The purpose of the present study was to examine the association between features of borderline personality disorder (BPD) and mate retention tactics as a means of examining an evolutionary perspective on the association between BPD features and interpersonal problems and violence in romantic relationships. Two-hundred twenty-five college student participants completed the Personality Assessment Inventory for Borderlines (PAI-BOR; Morey, 1991) and the Mate Retention Inventory-Short Form (MRI-SF; Buss, Shackelford, & McKittrick, 2008) embedded within other measures. There was a strong association between BPD features and cost-inflicting mate retention tactics, including the specific tactics of vigilance, punishing mate’s infidelity threat, intrasexual threats, and sexual inducements for both men and women. There were also gender-specific associations for additional tactics. These results contribute to our understanding of problems in romantic relationships among men and women with BPD features, including violence, and to our understanding of impulsive sexual behavior among individuals with BPD features by showing how these behaviors are used as extreme, maladaptive attempts at mate retention.

Interpersonal difficulties are a central issue in borderline personality disorder (BPD), and it has been argued that the criterion of “unstable/intense personal relationships” is one of the most characteristic criteria of BPD (Modestin, 1987). A number of empirical studies have documented a wide variety of interpersonal difficulties associated with this disorder (Ruiz, Pincus, & Bedics, 1999; Trull, 1995; Trull, Useda, Conforti, & Doan, 1997) across a wide range of types of relationships (Skodol et al., 2002), even after controlling for other Axis II psychopathology (Truant, 1994).

BPD interpersonal problems are especially pronounced in the area of romantic relationships (Bouchard, Sabourin, Lussier, & Villeneuve, 2009; Chenet al., 2004; Daley, Burge, & Hammen, 2000; Gutman, McDermut, Miller, Chelminski, & Zimmerman, 2006; Labonte & Paris, 1993; Swartz, Blazer, George, & Winfield, 1990; Stuart, Moore, Gordon, Ramsey, & Kahl er, 2006; Truant, 1994; Whisman & Schonbrun, 2009). Individuals with BPD are less likely to be married (Swartz et al., 1990), more likely to be divorced...
BPD AND MATE RETENTION TACTICS

(Pfohl, Stangl, & Zimmerman, 1984), and experience a greater number of breakups during romantic relationships (Labonte & Paris, 1993). In a longitudinal study of adolescent women and the effect of personality disorder features on romantic relationships, Daley et al. (2000) found that personality disorder features generally predicted a greater number of relationship partners, greater incidence of physical abuse, more relationship conflicts, chronic stress in the relationship, and less satisfaction among relationship partners over the course of 4 years. Similarly, Chen and colleagues (2004) found that adolescent symptoms of BPD were associated with greater conflict with romantic partners at age 23. Although few studies have directly measured couple functioning among individuals with a diagnosis of BPD, Bouchard and colleagues (2009a) found that couples involving a woman diagnosed with BPD experienced lower marital satisfaction, a greater incidence of violence, and greater attachment insecurity.

Recent studies document the specific connection between BPD and interpartner violence (Newhill, Eack, & Mulvey, 2009; Whisman & Schonbrun, 2009). In a study conducted to characterize the nature and prevalence of violence among individuals with BPD, Newhill and colleagues (2009) found that 73% of individuals with BPD engaged in violence over the course of a year, and 29% of these instances were toward significant others. Whisman and Schonbrun (2009) tested the association between BPD and marital disturbances and found that BPD was associated with marital distress, dissolution, and both minor and severe forms of violence. Furthermore, women arrested for domestic violence are more likely to have BPD (Henning, Jones, & Holdford, 2003; Stuart et al., 2006) compared to rates of BPD in the general population.

Examining the association between BPD features and mate retention tactics may provide insight into some aspects of romantic relationship disturbances and violence among individuals with BPD. A predominant feature and diagnostic criterion of BPD is frantic efforts to avoid real or imagined abandonment (American Psychiatric Association, 2000). From an evolutionary perspective, efforts to avoid abandonment in the context of romantic relationships may be conceptualized as efforts to retain one’s mate. Thus it follows that understanding mate retention strategies associated with BPD features may be informative to understanding BPD problems in romantic relationships. Additionally, based on prior research showing a connection between mate retention tactics and violence (Shackelford, Goetz, Buss, Eulers, & Hoier, 2005), this knowledge may also elucidate a mechanism driving the association between interpersonal violence and BPD in the context of romantic relationships.

