQ) (Marsh, Richard, Johnson, Roche, & Tremayne, 1994) and Self Description Questionnaire SDQ (Marsh, 1992) in order to verify Fox's (1998) hierarchical competence model within the physical domain. The hierarchical levels in the model reflect the degree of specificity, with lower levels becoming increasingly task- or time-/state-focused (Fox, 1998). The HPCS measures four levels, including four items for each of the four sub-scales: performance competence (handball shooting); sports competence (handball); physical competence; and physical self-worth. The reliability and validity of the HPCS in Korean

adolescents was confirmed by several methods, including reliability analysis, exploratory/confirmatory factor analysis, and correlations with other variables such as intrinsic motivation and source of perceived physical competence (Lyu, 2008).

In this study, only the physical competence subscale, including four items, was used (e.g. 'I am good at sport/exercise'). Students answered on a six-point scale that ranged from 1 – definitely disagree to 6 – definitely agree. The physical competence subscale demonstrated acceptable reliability. Specifically, Cronbach's alpha coefficient was 0.90. Also, in confirmatory factor analysis the indices of the one-factor model exhibited a good fit to these data, $\chi 2\ (2) = 46.03$, $p < 0.01$, GFI = 0.97, NNFI = 0.98, CFI = 0.98, and RMSEA = 0.08. Based on the results, all indices except Normed $\chi 2$ were acceptable (Kline, 2005). The HPCS is the appropriate measure of the perception of physical competence in this study with Korean adolescents.

Body image. In order to investigate students' body image, the Multidimensional Body-Self Relation Questionnaire (MBSRQ) was used. The physical appearance-related subscales of the MBSRQ (Cash, 2000) measure attitudes toward appearance and the body. In this study, two subscales were used: appearance satisfaction and appearance orientation. Two bilingual experts translated the items into Korean. Subsequently, the translation was independently subjected to a reverse translation to determine the accuracy of the initial translation for content validity. The appearance satisfaction subscale contained seven items that assessed respondents' satisfaction with their overall physical appearance (e.g. 'I like my looks just the way they are'). The appearance orientation subscale (12 items) assessed the importance of appearance, and the degree of behavioural investment in grooming (e.g. 'Before going out, I usually spend a lot of time getting ready'). Participants answered on a five-point scale that ranged from 1 – definitely disagree to 5 – definitely agree. These subscales have been used in other studies related to body image and have demonstrated construct validity and internal reliability (Cash, Ancis, & Strachan, 1997; Izgiç, Akyüz, Dogan, & Kugu, 2004; Rusticus & Hubley, 2006), particularly for Korean adolescents (Kim & Lee, 2001; Park & Choi, 2008). In the current study, the subscales demonstrated acceptable reliability and validity. Specifically, Cronbach's alpha coefficients indicated good internal reliability of the subscales for appearance satisfaction (0.76) and appearance orientation (0.90). Also, the data were analyzed through confirmatory factor analysis. The indices of the two-factor model exhibited a good fit to these data, $\chi 2\ (64) = 503.41$, $p < 0.01$, GFI = 0.91, NNFI = 0.90, CFI = 0.91, and RMSEA = 0.07. Based on the results, all indices except Normed $\chi 2$ for the two-factor model were acceptable.

Perceived peer acceptance. Perceived peer acceptance was assessed with Marsh's (1992) SDQ II, short version. The SDQ II has been used in many studies for general self-perception as well as sub-domain self-perceptions including peer acceptance. On the SDQ, perceived peer acceptance has two parts (same-sex peer acceptance and opposite-sex peer acceptance). Girls and boys differ in their peer interactions with same-sex peers and opposite-sex peers (Rose & Rudolph, 2006), therefore we investigated adolescents' perceptions of their acceptance with same-sex peers and opposite-sex peers in the general context according to gender. For same-sex peer acceptance students rated their popularity with members of the same-sex and how easily they make friends with members of the same-sex with four items on a six-point scale. Similarly, students rated their popularity with members of the opposite-sex and how easily they make friends with members of the opposite-sex with four items on a six-point scale. In this study, coefficients for internal

reliability of the subscales were same-sex peer acceptance (0.77) and opposite-sex peer acceptance (0.84). In confirmatory factor analysis, the indices of the two-factor model exhibited a good fit to this data, $\chi 2$ (19) = 268.12 $p < 0.01$, GFI = 0.92, NNFI = 0.90, CFI = 0.90, and RMSEA = 0.12. Based on the results, all indices, except Normed $\chi 2$ and RMSEA, were acceptable.

