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third-person perception and optimistic bias co-vary in a sample of 231 urban,
minority "at-risk" youth in grades 4 through 12 in urban New Jersey public
schools. Findings confirm that third-person perception and optimistic bias
are present in the sample. Contrary to the position that optimistic bias
causes third-person perception, the findings suggest that a small inverse
relationship emerged: 51% of the middle school and high school students
surveyed exhibited third-person perceptions (believing they were less
influenced by televised safer-sex messages than were their peers), and these
students were less optimistic about there chances of becoming HIV infected
than their peers; 34% exhibited first-person perceptions (believing they were
more influenced by the messages than were peers), and these students were
more optimistic than their peers were concerning HIV infection. The remaining
15% perceived no difference between themselves and peers in terms of message
influence. Most students (89%) exhibited optimistic bias regarding their
chances of avoiding HIV infection in the future. Contains 97 references and 4
tables of data. (Author/RS)

Third-Person Perception, Optimistic Bias, Safer-Sex Campaigns, and Sexual Risk-Taking
Among Minority "At-Risk" Youth

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Abstract

Recent third-person perception articles suggest that optimistic bias is the mechanism underlying the perceptual bias, but fail to empirically test the assumption. Minority "at-risk" youth are neglected in both literatures, despite the fact that they are frequently the target audience for the resulting camapigns. This study sought to bridge a gap between communication and psychology by determining to what extent third-person perception and optimistic bias co-vary in a sample of urban, minority "at-risk" youth.

Findings confirm that third-person perception and optimistic bias are present in the sample. Contrary to the position that optimistic bias causes third-person perception, the findings suggest that a small inverse relationship emerged: 51% of the middle school and high school students surveyed exhibited third-person perceptions believing they were less influenced by televised safer-sex messages than were their peers), and these students were less optimistic about there chances of becoming HIV infected than their peers; 34% exhibited first-person perceptions (believing they were more influenced by the messages than were peers), and these students were more optimistic than their peers were concerning Hiv infection. The remaining 15% perceived no difference between themselves and peers in terms of message influence. Most students (89%) exhibited optimistic bias regarding their chances of avoiding HIV infection in the future.

Third-Person Perception and Optimistic Bias Among Urban Minority "At-Risk" Youth

Introduction

The basic premise of the "third-person perception" is that people believe others are more influenced by media messages than they are (Davison, 1983). Davison's conception of third-person perception included two elements: (a) individuals expect communication to have a greater effect on others than themselves, and (b) the expected impact on others may lead to action in anticipation of the communication effect. Numerous studies offer support for the first hypothesis, but the literature offers little support for the idea that misperception leads to behavior changes. In general, the term "third-person perception" has been used to describe the first hypothesis: individuals believe communication affects others more than themselves. Both experimental and survey methods have been used to test third-person perception.

Although third-person perception is well documented, less is known about potential mechanisms. In recent articles, optimistic bias (Weinstein, 1983) is frequently discussed as a possible underlying cause of third-person perception (Brosius & Engel, 1996; Duck & Mullin, 1995; Duck et al., 1995a; Duck, Terry, & Hogg, 1995; Gunther, 1991; Gunther & Mundy, 1994; Gunther & Thorson, 1992). ·

Weinstein (1987, 1983, 1982, 1980) shows that individuals make comparative risk assessments in an egocentric manner, paying little attention to the risk status of others when asked to determine their own relative risk. Weinstein originally labeled this phenomenon "optimistic bias." In lay terms, individuals believe they are less vulnerable to risks than others. Optimistic bias is a robust finding and has been replicated in a variety of contexts, including HIV/AIDS risk (Ellen, Boyer, Tschann & Shafer, 1996; Harris, 1996),

sexually transmitted disease (STD) risk (Kaplan & Shayne, 1993; Turner, 1993), pregnancy risk (Eldridge, Lawrence, Little, Shelby & Brasfield, 1995; Smith, Gerrard, & Gibbons, 1997), cancer risk (Aiken, Febaughty, West, Johnson, & Luckett, 1995; Fontaine & Smith, 1995), smoking risk (Strecher, Kreuter & Korbin, 1995), substance abuse risk (Hansen, Raynor, & Wolkenstein, 1991; Miller, 1991), and general health risks (Glanz & Yang, 1996; Hoorens, 1996).

Minority "At-Risk" Youth and Sexual Risk Perception: A Special Case

A common deficit in third-person perception and optimistic bias research is the over-reliance on college student and/or adult samples. Few researchers studied adolescents (Capps, 1996; Hingson, Strunin, Berlin, & Heeren, 1990; Whalen, Henker, O'Neil, Hollingshead, Hoilman, & Moore, 1994; Welkenhuysen, Everkiebooms, Decruyenaere, & Vandenberghe, 1996), and fewer still studied minorities (Ellen, Boyer, Tschawn, & Shafer, 1996; Goodloe, Tross, Abdul-Quadar, Des Jarais, & Rosenblum, 1990; Perloff, Neundorf, Giles, Tsan-Kuo, & Jeffries, 1992).

Purposes of the Study

The study seeks primarily to bridge a gap between psychology and communication by determining to what extent third-person perception and optimistic bias co-vary in one sample: the two literatures remain largely unconnected despite the obvious similarities.

Related secondary purposes include (a) documenting third-person perception and optimistic bias in an urban, minority, "at-risk" youth sample and (b) identifying the best predictors of optimistic bias and third-person perception.

Potential Mechanisms Underlying Third-Person Perception and/or Optimistic Bias

Numerous underlying mechanisms have been suggested in optimistic bias and third-person perception research. The most promising of these include psychological distance, (Buehler, Griffin, & MacDonald, 1994; Duck & Mullin, 1995; Duck, Hogg, & Terry, 1995; Frewer, Shepherd, & Sparks, 1994; Gibbon & Durkin, 1995; Gunther, 1991; Hakmiller, 1996; Helweg-Larson, 1994; Hoorens & Bunk, 1993; Klar, Medding, & Sarel, 1996; McCoy, Gibbons, Reis, Gerrard, Luus, & Suftka, 1992; Miller, 1990; Rucinski & Salmon, 1990; Weinstein, 1989) and ego-enhancement (Duck et al., 1995; Gunther & Mundy, 1994; Hoorens & Ruiter, 1996; Perloff, 1989; Smith et al., 1997),

Psychological distance.