As a challenge presumably faced by our species throughout evolutionary history, mate retention has evolved as an important facet of our motivational and behavioral repertoire (Buss, 1988). According to Buss, successful survival of our genetics required not only selecting and attracting mates, but also retaining these mates. This holds for both men and women (Buss, 1988; Buss & Shackelford, 1997). Men are expected to expend energy in the service of retaining mates to avoid investing in another male’s offspring, whereas women are expected to expend energy toward retaining mates to avoid
the risk that her male partner will invest in offspring other than her own (Buss, 1988; Buss & Shackelford, 1997). Thus the evolutionary perspective asserts that both men and women have inherited a tendency to engage in mate retention tactics, especially when they feel that their romantic relationship is threatened. Buss (1988) identified 19 specific mate retention tactics, which have been subsequently arranged into five categories. Direct Guarding tactics are defined as those tactics aimed at restricting one's partner's sexual autonomy. Tactics within this category include checking up on one's partner (“Vigilance”), monopolizing the partner's time (“Monopolization of Time”), and keeping one’s partner away from competitors (“Concealment of Mate”). Intersexual Negative Inducements are defined as tactics aimed at using threats or coercion to control one's partner's behavior. Specific tactics in this category include trying to make one's partner jealous (“Jealousy Induction”), threatening to punish infidelity (“Punish Mate’s Infidelity Threat”), expressing dependency or need (“Emotional Manipulation”), moving the relationship to the next level (“Commitment Manipulation”), and trying to make one's competitors appear less desirable (“Derogation of Competitors”). Intrasexual Negative Inducements are defined as tactics aimed at attempting to directly or indirectly control the behaviors of competitors, and include tactics such as saying negative things about one’s partner to competitors (“Derogation of Mate”), acting threatening to competitors (“Intrasexual Threats”), and physically hurting competitors (“Violence against Rivals”). Positive Inducements are defined as tactics aimed at providing benefits to one's partner in the effort to retain him or her as a mate. These include providing resources (“Resource Display”), enhancing one’s physical appearance (“Appearance Enhancement”), doing sexual favors (“Sexual Inducements”), providing compliments and care to the partner (“Love and Care”), and submitting to one's partner's desires (“Submission and Debasement”). Public Possessive Behaviors are defined as those tactics that aim to deter competitors based on a display of sexual possessiveness, and include asking one’s partner to wear jewelry that signifies commitment (“Possessive Ornamentation”), using public displays of affection (“Physical Possession Signals”) and bragging about relationship commitment when talking to competitors (“Verbal Possession Signals”). The first three categories of Direct Guarding, Intrasexual Negative Inducements, and Intrasexual Negative Inducements have been further defined as Cost-Inflicting tactics, which may be effective in the short term but have negative long-term consequences (Miner, Starratt, & Shackelford, 2009).

Research indicates that perceived threats to romantic relationship stability may be a common concern among individuals with BPD. A consistent association between BPD and insecure attachment styles has been demonstrated (see Agrawal, Gunderson, Holmes, & Lyons-Ruth, 2004, for review). Agrawal and colleagues (2004) concluded that BPD tends to be associated with attachment styles characterized by fear of rejection and lack of trust. Nigg, Lohr, Westen, Gold, and Silk (1992) found evidence that individuals with BPD have more malevolent perceptions of others, and Bhar, Brown, and Beck (2008) found that individuals with BPD hold a number of dysfunctional beliefs about the self and others. These include distrust (see also Unoka,
Seres, Áspán, Bódi, & Kéri, 2009) and belief in the importance of acting preemptively in order to avoid potential threats. Conceptually, these types of beliefs about threats to one’s romantic relationship are those most likely to motivate the use of mate retention tactics (Buss & Shackelford, 1997), and this connection between beliefs about relationship threat and greater use of mate retention tactics has been supported empirically (Buss & Shackelford, 1997). Because individuals with BPD are hypersensitive to perceiving, and hypervigilant in acting on, cues of potential threats to relationships, we expect that they will show elevated use of mate retention tactics. The first purpose of the present study was to examine the associations between BPD features and likelihood of engaging in mate retention tactics, based on the expectation that a higher perceived relationship threat will lead to greater likelihood of engaging in mate retention tactics generally.