Data analysis

Statistical analysis was conducted using the SPSS 15.0 version program and Amos 5.0 program. MANOVA was used to investigate the differences in perceived physical competence, body image, and perceived peer acceptance according to gender. Based on previous research, which indicated gender differences of variables used in this study, correlation analysis and structural equation modelling procedures were used to investigate the relationships among all variables. Multi-sample analysis was used in order to analyze and compare the structural model 1 in the two genders simultaneously. In addition, we analyzed four alternative structural models to find which model would best fit the current data.

Results

Descriptive analysis

Descriptive statistics for the study variables are presented in Table 1. MANOVA was conducted to examine gender differences in perceived competence, body image (appearance satisfaction and orientation), and perceived peer acceptance (same-sex and opposite-sex peer acceptance). The results reveal a significant multivariate effect for gender, Wilks' lambda = 0.81, F (5, 832) = 38.46, $p < 0.001$, $\eta 2 = 0.19$. The main effect of gender is revealed for perceived physical competence, appearance satisfaction, appearance orientation, and opposite-sex peer acceptance, but not same-sex peer acceptance. As Table 1 indicates, male students reported higher perceived competence than female students. Also, males were more satisfied with their appearance than females, but females were more appearance oriented than males, suggesting that females are more concerned about their appearance than males. On the opposite-sex peer acceptance female students reported higher scores than male students. Interestingly, both male and female students had higher scores on same-sex peer acceptance compared to opposite-sex peer acceptance, even though there was no gender difference. That is, both male and female students perceived that they easily made friends with same-sex friends.

Table 1. Mean differences in variables by gender (*N* = 838)

Variables	**Male (*n* = 466)**	**Female (*n* = 372)**	**Both**	**F**	**η^2**
Perceived competence	3.32 (1.22)	3.03 (1.20)	3.19 (1.22)	11.44**	0.01
Appearance satisfaction	2.81 (0.70)	2.61 (0.69)	2.72 (0.70)	17.69**	0.02
Appearance orientation	2.72 (0.79)	3.39 (0.75)	3.02 (0.84)	152.71***	0.15
Same-sex acceptance	4.38 (0.95)	4.29 (0.88)	2.95 (1.12)	1.97	0.00
Opposite-sex acceptance	2.84 (1.14)	3.09 (1.05)	4.34 (0.92)	11.03**	0.01

Correlation analysis

We used correlation analysis separately for males and females to examine the associations among the perceptions of physical competence, body image, and perceived peer acceptance because gender differences were found in this study. The magnitude of these correlations in male adolescents ranged from 0.03 to 0.42 (see Table 2). Perceptions of physical competence and the appearance satisfaction sub-scale of body image were moderately correlated with both same-sex and opposite-sex peer acceptance. Appearance orientation had only a positive relationship with opposite-sex peer acceptance. The magnitude of these correlations in female adolescents ranged from 0.03 to 0.30 (see Table 2). Perception of physical competence and the appearance satisfaction sub-scale of body image were moderately correlated with both same-sex and opposite-sex peer acceptance. Also, appearance orientation had a positive relationship with both same-sex and opposite-sex peer acceptance.

Table 2. Correlations among all variables *N* = 838

Variables	Male (*n* = 466)				Female (*n* = 372)			
	PC	**AS**	**AO**	**SSR**	**PC**	**AS**	**AO**	**SSR**
Perceived competence	1.00				1.00			
Appearance satisfaction	0.42**	1.00			0.29**	1.00		
Appearance orientation	0.21**	0.07	1.00		−0.03	−0.04	1.00	
Same-sex acceptance	0.38**	0.35**	0.03	1.00	0.23**	0.28**	0.25**	1.00
Opposite-sex acceptance	0.38**	0.25**	0.29**	0.27**	0.30**	0.23**	0.18**	0.29**