The best documented mechanism hypothesized to cause optimistic bias and third-person perception is psychological distance. Psychological distance refers to the way in which individuals target "peers" when asked to make comparative risk judgments. For instance, ill patients compare themselves with patients worse off than themselves (Kamler, Irwin, Stone, & Millstein, 1987; Taylor & Brown, 1994), gay men believe they are less likely to contract AIDS than other gay men (Bauman & Siegel, 1987; Joseph, Montgomery, Emmons, Kirscht, Kessler, Ostrow, Wortman, O'Brien, & Eshleman, 1987), and adolescent hemophiliacs recognize their escalated risk status compared to healthy peers for health-related threats, but demonstrate optimistic bias for non-health risks (Kamler, Irwin, Stone, & Millstein, 1987).

Self-esteem.

Self-esteem may be defined as a relatively stable set of self-attitudes reflecting description and self-evaluation of an individual's behavior and attributes (Piers, 1996).

According to Weinstein (1987), the relationship between self-esteem and optimistic bias is a complex one, involving several variables: (a) individuals tend to engage in downward comparisons, comparing themselves to people at elevated degrees of risk, in order to maintain self-esteem, (b) individuals may also overestimate their skills that would prevent risk, and (c) failure to avoid a hazard only threatens self-esteem if the hazard is controllable. Weinstein (1987) cites numerous studies that test the third statement (Weinstein, 1980, 1982; Zakay, 1984).

A problem with each of these studies is a failure to measure self-esteem. The studies measured "controllability" (for example, people are more optimistic about avoiding diseases tied to behaviors than disease passed through family lines), and inferred that such differences were caused by self-esteem. There are a few recent exceptions to this. Smith, Gerrard and Gibbons' (1997) study of college women's perception of vulnerability to unplanned pregnancy used the Rosenberg Self-Esteem Scale in conjunction with standard optimistic bias scales (Weinstein, 1980). Smith and associates (1997) found that self-esteem was a significant predictor of perceived vulnerability, with low self-esteem women reporting higher vulnerability than high self-esteem women were.

Numerous third-person perception researchers have also suggested that self-esteem may be an underlying mechanism, however these studies did not focus on health (Duck, Hogg, & Terry, 1995; Hoorens & Ruiter, 1996; Perloff, 1989) and/or they did not measure self-esteem (Gunther & Mundy, 1994). Measurement of self-esteem would allow testing the assumptions made by researchers in optimistic bias and third-person perception possible.

The Influence of Individual Differences on Optimistic Bias and Third-Person Perception

Gender.

Although it consistently documented that boys tend to take more risks than girls do (Arnett, 1992; Darvill & Johnson, 1991; Jessor & Jessor, 1977; Langley & Williams, 1992), gender differences in risk-perception are less clear. For instance, Strecher and associates (1995) found that adult men were more optimistic than adult women concerning their risk of heart attack or cancer related to smoking cigarettes. Similarly, sixth grade boys were more optimistic than sixth grade girls about their vulnerability to HIV/AIDS (Whalen, Henker, O'Neil, Hollingshead, Holman, & Moore, 1994). In contrast, several other studies reported no difference in bias due to gender (Eiser et al., 1993; Fontaine & Smith, 1995; Whalen et al., 1994b; Weinstein, 1987, 1989).

Third-person perception studies most frequently focus on message variables, so little is known about the possible influence of gender; however, Rojas and colleagues (1996) found no difference in third-person perception (in adults) due to a number of demographic variables including gender.

Grade level.

As described above, individual difference variables are frequently grouped together as "demographics". Thus, differences in perceptual bias between individuals of varying education level (Glynn & Ostman, 1988; Willnat, 1996) may have as much to do with age and/or grade level as they do with academic achievement (a section on academic achievement follows this section). Strecher and colleagues (1995) found that age (in addition to gender and academic achievement) predicted differences in optimistic bias in adults in estimations of their personal risk of heart attack and cancer. The amount of bias

increased with age. Numerous other studies confirm the finding that bias increases with age (Cohn, Mutz, Price, & Gunther, 1995; Dolcini, Gromski, & Zawisza, 1989; Job, Fleming, & Morgan, 1992; Quadrel, Fischoff, & Davis, 1993; Strecher, Kreuter, & Kobrin, 1995; Turner, 1993; Weinstein, 1987). However, only one of these studies included adolescents under the age of 18. Pairing teen-aged children with their parents, Quadrel and colleagues (1993) reported that adults were more optimistic about a variety of risks (including auto accident, alcoholism, unwanted pregnancy, being mugged, getting sick from air pollution, and getting sick from pesticide or radiation poisoning) than their children. In fact, both the parents and the children believed the adults were more invulnerable than the teenagers were.

Less research investigates the relationship between age and third-person perception. In adults, first-person perceptions have been shown to increase with age (Glynn & Ostman, 1988). No comparisons between children, adolescents and/or adults have been tested to date.

Academic achievement.

Klaczynski and Fauth (1996) reported that college students exhibited considerable bias in estimations of the probability that they would experience more desirable and fewer undesirable life events than their peers did. Although, nearly all of the students exhibited some degree of optimistic bias, students with high academic achievement were significantly more biased than their peers with low academic achievement were. Strecher, Kreuter, and Kobrin (1995) found similar results, reporting that adults with high academic achievement were more optimistic about their risk of heart attack and cancer than were their peers with low academic achievement.

Third-person perception researchers have not yet predicted differences in bias due to academic achievement specifically. Two studies focused on differences in educational attainment, with the more educated believing others were more influenced by the media than they were (Glynn & Ostman, 1988; Willnat, 1996).

Content-specific knowledge.

Is a little knowledge a dangerous thing? While few third-person perception studies focus on academic achievement, many predicted increases in perceived influences on self vs. others by content-specific knowledge. Individuals who perceived themselves as "experts," or those having advanced knowledge consistently demonstrated a greater third-person perception than their less knowledgeable peers (Guthrie, 1995; Lasorsa, 1989). In at least one case, actually having knowledge of a topic also increased the third-person perception (Price & Tewksbury, 1996); however, the mere perception of expert status was enough to produce the third-person perception (Guthrie, 1995).

Although the influence of knowledge is a consistent finding in third-person perception research, none of the studies use health-related messages. In addition, optimistic bias research has included academic achievement or intelligence (described above), but has failed to measure content-specific knowledge of the hazard studied.

Media Variables

While optimistic bias is not a theory of mass communication, media messages have been included in some studies, and in each case have been shown to have an impact on the strength of the effect. Messages incorporating positive cues increased optimistic bias, while messages with negative cues have been shown to decrease the level of bias (Cote, 1994; Darvill & Johnson, 1991; Weinstein, 1980).