Based on evidence that BPD features tend to be associated with relationship problems, including intimate partner violence, the second purpose of the present study was to test whether BPD features were specifically associated with greater likelihood of using costly mate retention tactics. These tactics refer to the types of strategies that have been identified as potentially effective in the short term (e.g., when jealousy causes one’s mate to avoid spending time with other men), but less effective in the long term, because these strategies are costly and thus aversive to one’s mate (Shackelford et al., 2005b). We predicted that higher levels of BPD features would be associated with greater likelihood of engaging in cost-inflicting mate retention tactics.

The third purpose of the present study was to test the association between mate retention tactics and BPD features separately for each sex. There is evidence that although many tactics are used equally by men and women, some tactics are used more by one sex than the other (Buss, 1988; Buss & Shackelford, 1997). In light of these findings, we predicted that Resource Display, Submission & Debasement, and Intrasexual Threats would show the strongest correlations to BPD features among men. Among women, we expected that BPD features would be associated most strongly with tactics of Appearance Enhancement and Verbal Signals of Possession.

METHOD

PARTICIPANTS

Participants were 85 male and 140 female college students. Participants were between the ages of 17 and 32 (M = 19.34, SD = 1.78) and predominantly Caucasian (76.9%) with Hispanic (5.8%) and African-American (4.0%) being the next most prevalent groups. Two-hundred six participants were dating or single, 4 were cohabiting, and 11 were married.

MEASURES

Borderline Personality Disorder Features. BPD features were measured using the Personality Assessment Inventory for Borderlines (PAI-BOR; Morey, 1991), a measure developed specifically to measure BPD features. The
PAI-BOR includes items assessing the important features of BPD, including Affective Instability, Identity Disturbances, Negative Relationships, and Self-Harm/Impulsivity, summed to provide a total BPD features score. Participants rated each item according to how accurate the statement was about themselves, from 0 (False, not at all true) to 3 (Very True). Morey (1991) indicated that a total score above 37 on the PAI-BOR is associated with clinically significant borderline features, and a score above 59 is associated with BPD diagnosis. Subsequent studies have supported this contention among nonclinical samples (e.g., Trull, 1995; Trull et al., 1997) and have demonstrated strong validation evidence among clinical samples (e.g., Stein, Pinski-Aspen, & Hilsenroth, 2007). For the present study, items showed good internal consistency ($\alpha = .84$). In the present sample, 13.3% of participants ($n = 30$) reached a score indicating significant BPD features, consistent with previous research examining BPD features in college student samples (Trull, 1995).

**Mate Retention Inventory–Short Form.** Mate retention tactics were measured using the Mate Retention Inventory–Short Form (MRI-SF; Buss, Shackelford, & McKibbin, 2008). The individual subscales of the MRI-SF have been shown to be valid and reliable equivalents to the original, long-form Mate Retention Inventory (MRI; Buss 1988), with individual item-total correlations in the .50–.85 range and subscale estimates ranging from .81 to .91 (see Buss et al., 2008). Reliability estimates in the present study were similar, ranging from .57 to .96, with the majority between .79 and .91. Validation evidence for this measure consists of high correlations with the MRI (long-form) scores, and associations with measures of relationship conflict and violence (see Buss et al., 2008). This measure assesses use of 19 specific mate retention tactics (see Buss et al., 2008 for specific items). Each scale was composed of two items, rated on a scale from 0 (Never performed this act) to 3 (Often performed this act). On the basis of previous research (Buss, 1988; Miner et al., 2009; Shackelford, Goetz, & Buss, 2005), we also computed five summary scores according to tactic categories. These five categories included Direct Guarding, Intersexual Negative Inducements, Intrasexual Negative Inducements, Positive Inducements, and Public Possessive Behaviors. We also created a Combined Benefit Provisioning Tactics composite (Positive Inducements and Public Signals of Possession) and a Combined Cost-Inflicting Tactics composite (Direct Guarding, Intersexual Negative Inducements, and Intrasexual Negative Inducements) consistent with previous evolutionary models and research (Miner et al., 2009).