**$p < 0.01$.

Structural equation model analysis

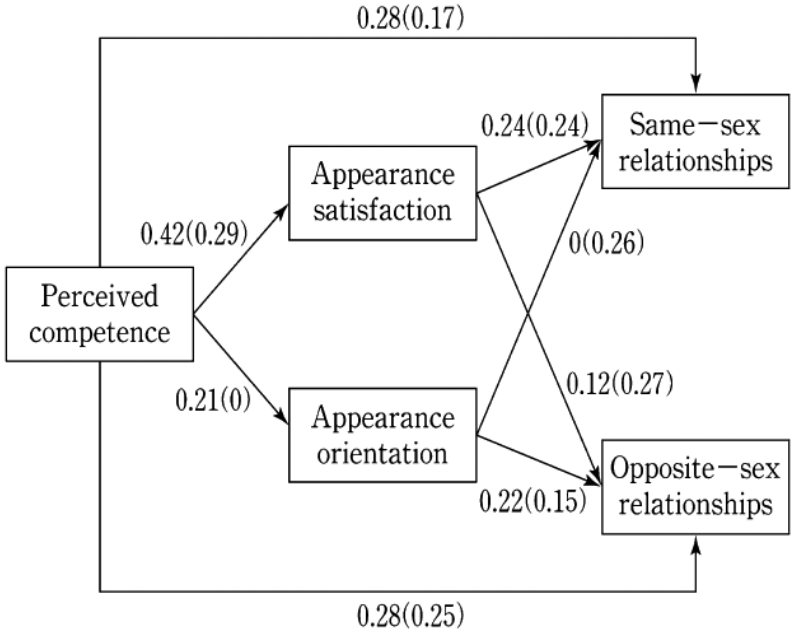
Structural equation modelling procedures were used to test the five hypothesized models, which explain the relationships of all variables. First, we examined the fit indices of main model 1 (Model 1 in Table 3). As a result, the structural model 1 was verified as a good fit and all indices except Normed $\chi 2$ were acceptable: Normed $\chi 2 = 10.63$, $p < 0.01$, GFI = 0.99, NNFI = 0.95, CFI = 0.96, and RMSEA = 0.08. In addition, multi-sample analysis was used to test the model 1 in the two genders simultaneously with perceived physical competence having both a direct effect on perceived peer acceptance (same-sex and opposite-sex acceptance) and an indirect effect through body image (appearance satisfaction and orientation) as a mediating variable. In both male and female adolescents, indirect effects between perceived physical competence and same-sex or opposite-sex peer acceptance were found. To compare the fit of the two models, male and female, pairwise comparisons between path coefficients were invested. The results indicate that the four paths were different in the estimated group parameters across the two models (between perceived competence and appearance satisfaction, perceived confidence and appearance orientation, perceived competence and same-sex acceptance, appearance orientation and same-sex acceptance).

Table 3. Goodness of fit statistics for the estimated models

Model	Normed χ^2 (χ^2/df)	GFI	NNFI	CFI	RMSEA
1. Note: AS, Accepted Standard; CFI, Comparative Fit Index; GFI, Goodness of Fit Index; NNFI, Non-Normed Fit Index; Model 1, modification of the structural equation model for males; Model 2, modification of the structural equation model for females; RMSEA, Root Mean Square Error of Approximation.					
A.S	(>5.00)	(>0.90)	(>0.90)	(>0.90)	(<0.08)
Model 1	3.67 (11.01/3)	0.99	0.97	0.94	0.07
Model 2	4.10 (12.30/3)	0.99	0.93	0.94	0.08

In detail, the results of the proposed structural equation model 1 in male adolescents show that same-sex peer acceptance is not significantly predicted by students' appearance orientation, whereas the proposed relationships of other variables were significant. Therefore, the relationships between appearance orientation and same-sex peer acceptance were excluded from the model. We re-examined and reported the fit indices of this modified model with structural equation modelling procedure (see Fig. 1 and Model 1 in Table 3). As a result, the structural model with modification was verified as a good fit and accepted: Normed $\chi 2 = 3.67$, $p < 0.01$, GFI = 0.99, NNFI = 0.97, CFI = 0.94, and RMSEA = 0.07.

Figure 1. The modification model for male and female students. Fit indices: male (female).