Similarly, numerous third-person perception studies have focused on media variables such as persuasive content (Gibbon & Durkin, 1995), positive vs. negative content (Gunther & Mundy, 1994; Hoorens & Ruiter, 1996), and personalization of messages (Batista, 1991), and production quality (Duck et al., 1995). Other media variables, in contrast, are less frequently considered. Discussion of neglected media variables follows.

Media use and attitude toward safer-sex messages (the media).

Perhaps an extension of the neglect of adolescent participants in optimistic bias and third-person perception research is the failure to include media variables in study design. Different mass media serve various social/ psychological functions at different stages of adolescence (Fine, Mortimer & Roberts, 1990).

One of the first studies to include media use and attitudes toward safer-sex messages (the media) as predictors of third-person perception was published recently (Price, Huang, & Tewksbury, 1997). The study focused on attitude towards news coverage, finding that media orientation (defined as general beliefs about news), media schemas and media use modestly predicted the magnitude of the third-person perception. Given the primacy of the mass media in adolescence, it is significant that the influence of media use has been neglected in optimistic bias and third-person perception research. This study seeks to remedy this by including measures of media use and attitudes toward televised health messages.

Hypotheses

Theory discussed in the previous sections leads to several hypotheses related to optimistic bias and third-person perception in the context of sex risk perception.

Hypotheses are summarized here in the order they will be tested and presented in subsequent sections.

Optimistic Bias

Hypothesis 1: Individuals believe they are less likely than others to contract HIV/AIDS later in life (optimistic bias).

Hypothesis 2: Optimistic bias will increase as psychological distance increases (predicts mean differences between each target level in optimistic bias measure).

Hypothesis 3: Optimistic bias will be higher for boys than for girls.

Hypothesis 4: Increases in optimistic bias will be predicted by several individual differences; specifically, increases in grade level, academic achievement, content-specific knowledge, and self-esteem.

Hypothesis 5: Optimistic bias will increase as media use increases and attitude toward safer-sex messages decrease.

Third-Person Perception

Hypothesis 6: Individuals believe they are less likely to be influenced than others by televised safer-sex messages (third-person perception).

Hypothesis 7: Third-person perception will increase as psychological distance increases (predicts mean differences between each target level in third-person perception measure).

Hypothesis 8: The third-person perception will be higher for boys than for girls.

Hypothesis 9: Increases in third-person perception will be predicted by several individual differences; specifically, increases in grade level, academic achievement, content-specific knowledge, and self-esteem.

Hypothesis 10: The third-person perception will increase as media use increases and attitude toward televised safer-sex messages decreases.

Third-Person Perception and Optimistic Bias

Hypothesis 11: Increases in third-person perception will be paired by increases in optimistic bias.

Methods

To test the hypotheses described above, a survey was administered to a sample of minority "at-risk" youth in grades four through twelve in urban New Jersey. The survey was administered in three parts at three separate times.

Study Participants

The students who participated in this study attended public school in urban New Jersey. The city's health statistics are among the worst in the state, with one of the highest rates for communicable diseases, including sexually transmitted diseases (Coleman, 1997).

Three programs that service "at-risk" elementary, middle and high-school students were selected as the study site. Due to differences in program sizes the sample over-represents middle school students (grades 6-8). Because all three programs practice "open enrollment" (students may enter or leave a program at any point in the year), the number of students enrolled varies weekly. A total of 230 students were enrolled during the time-frame of the study, but only 180 students were enrolled during the initial two (of three) data collection sessions. These 180 students were the main study population for the study. Parents of 98% of the 230 students enrolled gave consent for their child(ren)'s participation in the study. Of the 225 students with parental consent, 98% agreed to

participate in the study. A total of 221 students (of a possible 230 enrolled) ranging in age from 8 to 17 ($\underline{M}$ = 12.1, $\underline{SD}$ = 1.9) agreed to participate in at least one of the three data collection sessions for the study. The sample was 54% female and 92% African-American. Most students were enrolled in the middle-school program (63%), fewer in the high-school program (20%), and the fewest in the elementary-school program (17%).

Survey data were collected from the students on three occasions over a six month period, during normal program meeting times.

<u>Attrition</u>

Although 221 students participated in the study, not all students completed all measures. Due to the practice of "open-enrollment," the sample varied in size and composition across time. Of the 177 students that participated in Session 1, 96% participated in Session 2, and 55% participated in Session 3. In addition, 44 new students joined the study in Session 3, resulting in an $\underline{n}$ of 122 for that session and overall $\underline{n}$ of 221 for the study. Participants in Session 3 varied little from the first two sessions in gender (50% female) and ethnicity (93% African-American), but were different in age: 69% middle-school students, 21% elementary-school students, and 10% high-school students.

All of the attrition described above resulted from students leaving their respective programs. There was no attrition due to absenteeism. There were also no students who remained in the program but dropped out of the study.

<center>Dependent Variables</center>

The dependent variables in the study are third-person perception and optimistic bias; however, it should be noted that optimistic bias is treated as both an independent and a dependent variable due to the assertion that optimistic bias causes third-person

perception (Gunther & Mundy, 1993). Existing measures were used for all variables despite possible flaws inherent in the measures. Without this control in place, comparison between the findings of the current study and existing research would be less valid.

Optimistic Bias

Optimistic bias was measured with a standard instrument designed by Weinstein (1984). The procedure asked students to compare their relative risk of HIV/AIDS later in life with three target "others." For the primary measure of optimistic bias, students were asked, "compared to other students in the U.S., my chances of getting HIV/AIDS later in life are ___." Following Weinstein's (1984) method, comparative risk assessment was measured on a 7-point scale (-3 = "much less" than other students in the USA, +3 = "much greater" than other students in the USA). A mean of zero would indicate no bias, either optimistic or pessimistic on the group level.

Third-person perception

Various procedures for measuring third-person perception appear throughout the literature. The measure in this study was adapted from Duck and Mullin (1995). Study participants were exposed to two 30 second health-related televised messages described below:

> Message 1: (Confide advertisement). A young Latin woman is shown shopping with a friend and later calling Confide for her HIV test results. The slogan (and focus) of the message is "it's time to know."

> Message 2: (New Jersey Network PSA). A young Latin woman appears in the waiting room of a clinic awaiting her HIV test. She's not sure of her partner and fears she may have been infected. The slogan (and focus) of the message is "it's better to know than to be left in the dark."