**PROCEDURE**

Participants were recruited using an online research pool management site, where participants could choose to sign up for a variety of options for research participation in order to receive course credit. Participants were informed that the present study included questionnaire measures of personality and interpersonal behaviors. Participants completed a series of questionnaires, including demographics, the Personality Assessment Inventory–Borderline
Features scale (PAI-BOR; Morey, 1991), and the Mate Retention Inventory–Short Form (MRI-SF; Buss et al., 2008), embedded within a number of other measures. Participants received course credit for participation. The study was approved by the university’s Institutional Review Board.

RESULTS

Descriptive statistics for the PAI-BOR and Mate Retention Scale are presented in Table 1. First, we conducted regression analyses where scores on the PAI-BOR were entered as predictors of scores on the five MRI-SF categories (controlling for marital status [married and cohabiting dummy coded variables] and age). These analyses were conducted for the overall sample as well as separately by gender. As predicted, higher levels of BPD features were associated with reporting greater frequency of Direct Guarding, Intersexual Negative Inducements, and Intrasexual Negative Inducements tactics, for both men and women (see Table 2).

Second, we conducted regression analyses to examine the association between BPD features and the combined positive (Benefit Provisioning) and negative (Cost-Inlicting) tactics (see Table 2), controlling for marital status.
and age. Although there was only a weak association with Benefit Provisioning tactics, which was no longer significant when separated by gender, there was a substantial correlation between BPD features and Cost-Inflicting tactics. This association remained significant when analyzed separately by gender, such that BPD features were associated with greater frequency of using cost-inflicting tactics among both men and women.

To examine the associations between BPD features and mate retention tactics in more detail, we conducted regression analyses testing the association between BPD features and each specific mate retention tactic, controlling for marital status and age (see Table 3). Correlations between BPD features and Vigilance, Punish Mate’s Infidelity Threat, Intrasexual Threats, and Sexual Inducements were correlated with BPD features among both men and women. Monopolization of Time, Emotional Manipulation, Commitment Manipulation, Violence against Rivals, Submission & Debasement, and Verbal Possession Signals were correlated with BPD features among men only, whereas scores for Jealousy Induction, Derogation of Competitors, and Derogation of Mate were correlated with BPD features among women only.

**DISCUSSION**

The finding that BPD features were associated with greater frequency of engaging in costly mate retention tactics, compared to only a weak association

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**TABLE 2. Summary of Regression Analyses for PAI-BOR Total Scores Predicting Categories of Mate Retention Tactics, Controlling for Age and Marital Status**

<table>
<thead>
<tr>
<th>PAI-BOR Total Score</th>
<th>Total Sample (n = 225)</th>
<th>Men Only (n = 85)</th>
<th>Women Only (n = 140)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Guarding</td>
<td>B = .06, SE = .02, β = .24***</td>
<td>B = .09, SE = .03, β = .31**</td>
<td>B = .05, SE = .02, β = .21**</td>
</tr>
<tr>
<td>Intersexual Negative Inducements</td>
<td>B = .16, SE = .03, β = .31***</td>
<td>B = .18, SE = .07, β = .29*</td>
<td>B = .15, SE = .04, β = .32***</td>
</tr>
<tr>
<td>Intrasexual Negative Inducements</td>
<td>B = .10, SE = .02, β = .36***</td>
<td>B = .10, SE = .04, β = .30*</td>
<td>B = .10, SE = .02, β = .40***</td>
</tr>
<tr>
<td>Positive Inducements</td>
<td>B = .08, SE = .04, β = .13</td>
<td>B = .12, SE = .08, β = .16</td>
<td>B = .06, SE = .05, β = .11</td>
</tr>
<tr>
<td>Public Possessive Behaviors</td>
<td>B = .05, SE = .03, β = .14*</td>
<td>B = .09, SE = .05, β = .21</td>
<td>B = .04, SE = .03, β = .11</td>
</tr>
<tr>
<td>Combined Benefit Provisioning</td>
<td>B = .13, SE = .06, β = .14*</td>
<td>B = .21, SE = .12, β = .19</td>
<td>B = .10, SE = .07, β = .12</td>
</tr>
<tr>
<td>Combined Cost Inflicting</td>
<td>B = .32, SE = .06, β = .35***</td>
<td>B = .36, SE = .12, β = .34**</td>
<td>B = .30, SE = .07, β = .36***</td>
</tr>
</tbody>
</table>

Note. *** = p < .001; ** = p < .01; * = p < .05.

