This study explored the role of the media in the formation and preservation of optimistic bias. It also sought to link optimistic bias and third-person perception, bridging a gap between communication studies and health psychology. The intersection of the two literatures may be especially beneficial in understanding how adolescents process and interpret public health messages and subsequently engage in high-risk behaviors or self-protective behaviors in health contexts. Finally, the study examined third-person perception or optimistic bias within the context of school violence. Findings from a survey of 350 urban adolescents indicated that both actual experience and vicarious experience gained via the media contribute to health risk perception regarding violence. (Contains 45 references and 3 tables.) (Author/RS)
Optimistic Bias and the Media: Adolescents' Perceptions of Violence

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ERIC Clearinghouse on Reading, English, and Communication.
OPTIMISTIC BIAS AND THE MEDIA:
ADOLESCENTS' PERCEPTIONS OF VIOLENCE
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Abstract

This study explored the role of the media in the formation and preservation of optimistic bias. It also sought to link optimistic bias and third-person perception, bridging a gap between communication studies and health psychology. The intersection of the two literatures may be especially beneficial in understanding how adolescents process and interpret public health messages and subsequently engage in high-risk behaviors or self-protective behaviors in health contexts. Finally, the study examined third-person perception or optimistic bias within the context of school violence. Findings from a survey of 350 urban adolescents indicated that both actual experience and vicarious experience gained via the media contribute to health risk perception regarding violence.

The year 2001 will stay etched in the minds of Americans for decades. It was a year that began with news reports of multiple murders in public high schools in small town America and ended with unprecedented terrorist attacks in New York and Washington. People throughout the world watched in horror as the scene of hijacked commercial airlines crashing into the World Trade Centers was continuously looped for television screens. A singular theme permeated newscasts as victims and witnesses spoke to millions via the TV screen: “I did not think it could happen here.” One theory offers a promising explanation for such disbelief and the failure to take safety precautions against violence: optimistic bias (Weinstein, 1980). Optimistic bias is a health psychology

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theory predicting that people believe they are less vulnerable than others to health risks. Optimistic bias frequently leads to risk taking or inaction. Just as airport security officers, in a country that has not experienced a hijacking in over a decade, may not stay fully alert when screening passengers and luggage for weapons, students who are aware of violent threats fail to report them to school authorities; they do not believe it can really happen to them.

It was also the year that MTV banned its first music video for violent content. The network’s fear that watching Madonna steal a car, run people over, and blow up a gas station might cause youthful fans to commit violent acts of their own seems justified in a year when policy-makers blamed violent video games for teaching adolescent boys how to gun down their classmates. However, little is currently known about the extent to which the media contribute to the formation and preservation of optimistic bias regarding violence.

Purpose of the Study

The current study serves several purposes: (1) Understanding the media’s role in optimistic bias, (2) understanding contributing factors to the perceptual bias, and (3) applying the concepts to the school violence context toward better understanding and eventual reduction. School violence is an ideal context for the study given the longstanding interest of communication scholars in the relationship between media violence and youth behavior, the interest of health psychology scholars in understanding and reducing youth violence, and the current public concern over high-profile school murders.
Optimistic Bias

Optimistic bias is a robust literature. Over 100 studies published over the past two decades have documented the perceptual bias in a variety of contexts including natural disasters (Helweg-Larsen, 1999; Weinstein, Lyon, Rothman & Cuite, 2000; Whalen, Henker, O'Neil, Hollingshead, Holman, & Moore, 1994), smoking (Arnett, 2000; Cillians, 1997; Williams & Clarke, 1997), skin cancer (Bane & Sherman; 1995; Clarke, Williams, & Arthey, 1997; Pennigroth, 1995), and unsafe sex (Chapin, 1999, 2000; Smith, Gerrard, & Gibbons, 1997).

One study (Martin, Berenson & Griffing, 2000) has applied the concept of optimistic bias to violence. Martin and colleagues reported that even women in abusive relationships exhibited optimistic bias regarding their relative chances of being harmed again in the future, as compared to other women in abusive relationships. Participants who exhibited greater degrees of optimistic bias were also more likely to return to their homes and abusive partners. They failed to take self-protective actions based on their misperception of safety.

Demographics

Contrary to predictions by proponents of the adolescent invulnerability hypothesis, the influence of demographics on optimistic bias is not clear. In an early review and community sample, Weinstein (1987) reported little or no relationship between optimistic bias and age, education, gender, or income. Weinstein’s community sample did not include any adolescents, however, and the review was limited to studies that Weinstein admitted were over-reliant on white college student samples.
Since this early synthesis of the literature, results have been mixed. Numerous studies show optimistic bias actually decreases with age (Arnett, 2000; Job, 1990; Job, Fleming, & Morgan, 1992; Quadrel, Fischoff, & Davis, 1993). Quadrel and colleagues' (1993) sample was the only one to test both adults and adolescents, finding both the adults and their children believed the adults were less prone to a variety of risks. Other studies (Chapin, 1999) found no significant relationship between optimistic bias and age.