Message 1 was being broadcast on commercial television during the study period. Message 2 had been broadcast on the New Jersey Network over the past three years. The messages featured young female minority spokespersons which (a) contradicted the stereotype that HIV/AIDS is a gay male problem and (b) likely increased the relevance to the study sample.

After viewing each message, participants answered two items: "How much do you think (a) you, (b) other students in the USA would be influenced by messages like this?" Responses were in the form of Likert-type scales (1 = "not at all," 2 = "extremely influenced"). Because each student answered two items following both messages, there were four responses per student.

Recall that optimistic bias items incorporated a self/other comparison in one item. Because item wording for optimistic bias and third-person perception was different, creation of third-person perception measure required one additional step: subtracting the assessment of perceived influence on self from perceived influence on others. This procedure is consistent with existing research (e.g., Duck & Mullin, 1995). The third-person perception measures for both messages were highly correlated, r = .50, p< .001. The measures were then summed to create a composite third-person perception measure. The new variable ranged from -12 to +12.

Independent Variables

The independent variables in this study, listed in order of the hypotheses, were: (a) psychological distance, (b) gender, (c) grade level, (d) academic achievement (GPA), (e) content specific (HIV/AIDS) knowledge, (f) self-esteem, (g) media use, (h) attitudes toward safer-sex messages (the media), and (i) optimistic bias.

Psychological Distance

To examine the effect of psychological distance on optimistic bias and third-person perception, psychological distance was manipulated by presenting multiple targets for comparison (best friend, other students in New Jersey, and other students in the USA). These targets were presumed to increase psychological distance for each subsequent comparison. A similar technique has been used to manipulate psychological distance in previous optimistic bias (Helweg-Larsen, 1994; Weinstein, 1989) and third-person perception (Duck et al., 1995, Perloff et al., 1992) studies.

Demographics

Students self-reported gender and grade level was also collected for use in this study. Program rosters were available to complete missing responses and for cross-checking purposes.

Academic Achievement

Three items asked students to report letter grades on their last report cards (end of the year) for three subjects: mathematics, English, and science. These three subjects were selected because they reflect the focus of the programs. The scores for the three subjects were averaged together to create an overall score for academic achievement, subsequently referred to as GPA (grade point average) (0 = "F," 4 = "A").

Content-Specific Knowledge

Content specific knowledge refers to HIV/AIDS knowledge within the context of this study. A subset of items from the American Red Cross' "Act Smart" program, designed for middle-school and high-school students was used to measure HIV/AIDS knowledge. Students identified 18 statements about the nature of HIV transmission and

prevention as being true or false. The proportion of correct responses (range 0-100) measures HIV/AIDS knowledge for each student. The overall internal consistency of the composite measure was low, K-R20 = .48, due to differences in difficulty level of items. For instance, 98% of the students correctly agreed with the statement that "people can get AIDS by having sex," while only 19% correctly disagreed with the statement that "AIDS and HIV are the same thing."

Self-Esteem

Students' responses to Piers-Harris Self-Concept Inventories administered by the school programs were used to measure self-esteem. The Piers-Harris Children's Self-Concept Scale provides a total score and six subscale scores. The most reliable measure, and the one used for analysis here, was the total score. The total score has a possible range of 0 to 80, with higher numbers indicating more favorable self-concept. For consistency across subsections, percentile scores (based on national norms) will be used for analysis.

Media Use

Media use was measured by asking students to indicate how many hours in a typical school day they spent watching TV, listening to music, reading for fun, and playing video or computer games. The four items were taken from Greenberg, Tokinoya, Ku, and Li's (1989) international study of adolescents' uses of the mass media. Students used a 5-point scale to report the number of hours they were engaged in media activities on a typical school day (0 = none, 5 = 5 or more). Summing the amount of time students reported using the media created a composite measure.

Attitude Toward Safer-Sex Messages (the media)

Following exposure to the two safer-sex messages, attitude towards the media was measured by asking students how much they liked and how much they trusted "messages like this." Consistent with Greenberg and associates (1989), the four items (two for each message) were measured on a 4-point scale (0 = "very little," 3 = "very much").

Because all four items load onto one factor and the resulting scale demonstrated strong internal consistency ($\alpha = .80$), responses were summed to create a composite measure of attitudes toward safer-sex messages (the media). The resulting measure ranges from zero to 12, with a higher number indicating a more favorable attitude toward safer-sex messages.

<div align="center">Findings</div>

Optimistic Bias

Optimistic bias at the group level.

Optimistic bias in a group is demonstrated by a group mean significantly less than zero (Weinstein, 1989). Hypothesis 1 predicted that urban, minority, "at-risk" youth would believe they were less likely than others to contract HIV/AIDS later in life. A single-sample t-test was used to test the hypothesis that the mean of optimism was significantly different from zero. As predicted in H1, the students exhibited optimistic bias, $t (176) = -14.9$, $p < .001$. This finding is consistent with the existing optimistic bias literature.

Because the mean for optimism (-1.8, $SD = 1.6$) on a possible range from -3 to +3 was significantly less than zero, the term "optimistic bias" will be used throughout the

current study to describe personal vs. other risk assessments. This guideline is consistent with current practices (e.g., Weinstein, 1989).

Optimistic bias and psychological distance.

Hypothesis 2 predicted that optimistic bias would increase as psychological distance increased. Repeated measures ANOVA was used to test mean differences in optimistic bias for three levels of psychological distance. As predicted, there were significant mean differences in self perceived vulnerability to HIV/AIDS when compared to other students in the USA ($\underline{M}$ = -1.8, $\underline{SD}$ = 1.6), other students in New Jersey ($\underline{M}$ = -1.8, $\underline{SD}$ = 1.6), and "best friends" ($\underline{M}$ = -1.4, $\underline{SD}$ = 1.6), $\underline{F}$ (2, 348) = 5.75, $\underline{p}$ < .01. Bonferroni post hoc comparison indicates that students' perceived personal risk relative to their "best friend" was less optimistic than their perceived personal risk relative to "other students in New Jersey" and "other students in the USA." Consistent with the prediction made in Hypothesis 2, students perceived that they were less prone than others were to negative outcomes, however not for all levels of psychological distance.

Individual differences.

Hypothesis 3 predicted that optimistic bias would be higher for boys than for girls. Contrary to the expectation, no gender difference in optimistic bias was found, $\underline{t}$ (175)= -.1, $\underline{p}$ = .95). As discussed previously, existing findings were evenly split, with half of the published studies reporting gender differences and half reporting no gender differences.