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1. To rule out the possibility that the results were a function of the Interpersonal Problems subscale of our measure of BPD features, we recalculated the PAI-BOR total scores without the inclusion of the Negative Relationships subscale. This provided a more conservative test of these associations by including a measure of BPD features that did not include direct measurement of interpersonal problems. Reanalyzing our data using this measure of BPD features produced the same pattern of results, with only a few minor exceptions. First, the association between BPD features and the Positive Inducements category for the total sample became significant (β = .14*). Second, the association between the specific tactic of Vigilance and BPD features remained significant for the total sample, but was no longer significant when analyzed separately for men and women (β = .21, p = .065 for women; β = .15, p = .075 for men), although the magnitudes of the effects remained similar. Finally, among women, the association between BPD features and the Sexual Inducements tactic was only marginally significant (β = .22, p = .053). The remaining effects were unchanged.
with benefit provisioning tactics, illustrates that BPD features are associated with maladaptive efforts at mate retention. This indicates that romantic relationship problems among individuals with BPD features may be a function of excessive use of extreme, maladaptive, costly tactics. This is consistent with the dimensional perspective on personality disorders, which states that personality disorder features are extreme, maladaptive variants on normal personality traits (Livesley, 2005; Samuel, Simms, Clark, Livesley, & Widiger, 2010; Trull & Durrett, 2005; Widiger & Samuel, 2005). This is the first known study to identify the specific mate retention tactics that are associated with BPD features. Future research should therefore examine whether these specific tactics mediate the association between BPD features and romantic relationship problems.

The finding of an association between sexual inducements and BPD features for both men and women also has important implications for understanding impulsive and risky sexual behavior among individuals with features of BPD. Impulsive sexual behavior is included in the diagnostic criteria for BPD (American Psychiatric Association, 2000) and is supported by empirical data on BPD (e.g., Bouchard, Godbout, & Sabourin, 2009; Hull, Clarkin, & Yeomans, 1993; Lavan & Johnson, 2002). The present results suggest that these impulsive sexual behaviors may be reflecting an extreme, maladaptive mate retention tactic. This has been suggested by others (Bouchard et al., 2009a) and is corroborated by evidence showing that the PD symptoms as-

| TABLE 3. Summary of Regression Analyses for PAI-BOR Total Scores Predicting Specific Mate Retention Tactics, Controlling for Age and Marital Status |
|---------------------------------|------------------|------------------|------------------|
| PAI-BOR Total Score             | Total Sample (N = 225) | Men Only (n = 85) | Women Only (n = 140) |
|                                | B     | SE    | β     | B     | SE    | β     | B     | SE    | β     |
| Direct Guarding                 |       |       |       |       |       |       |       |       |       |
| Vigilance                       | .03   | .01   | .19*  | .04   | .02   | .23*  | .02   | .01   | .18*  |
| Concealment of Mate             | .01   | .01   | .11   | .00   | .01   | .03   | .01   | .01   | .15   |
| Monopolization of Time          | .03   | .01   | .22** | .05   | .02   | .38** | .02   | .01   | .14   |
| Intersexual Negative Inducements|       |       |       |       |       |       |       |       |       |
| Jealousy Induction              | .03   | .01   | .21** | .02   | .02   | .13   | .03   | .01   | .25** |
| Punish Mate's Infidelity Threat | .05   | .01   | .29***| .05   | .02   | .27** | .05   | .01   | .29** |
| Emotional Manipulation          | .03   | .01   | .16*  | .05   | .02   | .25*  | .01   | .01   | .10   |
| Commitment Manipulation         | .02   | .01   | .19** | .03   | .01   | .26*  | .02   | .01   | .15   |
| Derogation of Competitors       | .03   | .01   | .20** | .02   | .02   | .11   | .04   | .01   | .24** |
| Intrasexual Negative Inducements|       |       |       |       |       |       |       |       |       |
| Derogation of Mate              | .04   | .01   | .27***| .01   | .02   | .09   | .05   | .01   | .34***|
| Intrasexual Threats             | .05   | .01   | .29***| .06   | .02   | .27*  | .05   | .01   | .31***|
| Violence Against Rivals         | .01   | .00   | .15   | .03   | .01   | .21   | .00   | .00   | .07   |
| Positive Inducements            |       |       |       |       |       |       |       |       |       |
| Resource Display                | .01   | .01   | .04   | .02   | .02   | .10   | .00   | .01   | .01   |
| Sexual Inducements              | .03   | .01   | .20** | .04   | .02   | .22*  | .03   | .01   | .19*  |
| Appearance Enhancement          | .01   | .01   | .06   | .02   | .02   | .12   | .01   | .01   | .03   |
| Love & Care                     | .00   | .01   | .00   | .01   | .02   | .05   | .00   | .01   | .03   |
| Submission & Debasement         | .03   | .01   | .17   | .04   | .02   | .23*  | .02   | .01   | .14   |
| Public Possessive Behaviors     |       |       |       |       |       |       |       |       |       |
| Verbal Possession Signals       | .03   | .01   | .15** | .05   | .02   | .26*  | .02   | .01   | .10   |
| Physical Possession Signals     | .01   | .01   | .07   | .01   | .02   | .04   | .02   | .01   | .09   |
| Possessive Ornamentation        | .02   | .01   | .12   | .03   | .02   | .21   | .01   | .01   | .07   |