The optimistic bias literature has addressed gender effects more fully, consistently finding males more prone to optimism than females for risks ranging from automobile accidents to cancer (Chapin, 1999; Hampson, 1998; Whalen, Henker, O'Neil, Hollingshead, Holman, & Moore, 1994).

Knowledge

Multiple studies have reported a positive relationship between optimistic bias and knowledge (Al-Najjar, Al-Azemi, Buhaimeed, Adib & Behbehani, 1998; Bane, 1998; Frewer, Howard, Hedderley, & Shepherd, 1998), with one exception reporting no significant relationship (Ferguson, 1997). The old adage "a little knowledge is a dangerous thing" seems to hold true. A basic knowledge base with no personal involvement seems to encourage risk taking, or at least discourage self-protection. Given the knowledge/awareness emphasis of most public health campaigns, further research in the area may significantly contribute to message design.

Self-Esteem

Less is known about the relationship between self-esteem and optimistic bias. Multiple studies discuss optimistic bias as a self-esteem preservation mechanism, but fail to test the relationship. Chapin (2000) confirmed this assumption, finding self-esteem positively
related to optimistic bias. The existing literature is limited, but consistent (Smith, Gerrard, & Gibbons, 1997), with higher self-esteem allowing people to believe they are at reduced risk of health hazards.

Optimistic Bias and the Media

Third-Person Perception

Given the substantial literature on media violence and popular opinion, which holds the media responsible for a host of social ills, including school violence, the lack of ties between the two literatures is astounding. One of the most promising linkages to communication studies is third-person perception (Davison, 1983). Like optimistic bias, third-person perception is a perceptual bias. People believe the greatest influence of the media is not on themselves (the first persons) or those around them (the second persons), but on distant unfamiliar others (the third persons). Like optimistic bias, a growing literature confirms third-person perception in a variety of contexts, including news coverage (Gunther, 1998; Gunther & Mundy, 1993; Perloff, 1989), public service announcements (Chapin, 2000; Henriksen & Flora, 1999; White & Dillon, 2000) and pornography (Lo & Paddun, 2000; Rojas, Shah, & Faber, 1996).

Recent additions to the literature explore media violence. Salwen and Dupagne’s (1999) 721 adult participants believed TV violence affected the immorality of others (more than themselves). Hoffner, Plotkin, Buchanan, Anderson, Kamigaki, Hubbs, Kowalczyk, Silberg, and Pastorek (1999) report similar findings.

The similarities to the optimistic bias hypothesis make interest in linking the two concepts obvious. Multiple studies, in fact, suggest optimistic bias (Weinstein, 1980) may be the underlying cause of third-person perception (Brosius & Engel, 1996; Duck &
Mullin, 1995; Duck, Terry & Hogg, 1995; Gunther, 1991; Gunther & Hwa, 1996; Gunther & Mundy, 1993; Rucinski & Salmon, 1990). Chapin (2000) empirically tested such a relationship, and reported a small inverse relationship between first-person perception and optimistic bias among urban minority at-risk youth. First-person perception emerges in studies that use prosocial messages (in this case, safer sex messages); participants believe it is positive to be influenced by such messages, so third-person perception is reversed with people believing they are more influenced than others by the messages. Chapin concluded that third-person perception and optimistic bias each contributed uniquely to understanding participants' perceptions and sexual risk-taking behaviors and urged further research linking the literatures.

**Media Reality**

Rejecting a direct effects model, the literature suggests that mere exposure to the media is not sufficient to create or significantly affect perception; individuals must believe what they are viewing is realistic and credible to be most influenced by it (Busselle & Greenberg, 2000; Gunther, 1992). Busselle and Greenberg (2000) reviewed 30 years of the perceived media reality literature, linking it with acceptance of violent depictions, attitudes toward violence, and increased aggression, particularly among children. A critique of the studies reviewed is that they assumed participants’ perceptions of media reality by exposure to messages constructed to be either realistic or unrealistic. The current study addresses the critique by measuring perceived media reality.
Method

Hypotheses

The present study investigated the following hypotheses.

H1. Students believe violence is less likely to happen in their school than other schools in the U.S. (optimistic bias).

H2. Optimistic bias will increase as age increases.

H3. Optimistic bias will be greater for males than for females.

H4. Optimistic bias will increase as knowledge increases.

H5. Optimistic bias will increase as self-esteem increases.

H6. Students believe they are less influenced than others by media violence (third-person perception).

H7. Optimistic bias will increase as third-person perception increases.