Hypothesis 4 predicted that increases in optimistic bias would be predicted by increases in several individual differences, specifically grade level, academic achievement,

content-specific knowledge, and self-esteem. Results in Table 1, indicate that only one of these variables, self-esteem, was a correlate of optimistic bias.

Recall that optimistic bias was indicated by a negative value, so the signs on the correlation coefficients on Row 1 should be reversed for interpretation. Thus, increases in optimistic bias were correlated with increases in self-esteem. As predicted, students with higher self-esteem also tended to be the most optimistic regarding their invulnerability to HIV/AIDS. This suggests that self-esteem acts as a psychological barrier to perception of negative health outcomes. The positive relationship between optimistic bias and self-esteem is consistent with previous research. The finding is relevant to the study programs because self-esteem scales are used annually to identify students with low self-esteem for possible counseling intervention. The current findings seem to indicate that students with higher self-esteem should also be identified because they tend to be overly optimistic about health hazards associated with sexual risks. No relationship was found between optimistic bias and grade level, attitudes toward safer-sex messages (the media), academic achievement, content-specific (HIV/AIDS) knowledge or media use. This finding is inconsistent with the prediction, but consistent with Weinstein's (1989) assertion that optimistic bias is unaffected by demographic variables like academic achievement and educational level. Because this study was the first to use content-specific knowledge to predict optimistic bias, there are no results available for comparison.

Media variables.

In addition to demographic variables, Table 1 also shows the relationship between optimistic bias and media variables. Hypothesis 5 predicted that increases in media use and decreases in attitudes toward safer-sex messages would predict increases in optimistic

bias. Contrary to the prediction, no such relationships were evident. No previous studies have used these media variables to predict optimistic bias.

Third-Person Perception

Hypothesis 6 predicted that individuals would believe that they were less likely than others to be influenced by health related media messages. Differences in perceived message influence between "best friends" ($M = -.24$, $SD = 1.4$) and "other students in the USA" ($M = .47$, $SD = 2.1$), were evident after exposure to both safer-sex messages, t $(169) = -4.6$, $p < .001$. The finding that individuals believed that messages influenced others more than themselves is consistent with the third-person perception literature. However, there was more of a balance between third-person perceptions and first-person perceptions in the current study than is usually reported. Specifically, 51% of the sample exhibited a classic third-person perception (perceived themselves to be less influenced than other students in the USA by the safer-sex messages), 34% exhibited a first-person perception (perceived themselves to be more influenced than other students in the USA by the messages), and the remaining 15% perceived no difference between themselves and other students in the USA in terms of message influence.

Third-person perception and psychological distance.

Hypothesis 7 predicted that third-person perception would increase as psychological distance increased. Repeated measures ANOVA was used to test mean differences in third-person perception for three levels of psychological distance, as shown on Table 2. As predicted, there were significant mean differences in self perceived message influence when compared to other students in the USA ($M = .47$, $SD = 2.1$), other students in New Jersey ($M = .20$, $SD = 2.0$), and "best friends" ($M = -.24$, $SD =$

1.4), $\underline{F}$ (2, 338) = 14.9, $\underline{p}$ < .001. The negative mean for "best friends" indicates that

students believed they would be more influenced than their best friends would by the

safer-sex messages. In contrast, students believed they would be less influenced than

other students in the state would and in the country would by the messages. Bonferroni

post hoc comparison confirms that students' perceived message influence on themselves

relative to their "best friend" was different from their perceived message influence on

themselves relative to "other students in New Jersey" and "other students in the USA."

Students perceived themselves as more influenced than their best friends by safer-sex

messages, but less influenced than distant "others" by the same messages. Consistent with

the prediction made in Hypothesis 7, students perceived that they were less likely to be

influenced than "others" by safer-sex messages.

Individual differences.

Hypothesis 8 predicted that third-person perception would be higher for boys than

for girls. Contrary to the expectation, no gender difference in third-person perception was

found, $\underline{t}$ (168)= 1.3, $\underline{p}$ = .19. Few previous third-person perception studies included

gender and/or other individual difference variables in study design.

Hypothesis 9 predicted that increases in several individual differences, specifically

grade level, academic achievement, content-specific (HIV/AIDS) knowledge, and self-

esteem would predict increases in third-person perception. As shown on Table 3, some

but not all of these relationships emerged.

Grade level emerged as the strongest correlate of third-person perception, but it

was an inverse relationship. Increases in third-person perception were correlated with

decreases in grade level, meaning that as students progressed through grade levels, they

became less likely to perceive themselves as being less influenced than others regarding message influence. The inverse relationship between third-person perception and grade level is inconsistent with previous findings. However, few of these studies included children and/or adolescents.

An inverse relationship was also demonstrated between third-person perception and HIV/AIDS knowledge, indicating that the more students knew about HIV/AIDS, the less likely they were to believe they were less influenced than others by safer-sex messages. In other words, knowledge reduced third-person perception. The inverse relationship between third-person perception and content-specific knowledge is also inconsistent with previous findings (e.g., Price & Tewksbury, 1996), which suggest that content-specific knowledge increases third-person perception. It is important to note, however, that none of the previous studies included children and/or adolescents, and none of the studies used pro-social health messages. Further discussion of inverse relationships between third-person perception and other variables takes place in the discussion section.

Contrary to the prediction, no relationship was found between third-person perception and academic achievement or self-esteem. These variables were included in the design because each has been shown to be related to optimistic bias. By pairing hypotheses, this study sought to assess the degree to which optimistic bias and third-person perception co-varied with common correlates. It does not appear that academic achievement or self-esteem were related to third-person perception among "at-risk" youth; however, this is the first study to predict their influence on third-person perception.

Hypothesis 9 predicted that increases in third-person perception would be predicted by individual difference variables, including grade level, academic achievement,

content-specific knowledge, and self-esteem. Standard multiple regression was used to test the prediction. Including only the two individual difference variables which correlated with third-person perception (grade level and HIV/AIDS knowledge), a significant model was produced, Adj. r^2 = .03, p < .05. The resulting model suggests that third-person effect increases as grade level (β = -.13) and content specific knowledge (β = -.09) decrease. However, Table 3 shows that grade level and HIV/AIDS knowledge were also strongly correlated with each other, indicating a problem with multi-collinearity. This problem is resolved by removing the weaker predictor (HIV/AIDS knowledge) from the model best predicting third-person perception. Analysis of residual plots indicates that assumptions regarding normality, linearity, and homoscedasticity were met.