In female adolescents the results of the proposed structural equation model showed that appearance orientation was not significantly predicted by students' perceived physical competence, whereas the proposed relationships of other variables were significant. Therefore,

the relationships between perceived physical competence and appearance orientation were excluded from the model. We re-examined and reported the goodnesses of fit for this modification model with structural equation modelling procedure (see Fig. 1 and Model 2 inTable 3). As a result, the structural model with modification was verified as a good fit and accepted: Normed $\chi^2 = 4.10$, $p < 0.01$, GFI = 0.99, NNFI = 0.93, CFI = 0.94, and RMSEA = 0.08.

The results of four alternative models are presented in Table 3. Inalternative model 2 PC and BI (appearance satisfaction and appearance orientation) predicted perceived peer acceptance (same-sex and opposite-sex peer acceptance). The results of model 2 were not acceptable: Normed $\chi^2 = 36.93$, $p < 0.01$, GFI = 0.939, NNFI = 0.674, CFI = 0.675, and RMSEA = 0.207. Model 3 indicated that BI (appearance satisfaction and appearance orientation) simultaneously directly predicts perceived peer acceptance (same-sex and opposite-sex peer acceptance) and also predicts perceived physical competence, which in turn predicts perceived peer acceptance, perceived physical competence is a mediator between perceived physical competence and perceived peer acceptance. In the results for model 3, GFI and CFI were acceptable but not Normed χ^2, NNFI, and RMSEA: Normed $\chi^2 = 21.32$, $p < 0.01$, GFI = 0.975, NNFI = 0.883, CFI = 0.902, and RMSEA = 0.107. Model 4 indicated that perceived peer acceptance (same-sex and opposite-sex peer acceptance) simultaneously directly predict BI (appearance satisfaction and appearance orientation) and also predict perceived physical competence, which in turn predicts BI. The results for model 4, were not acceptable: Normed $\chi^2 = 36.37$, $p < 0.01$, GFI = 0.967, NNFI = 0.839, CFI = 0.840, and RMSEA = 0.206. Last, model 5 indicated that perceived peer acceptance (same-sex and opposite-sex peer acceptance) simultaneously directly predict perceived physical competence and also predict BI (appearance satisfaction and appearance orientation), which in turn predicts perceived physical competence. In the result of model 5, it was not acceptable: Normed $\chi^2 = 36.89$, $p < 0.01$, GFI = 0.967, NNFI = 0.837, CFI = 0.838, and RMSEA = 0.207.

In this study, of the five models, model 1 best fit the current data. Hence, perceived physical competence simultaneously influenced perceived peer acceptance directly and also indirectly as mediated by body image for both males and females, although the structural pattern of relationships was different for males and females. Perceived physical competence has both a strong direct influence and an indirect (through body image) influence on perceived peer acceptance; body image also has a direct influence on perceived peer acceptance.

Discussion

The purpose of this study was to examine the relationships among students' perceptions of physical ability, body image, and perceived peer acceptance. In addition, this investigation also sought to ascertain gender differences in perceived physical competence, body image (appearance satisfaction and appearance orientation), and perceived peer acceptance (same-sex and opposite-sex peer acceptance). First, we found gender differences on all variables except same-sex peer acceptance. Second, analyses of the relationships among perceptions of physical competence, body image, and perceived peer acceptance illustrated the significance of the perception of young people's physical ability and body image to the acceptance within their peers.

The gender difference results on perceived physical competence support research on motivational theories, including perceptions of physical competence, that have indicated that males have higher perceived physical competence than females (Asci, 2002; Kavussanu & Roberts, 1996). On body image, male students were more satisfied with their appearance than females; conversely female students were more concerned about their appearance than males. These gender differences in body image support considerable past research on appearance and body image for various participants (Gillen & Lefkowitz, 2006; Kim & Kim, 2003; Meland, Haugland, & Breidablik, 2007). For example, Meland et al. (2007) noted a similar outcome, with a higher percentage (79%) of boys satisfied with their weight and figures compared to girls, but a larger number of female adolescents reported higher body dissatisfaction, and more concern about their appearance and weight than did boys. These results are common and no longer surprising. Considering the gender concerns in perceived sport competence and body image, physical activity has a tremendous potential to enhance one's sense of competence and control, particularly for females (Choi, 2000; Gill & Williams, 2008).