H8. Optimistic bias will increase as perceived media reality increases.

Participants

The students who participated in the study attended public and private schools in a single county in urban Pennsylvania (N = 350). Students ranged in age from 13 to 19 years (M = 15.6, SD = 2.3) and were 60% female. Students took part in one-day violence awareness sessions offered by a nonprofit domestic violence center. All sessions took place in school, conducted by a licensed counselor, with teachers present.

Materials

Descriptive statistics for all continuous measures are summarized in Table 1. Optimistic bias was measured with a single item: Compared to other schools in the U.S., the chances of violence happening in my school are... (-3 = much less; +3 = much
greater). A mean of zero would indicate no difference between perceived chances of school violence. The measure is well established in the literature and widely used.

Knowledge was measured with an instrument designed by counselors at the non-profit center to determine students’ awareness of school violence and dating violence. Ten items regarding violence facts and statistics were collected prior to the session, then immediately discussed. Scores ranged from 1 to 10, indicating the number of items answered correctly. All items loaded onto a single factor, and the resulting scale demonstrated moderate internal consistency ($\alpha = .58$).

Self-esteem was measured with the 10-item Rosenberg Self-Esteem Scale. The scale has been widely used and accepted for two over two decades. All items loaded onto a single factor, and the resulting scale demonstrated high internal consistency ($\alpha = .86$).

Third-person perception was measured with two items following a discussion (priming) of violence in the media: How much do you think _____ (you/other students your age in the U.S.) are influenced by violence in the media? Consistent with the literature, responses were on a 7-point Likert-type scale (0 = not at all; 6 = extremely influenced). Subtracting ratings for self from ratings for others resulted in a measure of third-person perception, with a positive score indicating the belief that others are more influenced by media violence (third-person perception).

Perceived media reality was measured using a scale developed by Greenberg, Tokinoya, Ku, and Li (1989) for adolescents. Participants responded to four items on a 5-point scale: Fighting on TV is like fighting in real life (5 = agree a lot; 1 = disagree a lot). The resulting scale exhibited high internal consistency ($\alpha = .83$).
Results

Optimistic Bias

The first hypothesis predicted optimistic bias at the group level. A single-sample $t$ test was used to test H1. Consistent with the prediction, students believed that violence was more likely to happen in other schools in the U.S. than in their school, $t(252) = -7.9, p < .000$. The negative mean ($M = -7, SD = 1.4$) indicates optimistic bias at the group level, supporting H1. The findings were consistent with the literature.

Optimistic Bias and Individual Attributes

H2 predicted that optimistic bias would increase as age increased. Table 2 shows the predicted relationship emerged. Indeed, age appears to be most closely related to optimistic bias, among the remaining variables. H2 was supported. Findings in the literature are mixed, but a growing body of work is consistent with these results.

An independent-sample $t$ test was used to test for gender differences. Contrary to the prediction that optimistic bias would be each be greater for males than females, no significant difference was found. H3 was not supported. The literature is filled with mixed results, with about half the published studies finding the predicted difference and half failing to produce significant results.

Prior knowledge of school and relationship violence was associated with decreased levels of third-person perception, but was not related to optimistic bias. H4 was not supported. The split between optimistic bias and third-person perception is not surprising given that content specific knowledge is a mainstay of the third-person perception literature and is relatively new to the optimistic bias literature.
As predicted in H5, Table 1 indicates that optimistic bias increases with self-esteem, supporting H5. The finding is consistent with the existing literature.

**Optimistic Bias and the Media**

H6 predicted third-person perception at the group level. A single-sample t test was used to test H6. Consistent with the prediction, students believed that they (M = 2.7, SD = 1.6) were less influenced by others (M = 4.5, SD = 1.5) by media violence, t(259) = -18.1, p < .000. The positive mean difference (1.8) indicates third-person perception, supporting H6. The findings are consistent with the literature.

H7 predicted that third-person perception would increase as optimistic bias increased. Table 2 summarizes zero-order correlation analysis, showing the relationship emerged as predicted. Students who believed they were less influenced than others by media violence were also prone to believe that violence was not likely to happen in their school, supporting H7. This is only the second study to test this hypothesis, but the finding is consistent with the limited literature.

Table 2 also shows a counter-hypothetical result for H8. Optimistic bias is inversely related to perceived media reality. The current study is the first to use the scale in an optimistic bias study. The direction of the hypothesis was based on the third-person perception literature. The inconsistent finding underscores the complexity of the relationship between the two concepts.

**Predicting Optimistic Bias**

Standard multiple regression was used to identify the best predictors of optimistic bias. The results are summarized in Table 3. Analysis of residual plots indicates that assumptions regarding normality, linearity, and homoscedasticity were met.
Age was the best predictor, followed by self-esteem and third-person perception and media reality. The fact that weak association knowledge did not remain in the model seems consistent with the notion that adolescents do not necessarily draw on fact when making personal risk assessments.