Media variables.

Hypothesis 10 predicted that increases in media use and decreases in attitudes toward safer-sex messages would predict increases in third-person perception. Results in Table 3 suggest a small, negative correlation between third-person perception and attitudes toward safer-sex messages. This finding indicates that third-person perception was highest for students who said they did not like or trust safer-sex messages. Contrary to the prediction, no relationship was found between third-person perception and media use. Only one previous study used media use and attitudes to predict third-person perception, finding both were correlates and moderate predictors (Price, Huang, & Tewksbury, 1997).

Optimistic Bias and Third-Person Perception

The final hypothesis, based on Gunther and Mundy's (1994) assertion that optimistic bias causes the third-person perception, predicted a positive relationship

between the two dependent variables. Contrary to expectations, third-person perception appears to *decrease* as optimistic bias *increases*. The relationship, as shown on Table 3, was small and in the opposite direction predicted. At first glance, it appears that optimistic students (compared to others, I'm less likely to get HIV/AIDS) believed the safer-sex messages influenced themselves more than others (first-person perception) and pessimistic students (compared to others, I'm more likely to get HIV/AIDS) believed the safer-sex messages influenced others more than themselves.

However, interpreting the inverse relationship between optimistic bias and third-person perception is a little more complicated. Most of the students (89%) were optimistic that they were less likely than others to get HIV/AIDS later in life. Thus, the inverse relationship indicates varying degrees in optimism by third-person perception: Students who believed the safer-sex messages influenced themselves more than others (first-person effect) were more optimistic about their chances of avoiding HIV/AIDS than students who believed the safer-sex messages influenced others more than themselves (third-person perception), t, (138) = -2.2, p< .05, though most students were optimistic (as was established by the confirmation of H1). Simply put, 51% of the students exhibited third-person perceptions, and these students were less optimistic than their peers were; 34% exhibited first-person perceptions, and these students were more optimistic than their peers were. The remaining 15% perceived no difference between themselves and others in terms of message influence. Most students (89%) were optimistic.

Contrary to the current finding, a positive relationship between optimistic bias and third-person perception has been suggested in several third-person perception studies (Duck, Terry, & Hogg, 1995; Gunther & Mundy, 1994; Hoorens & Ruiter, 1996; Perloff,

1989), but never tested. Because this is the first study to test such a relationship, there are no results to compare the finding to.

Predicting Optimistic Bias and Third-Person Perception

Standard multiple regression was used to identify the best predictors of optimistic bias and third-person perception. Table 4 compares the predictors of optimistic bias and third-person perception. Analysis of residual plots indicates that assumptions regarding normality, linearity, and homoscedasticity were met.

Self-esteem was the best predictor of optimistic bias, with higher self-esteem predicting a greater degree of bias. Although this finding appears counter-intuitive, the rationale behind it is sound: Students with high self-esteem are self-assured and confident in their knowledge and choices, resulting in a false sense of security when faced with decisions about sexual risks. The finding that increases in self-esteem predict increases in optimistic bias is consistent with existing research (e.g., Weinstein, 1989).

Although third-person perception researchers (e.g., Gunther & Mundy, 1994) assume that optimistic bias causes the third-person perception, it must also be considered that the opposite is possible. Perhaps the belief that safer-sex messages on TV influence others more than themselves (or vice versa) leads people to the misperception that others are more at risk of HIV infection than they are. The inclusion of third-person perception as a significant predictor of optimistic bias suggests this may be the case. Students who believed that they were more influenced than others by the safer-sex messages exhibited a lesser degree of optimistic bias than their peers.

Attitude toward safer-sex messages (the media) emerged as the best predictor of third-person perception. As predicted, students who liked and trusted televised safer-sex

messages perceived themselves to be more influenced by such messages, and students with more negative attitudes toward safer-sex messages perceived others as being more influenced by them. This finding is consistent with previous findings (Price, Huang, & Tewksbury, 1997), though it is only the second to use attitude toward the media to predict third-person perception and the first to do so within the context of health related messages.

The remaining variable in the model is optimistic bias, with decreases in third-person perception predicted by increases in optimistic bias. The model contributes to existing knowledge by including two infrequently (if ever) used variables (attitude toward safer-sex messages and optimistic bias). However, the overall variance explained by the model was low and the relationship between optimistic bias and third-person perception was in the opposite direction predicted, requiring additional research to confirm and expand the model.

As Table 4 indicates, there were no shared predictors of optimistic bias and third-person perception. Given that one was uniquely predicted by self-esteem, and the other by a media variable, it would be fair to assume that both optimistic bias and third-person perception contribute independently to the understanding of sex risk perception among "at-risk" youth. Additional research should investigate independent contributions to the understanding of sex risk perception made by optimistic bias and third-person perception and possible interaction effects.

Discussion

The hypotheses tested in this study related to two purposes stated in the introduction: (a) Bridging a gap between psychology and communication by comparing

the influence of individual differences on optimistic bias and third-person perception. (b) Documenting perceptual bias in an urban, minority "at-risk" sample. A third related purpose was to identify predictors of optimistic bias and third-person perception.

Optimistic Bias and Third-person perception Among Urban, Minority "At-Risk" Youth

Before this study, few researchers interested in optimistic bias and third-person perception studied middle school and/or high school students, and fewer still studied minorities. Weinstein (1989) recognized the over-reliance on college students over the first decade of optimistic bias research, yet he sought to remedy the problem with a "community-wide" telephone survey, which excluded respondents under the age of 18. The neglect of adolescents is especially problematic within the context of sex risk perception because experimentation with risk and the formation of lifelong habits are formed during this time period (Fleming, 1996; Kegeles, Adler & Irwin, 1988; Udry & Billy, 1987). The over-reliance on Euro-American samples is problematic as well because adolescents of different races and cultural backgrounds initiate sex risk behaviors at different times and for different reasons (Udry, 1988; Udry, Billy & Morris, 1985). It is also documented that urban youth are more likely to take sex risks at earlier ages and are more likely to drop out of school than their suburban and rural counterparts (Coleman, 1997).

This study sought to rectify areas of neglect in previous studies by selecting urban, minority "at-risk" youth as a sample. Hypotheses 1 and 8 predicted the presence of optimistic bias and third-person perception among "at-risk" youth. Support was found for each hypothesis, indicating that both concepts are appropriate frameworks for talking about sex risk perception among minority "at-risk" youth.