Interestingly, both males and females reported higher scores on same-sex peer acceptance compared to opposite-sex acceptance, with no gender difference on same-sex peer acceptance. Students had moderately positive perceptions of peer acceptance within same-sex peers. Consistent with findings from other studies, both male and female adolescents showed clear preferences for same-sex peer interactions (Maccoby & Jacklin, 1987; Martin & Fabes, 2001). Also, considerable research indicates that both girls and boys interact with same-sex peers more frequently than with opposite-sex peers (Kovacs, Parker, & Hoffman, 1996; Maccoby, 1998; Maccoby & Jacklin, 1987; Martin & Fabes, 2001). Children or adolescents' peer interactions are characterized by a preference for same-sex play partners (Fabes, Martin, & Hanish, 2003). According to Martin and Fabes (2001), the different play patterns of female and male children could explain why both boys and girls prefer to play with same-sex peers: girls engaged in more verbal behaviour than boys, and boys engaged in more physical behaviour than girls. However, the fact that children spend so much time playing in same-sex peer groups has led many to argue that boys and girls grow up in distinctive peer cultures (Harris, 1995; Maccoby, 1990).

As well as gender differences, we also investigated gender differences in the relationships among perceived physical competence, body image, and perceived peer acceptance, as well as the hypothesized five structural models of relationships. Although many researchers have studied the correlations among these variables, few studies have examined the overall structural model. Therefore, the examination of perceived physical competence in relation to perceived peer acceptance with body image as a mediator variable extends past research in the sport context.

The first hypothesized model 1 best fit the current data. In model 1, perceived physical competence is associated with body image and perceived peer acceptance. The findings for both males and females support the hypothesis of model 1. However, several indices in other models also exhibited a good fit to these data, and those models could be investigated in future studies.

Psychology scholars addressing issues related to multidimensional and hierarchical self-concept have noted that each sub-self-concept (self-esteem, academic, emotional, social, physical, and others) is correlated with the others (Harter, 1996; Marsh, 1992; Shavelson, Hubner, & Stanton,

1976). The results of the current study support positive relationships between peer acceptance and the perception of physical competence as well as body image and are in line with these reports. These correlations, however, do not provide a complete understanding of how perceived peer acceptance is linked to the combination of perceived physical competence and body image. Thus, it was of special interest to examine how perceived physical competence and body image predict perceived peer acceptance.

We hypothesized that perceived physical competence and body image would influence perceived peer acceptance in adolescents, and that the relationships between students' perception of physical competence and peer acceptance would be mediated by their body image. The structural model results show the relationships between perceived physical competence and perceived peer acceptance were partially meditated by body image. As our results indicate, the perception of physical competence and body image are clearly linked to perceived peer acceptance for adolescents, and body image partially mediates the association between perceived physical competence and perceived peer acceptance.

Perception of physical competence had a direct effect on perceived peer acceptance in male and female adolescents. Not only was perceived physical competence a positive predictor of same-sex peer acceptance, but it was also a positive predictor of opposite-sex peer acceptance. In physical education class, students with better motor skills are noticed by their peers, and are easily accepted by both same-sex and opposite-sex peers. According to Weiss and Duncan (1992) and Craft, Pfeiffer, and Pivarnik (2003), perceived competence (and actual competence) are positively associated with perceived and actual peer acceptance. Smith (2006) argued that young people judged that being good at sports is a means to peer acceptance and friendship, and that sport competence is a more effective means to obtain social acceptance than competence in other activities such as school. Many studies investigating relationships between (perceived) physical competence and peer relationships suggest that youth perceive competence in sports and physical activities as important to their peer acceptance (Adler et al., 1992; Chase & Dummer, 1992; Smith et al., 2006; Ullrich-French & Smith, 2006; Weiss & Duncan, 1992).

For male adolescents in the current study, perception of physical competence was positively associated with both appearance satisfaction and orientation. This supports previous research showing that students who had higher perceived physical competence were more pleased with their looks, and also more interested in their appearance compared with students having lower perceived physical competence (Asci, Gokmen, Tiryaki, & Asci, 1997; Harter, 1996). In addition, MacKinnon et al. (2003) found that perceived physical competence influenced body image for high school football players. Considerable research confirms that perceived physical competence has a positive relationship with body image (Ebbeck & Stuart, 1993; Fox, 2002; Lyu & Pyo, 2005).