Discussion

Both actual experience and vicarious experience gained through the media should be taken into consideration when assessing individual’s risk-perception. There is little doubt that TV viewers “learned” from news coverage of the terrorist attacks of the World Trade Center. Understanding the potential of the media to influence risk-perception may lead to pro-active health campaigns address violence, as well as a wide range of health hazards.

In addition to the relative contribution of the media, the study replicates an established literature on self-esteem and a growing literature on demographics. The finding that adolescents don’t depend on rational thought (knowledge) to guide risk-taking behaviors is not new. The expression “a little knowledge is a dangerous thing” seems to apply here. Like high self-esteem, a knowledge base, not paired with realistic perceptions of potential risks to self, may serve as a shield to preserve self-concept while engaging in risky behaviors. Students who are told by a peer that they are going to bring a gun to school and shoot people the following day, routinely fail to report the threat to parents or school officials and show up for school as scheduled, safe in the belief that “bad things don’t happen here.” Decreasing the perceptual biases may be the first step in reducing the risks or at least increasing precautions.
Finally, the study is the first to study optimistic bias in the area of school violence. It contributes to a desperately needed knowledge base required to prevent further violence and encourage self-protective behaviors on the part of potential victims.

Limitations

Results reported here are based on an existing sample of students in urban Pennsylvania, recruited by a nonprofit domestic violence center. Differences in schools that choose to participate in such programs may skew results toward greater or lesser perceptions of violence. Findings may also not be generalizable to other areas of the country and the world.

Cooperative arrangements between universities and non-profit organizations create unique opportunities, but also limitations; in this case, limited space on pre/post tests for measures limited the scope of the investigation, and counselor-constructed measures (knowledge) met the organization’s needs to guide sessions, but resulted in measures with only moderate internal consistency for research purposes.
References


Table 1

Descriptive Statistics for Continuous Variables \((N = 350)\)

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<thead>
<tr>
<th></th>
<th>(M)</th>
<th>(SD)</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optimistic Bias</td>
<td>-.4</td>
<td>1.5</td>
<td>-3 to 3</td>
</tr>
<tr>
<td>Age</td>
<td>15.5</td>
<td>1.5</td>
<td>13 to 19</td>
</tr>
<tr>
<td>Violence Knowledge</td>
<td>8.1</td>
<td>.9</td>
<td>5 to 10</td>
</tr>
<tr>
<td>Self-esteem</td>
<td>31.2</td>
<td>5.1</td>
<td>11 to 40</td>
</tr>
<tr>
<td>Third-Person Perception</td>
<td>-1.8</td>
<td>1.6</td>
<td>-6 to 3</td>
</tr>
<tr>
<td>Media Reality</td>
<td>2.2</td>
<td>.9</td>
<td>1 to 5</td>
</tr>
</tbody>
</table>
Table 2

Zero-Order Correlations among Optimistic Bias and Study Variables

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<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Optimistic Bias</td>
<td></td>
<td>-.37***</td>
<td>-.17*</td>
<td>-.15*</td>
<td>.14*</td>
<td>-.02</td>
</tr>
<tr>
<td>2. Age</td>
<td></td>
<td>-.10</td>
<td>.01</td>
<td>-.08</td>
<td>.09</td>
<td></td>
</tr>
<tr>
<td>3. 3rd-Person Perc.</td>
<td></td>
<td></td>
<td>-.15*</td>
<td>.02</td>
<td>-.16*</td>
<td></td>
</tr>
<tr>
<td>4. Self-esteem</td>
<td></td>
<td></td>
<td>-.04</td>
<td>.13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Media Reality</td>
<td></td>
<td></td>
<td></td>
<td>-.09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Knowledge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Because optimistic bias is indicated by a negative mean, signs for optimistic bias have been reversed in the table for ease of interpretation.

***p< .001, *p< .05
Table 3

Summary of Linear Regression Analysis for Variables Predicting Optimistic Bias

<table>
<thead>
<tr>
<th>Predictor</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
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</thead>
<tbody>
<tr>
<td>Age</td>
<td>-.33</td>
<td>.07</td>
<td>-.35***</td>
</tr>
<tr>
<td>Self-Esteem</td>
<td>-.04</td>
<td>.02</td>
<td>-.13*</td>
</tr>
<tr>
<td>Third-Person Perception</td>
<td>.10</td>
<td>.07</td>
<td>.11*</td>
</tr>
<tr>
<td>Media Reality</td>
<td>.16</td>
<td>.12</td>
<td>.10*</td>
</tr>
</tbody>
</table>

*Note. adjusted $r^2 = .16$, n = 350

***$p<.001$, *$p<.05$
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