While the study findings indicate that optimistic bias and third-person perception are appropriate frameworks for studying "at-risk" youth, a number of the findings differ

from existing research based on college educated and/or community-based adult samples, which largely consisted of Euro-Americans.

Bridging the Gap

Bridging the gap between the two literatures was accomplished in three ways. The first was the use of paired hypotheses. Significant predictors from previous optimistic bias findings were used in the present study as predictors of optimistic bias and third-person perception. This resulted in the testing of several new hypotheses predicting third-person perception. Similarly, significant predictors from previous third-person perception findings were used in the present study as predictors of third-person perception and optimistic bias, resulting new hypotheses predicting optimistic bias. Another advantage of the current study over previous research was the measurement of self-esteem. Finally, the current study bridges the gap between psychology and communication by empirically testing the relationship between optimistic bias and third-person perception.

Smith, Gerrard and Gibbons (1997) were the first to measure self-esteem in an optimistic bias study, finding a positive relationship between optimistic bias about health risks and self-esteem in adult women. The present study replicates this finding for "at-risk" youth, finding that optimistic bias rises as self-esteem rises. This finding is especially important for people who work with "at-risk" youth. For example, the programs used for the present study administer the Piers-Harris Self Concept Scales annually to identify students with low self-esteem for intervention through counseling. The present findings would suggest that students with high self-esteem are more likely to underestimate their personal risk of health hazards than students with low self-esteem. Thus, an additional target group should be identified.

Numerous predictors of third-person perception were used as predictors of optimistic bias for the first time in the present study. These included content-specific knowledge, media use, attitudes toward safer-sex messages (the media), and preference for media format. None of these emerged as significant predictors of optimistic bias. This finding further contributes to the argument that optimistic bias and third-person perception are not "the same thing" or that one causes the other.

Numerous predictors of optimistic bias were used as predictors of third-person perception. Many of these variables were used rarely, if ever, in third-person perception studies prior to the current study. These included gender, grade level, academic achievement, and self-esteem. With the exception of grade level, none of these emerged as significant predictors of third-person perception. This finding also contributes to the argument that optimistic bias and third-person perception are not "the same thing" or that one causes the other.

One third-person perception study (Glynn & Ostman, 1988) reported a positive relationship between first-person perceptions and education level. The present study partially replicates this finding by demonstrating a positive relationship between first-person perceptions and grade level. Glynn and Ostman's study (1988) did not include adolescent participants and was not health oriented (the research context was public opinion), so the current finding goes further than mere replication. The inverse relationship between grade level and third-person perception was counter to the direction of the hypothesis. This finding should be interpreted with caution. Given that all significant predictors of third-person perception were negative correlates and counter hypothetical, it is possible that sample characteristics or measurement error are responsible

for the findings. Additional research using adult and adolescent participants is necessary to explicate the findings.

Price, Huang, and Tewksbury (1997) were the first to report a relationship between third-person perception, media use and attitudes toward the media. Both media use and attitude toward news were moderate predictors of third-person perception. The present study partially replicates and extends Price, Huang and Tewksbury's findings by showing that attitudes toward safer-sex messages also moderately predict third-person perception. Naturally, "attitudes toward news" and "attitudes toward safer sex messages" are not the same thing; however, both findings indicate that the broader concept of "attitudes toward the media" should be further investigated in third-person perception studies. The inverse relationship between third-person perception and attitude toward safer sex messages is not inconsistent with Price and colleagues finding because participants in the current study were exposed to pro-social health messages as opposed to "bad" news in the previous study. No relationship was found between media use and third-person perception in the current study.

Optimistic bias and third-person perception.

While Gunther and Mundy (1993) suggested that "biased optimism" may be the cause of third-person perception, the present study is the first to empirically test a relationship between the two concepts. Although a relationship between optimistic bias and third-person perception was found, it was small and in the opposite direction predicted. As optimistic bias increased, third-person perception decreased; in addition, the two constructs shared only 5% of variance.

Ruling out a strong association between optimistic bias and third-person perception, what patterns emerged among the other study variables? Do optimistic bias and third-person perception co-vary with the same individual difference and media variables or are they separate phenomenon which may work together in understanding risk behavior and reaction to risk messages?

The best evidence in support of "co-variation" emerged from the role of psychological distance in perceptual bias. The confirmation of Hypotheses 2 and 9 indicates that both optimistic bias and third-person perception were influenced by psychological distance. Repeated measures ANOVA models were highly significant in both cases. Minor differences should be noted in post-hoc analysis between the two; however, a similar pattern is evident. Mean differences between the "best friend" and "New Jersey students" level emerged on the third-person perception and the optimistic bias measures. Similarly, no mean differences between "New Jersey students" and "USA" students level were evident for third-person perception or optimistic bias. This finding is different from the majority of published research in that a peak emerges in some cases when asked to make assessments about other students in New Jersey. It could be argued that such assessments may be the result of the correct perception that some of the hazards are actually greater for students in New Jersey compared to other students across the country.

Co-variation between optimistic bias and third-person perception appears to begin and end with psychological distance. Individual difference variables included in the study design included self-esteem, gender, grade level, content-specific knowledge, and academic achievement (GPA). Findings suggest that only self-esteem was related to

optimistic bias among "at-risk" youth, and only grade level was related to third-person perception. The sole media variable (attitudes toward safer-sex messages) appears to be related to third-person perception, but not to optimistic bias. There were no shared predictors of optimistic bias and third-person perception.

The combined findings of the present study do not support the assumption that optimistic bias causes third-person perception, although there is a weak association between the two. The two concepts best intersect at health-related messages, with each potentially making unique contributions to message design of campaigns targeted toward "at-risk" youth.

Significance of the Study

This study makes numerous contributions to the existing literatures. First, it provides a context for research representing three groups largely under-represented in both the optimistic bias and third-person perception literatures: minorities, adolescents, and urbanites. Risk statistics provided in the previous sections show that the youth attending the three selected programs (for "at risk youth") in urban New Jersey, provided an excellent setting for this study.

The findings confirm that both optimistic bias and third-person perception are present in the sample, indicating that both concepts are appropriate frames for understanding the sex-risk perception of "at-risk" youth. Next, the study bridges a gap between communication and psychology by testing the relationship between third-person perception and optimistic bias, which has been suggested in the communication literature, yet remained untested. Contrary to the position that optimistic bias *causes* third-person perception (Gunther & Mundy, 1993), the findings suggest that a small inverse

relationship exists between the two concepts. However, because the relationship between optimistic bias and third-person perception has not been empirically tested previously, and due to the unique attributes of the sample, the current findings should be interpreted with caution.