In addition, for male adolescents appearance satisfaction mediated the relationships between perceived physical competence and both same-sex and opposite-sex peer acceptance; however, appearance orientation only mediated the relationship between perceived physical competence and opposite-sex peer acceptance, but not same-sex peer acceptance. It could be that when male students have high perceived physical competence and are satisfied with their looks, they are likely to be more accepted by same-sex and opposite-sex peers. Also, when male students have

higher perceived physical competence and are more concerned about their appearance, they are likely to be more accepted by opposite-sex peers. However, there was no relationship between appearance orientation and opposite-sex peer acceptance.

In adolescence, students begin showing an interest in opposite-sex friends. Kim, Kim, Seo, Im, and Cho (2003) found that for students in middle school, appearance was the second most important variable when they evaluated a best boyfriend or girlfriend. Therefore, they perceived that it was much more important to look better when they met their opposite-sex friend. Particularly, boys were more concerned with their hair, clothes, and shoes and spent more time preparing their appearance when meeting a girl. They wanted to look good and attractive to her. However, male adolescents did not try to improve their appearance when meeting with male friends.

However, for female adolescents results indicate that appearance satisfaction, but not appearance orientation is significantly predicted by perceived physical competence. Lyu (2009) found no relationship between perceived physical competence and appearance orientation in female adolescents, and also found female adolescents were interested in their appearance regardless of preference for physical activity or perceived physical competence. Lyu (2009) suggested that if female adolescents participated more in physical activity and had higher perceived physical competence they would form more accurate perceptions about a healthy body and appearance and perceive their body more positively rather than evaluating their appearance against an overly thin ideal body type presented in the mass media. Therefore, we should encourage all adolescents to participate in physical activities for their health as well as a healthy body image.

For female students, structural model results indicate that appearance satisfaction mediates the relationships between perceived physical competence and both same-sex and opposite-sex peer acceptance; while appearance orientation does not meditate the relationships. However, appearance orientation for females positively predicted both same-sex and opposite-sex peer acceptance. It could be that female students who have high perceived physical competence and are satisfied with their looks are likely to have better perceived peer acceptance with same-sex and opposite-sex peers. Also, female students who are more concerned about their appearance are more likely to be accepted by same-sex and opposite-sex peers.

There is a particular word related to appearance, ‘lookism’, which is used to refer to discrimination against or prejudice towards others based on their appearance. People evaluate others based on appearance, and want to have relationships with people who look good. Lookism may explain why people are concerned with others' thoughts about their appearance and want to improve their appearance. According to Lee (1998), when adolescents get praise about their appearance from others, they are more satisfied with their appearance and have higher acceptance and better relationships with their friends. Also, gender differences are found in perceptions about appearance (Rodin & Toddard, 1981). Females perceive that body appearance is an instrument to form better social relationships with others. As a result, female adolescents are more interested in their appearance. Both sub-factors in body image, appearance satisfaction and orientation, predicted same-sex and opposite-sex peer acceptance.

Although the separate relationships between perceived physical competence, body image, and perceived peer acceptance have been examined, no research to date has simultaneously examined these relationships within a specified structural model. The primary aim of the current study was to investigate whether perception of physical competence directly and indirectly predicts body image and perceived peer acceptance in adolescents. We believe that the meditational model indentified in our results contributes to our understanding of how perceived physical competence is related to body image and perceived peer acceptance.

There are several limitations of this study and a number of other future research directions emanate from our results. First, data from middle school students may not apply to other samples such as younger children or adults. Few other studies have examined those variables with both male and female middle school adolescents, and our Korean sample extends the literature. However, our results may be unique to the sample. Second, the direction of the relationships among the psychological constructs might differ from our proposed model. In this study, based on past theories and research on perceived physical competence, body image, and perceived peer acceptance, five models were analyzed. We found that model 1 was the best fit for the current data; therefore the perception of physical competence directly and indirectly influenced body image and perceived peer acceptance. The fit of the models proposed in this study could be investigated in future studies. Also, additional psychological variables, such as social physique anxiety, self-satisfaction, and self-esteem, might be investigated in relation to perceived physical competence, body image, and perceived peer acceptance. Finally, this study is cross-sectional in nature. All variables were measured at one time point, and therefore causal relationships cannot be established.

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