The last contribution of the present study is the inclusion of media use and attitudes toward safer-sex messages (the media) as predictors of optimistic bias and third-person perception. The findings indicate that at-risk youth bring pre-existing levels of trust and liking for public service announcements and advertisements, which appear to influence third-person perception. Specifically, negative attitudes toward safer-sex messages increased the self/other distinction concerning perceived influence of health messages. Actual time spent with the media did not appear to influence optimistic bias or third-person perception.

Limitations of the Study

A number of limitations of the study should be addressed. The first three limitations discussed below deal with sampling issues and generalizability. The final two limitations are measurement issues.

The primary strength of the study is also its greatest weakness: the sample. In order to address the neglect of urban, minority "at-risk" youth in previous research, the programs selected for study were rather homogeneous and intentionally differed from existing research. Specifically, the sample was younger and African-American. The importance of conducting research in such a sample has already been discussed. However, the use of a "unique" sample was less appropriate for other purposes of the study: bridging a gap between psychology and communication. Variations in findings reported

here may be due to differences between groups, thus would be less generalizable to existing research and to other populations.

The results of this study are based on a convenience sample of students enrolled in programs for "at-risk" youth in urban New Jersey. They are known to differ from the rest of the population they are drawn from in that 80% of the program students typically graduate from high school, compared to the 25% graduation rate of the school system they are drawn from. It is possible that another sample drawn from the larger school system would differ significantly from program students.

Conducting survey research with children presents a unique set of problems in data collection. Inconsistencies among responses were discussed previously, especially in relation to self-reports of risk behaviors. Where inconsistencies emerged, it is not clear whether they were the result of fabrication, lack of concentration, or lack of comprehension.

It has been argued that third-person perception is an artifact of question order, because participants in early studies were asked to assess message effects on others before indicating effects on themselves (Lasorsa, 1992; Tiedge, Silverblatt, Havice, & Rosenfeld, 1991). Like others, the present study addressed this critique by reversing question order. However, it could still be argued that the fixed question order for both messages may have encouraged a response set. The same limitation also applies to the fixed question order in the optimistic bias scale. As stated in previously, it was important not to alter existing measures despite their limitations in order to facilitate comparison of findings from the current study to previous research.

Implications for Message Design

      Although not an explicit objective of this study, some implications for improving message design emerge from the findings. Differences noted between the current study and existing research indicate that messages targeted for "at-risk" youth should result from research with the target audience. The relative social undesirability of hazards, and by extension optimistic bias, were both shown to be culturally specific to a target audience. In addition, message design informed by optimistic bias should focus on personal risk to specified hazards. Since experience has been shown to influence optimistic bias, safer sex campaigns need to begin in early adolescence. The finding that optimistic bias increases with grade level reinforces the notion that the best time frame for influencing students' sex-risk perceptions is middle school or earlier.

Directions for Future Research

      Additional research needs to focus on minority adolescents in order to confirm the findings from the current study and to better understand students' sex risk perception and risk-taking behaviors. Superior designs would include adolescents and adults and a range of ethnic and cultural backgrounds. The relationship between grade level and perceptual bias needs to be explored further to discover the age when bias emerges, thus the best age for targeting campaigns and/or interventions. In particular, the following research questions should be addressed: How do adolescents differ from adults in optimistic bias and third-person perception? What is the optimum age range for safer-sex campaigns, before perceptual bias emerges? How do adolescents from various cultural backgrounds differ in optimistic bias and third-person perception? Does optimistic bias in youth predict risk taking in late adolescence and adulthood? Do adolescents who differ in degrees of

third-person perception disregard health-related messages? Do messages that focus on

personal risk reduce optimistic bias, and by extension risk taking?

Although it is unlikely that optimistic bias *causes* third-person perception, further

research that includes both concepts may result in a better understanding of sex risk

perception in relation to public communication campaigns. Bridging the gap between

psychology and communication is the first logical step in the path to understanding.

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Table 1

Zero-Order Correlations Among Optimistic Bias and Individual Difference Variables

	2	3	4	5	6	7
1. Optimistic bias	-.26**	-.14	-.10	-.09	-.08	.08
2. Self-esteem	---	.11	-.03	.15	.01	-.11
3. Grade level		---	.05	-.33**	.52**	.10
4. Media attitudes			---	.05	.09	.07
5. GPA				---	-.14	-.03
6. HIV/AIDS knowledge					---	-.06
7. Media use						---

Note. Because optimistic bias is indicated by a negative mean, all signs in row 1 should be reversed for interpretation.

**$p < .01$.

Table 2

Third-person perception: Mean Differences for 4 Levels of Psychological Distance (n = 170)

Source	Best friend	NJ students	USA students
1. Message 1	$-.25_a$	$.10_b$	$.45_c$
2. Message 2	$-.23_a$	$.31_b$	$.52_b$

Note. Subscripts that differ within a row denote means that differ at $p < .05$, according to Bonferroni post hoc analysis.

Table 3

Zero-Order Correlations Among Third-person perception, Individual Difference Variables, and Optimistic Bias

	2	3	4	5	6	7	8
1. Third-person perception	-.33**	.24**	-.18*	-.16*	-.14	-.02	-.02
2. Media attitudes	---	-.10	.05	.09	-.03	.05	.07
3. Optimistic bias		---	-.14	-.08	-.26**	-.09	.08
4. Grade level			---	.52***	.11	-.33***	-.10
5. HIV/AIDS knowledge				---	.01	-.14	-.06
6. Self-esteem					---	.15	-.11
7. GPA						---	-.03
8. Media use							---

Note. Because optimistic bias is indicated by a negative mean, all signs in column and row 3 should be reversed for interpretation.

*p< .05. **p< .01. ***p<.001.

Table 4

Summary of Linear Regression Analysis for Variables Predicting Optimistic Bias and

third-person perception

Predictor	Optimistic bias			Third-person perception		
	Adj r^2 = .09 n = 143			Adj r^2 = .15 n = 166		
	B	SE B	β	B	SE B	β
Self-esteem	-4.20	.02	-.23**	---	---	---
Third-person perception	7.86	.02	.21**	---	---	---
Media attitudes	---	---	---	-.44	.10	-.30***
Optimistic bias	---	---	---	.49	.19	.18**

Note.

**p< .01. ***p<.001.

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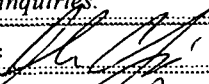
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