Note. *** = p < .001; ** = p < .01; * = p < .05.
associated with risky sexual behaviors are frantic efforts to avoid real or imagined abandonment and recurrent suspicions about partner infidelity (Lavan & Johnson, 2002). The present study adds to the literature on BPD sexual behavior by directly showing the association between BPD features and the reported use of sexuality as an attempt to retain one’s mate. This may be useful to clinicians by showing the motives or function of this behavior, thus indicating cognitive or interpersonal issues that could be addressed for prevention of these risky behaviors.

It was also interesting that in the present study there was only a weak association between BPD features and benefit provisioning tactics, and this association was no longer significant when analyses were conducted separately by gender. This indicates that although BPD seems to be characterized by greater efforts to retain one’s mate generally, these efforts are not being directed toward using the more effective mate retention strategies. Thus an implication for treatment is that individuals with BPD features may improve from learning to use more benefit provisioning mate retention tactics.

The tactic Emotional Manipulation (e.g., telling one’s partner that you are dependent on him or her, that you need him or her) was positively associated with BPD features among men, but not among women. This tactic is identified as consistently being a unique predictor of violence in previous research (Shackelford et al., 2005b) and therefore, at least among men, it may be especially important for understanding intimate partner violence among individuals with BPD features. Similarly, the tactic Violence against Rivals was also correlated with BPD features among men. The relevance of these tactics to accounting for violence in romantic relationships among individuals with features of BPD, especially emotional manipulation, should be investigated in future research. On the other hand, Jealousy Induction, Derogation of Competitors, and Derogation of Mate may be particularly relevant among women. Future research should examine whether these tactics specifically confer risk for violence and other relationship problems among women with BPD features. Assessment of mate retention tactics in the examination of intimate partner violence has the advantage of identifying functions or mechanisms of behavior in order to refine theory and address possible mechanisms of behavior change.

To further refine our understanding of this process, future research should identify the features of BPD that best account for the use of these maladaptive tactics. As noted, one candidate for this type of mechanism is attachment style. Other potential mechanisms include the underlying personality features of affective instability/emotional dysregulation and impulsivity, which have been described in the literature as primary underlying dimensions of BPD (e.g., Boronvalova, Fishman, Strong, Kruglanski, & Lejuez, 2008; Linehan, 1993; New & Siever, 2002; Siever & Davis, 1991; Trull, 2001; Zanarini, 1993). Affective instability may create a tendency to use cost-inflicting tactics due to negative emotion states, which reduce the empathy and positive feelings toward one’s partner that would normally encourage perspective taking. Impulsivity may contribute to the use of tactics that may appear to have short-term gains, but in actuality are more likely to damage the relationship in the long term.
A number of limitations of the present study should be noted. First, the sample included a convenience sample of college students rather than a clinical population. Future research should test these associations among clinical populations with greater prevalence of BPD features and diagnosis. Second, due to the large number of correlations tested, it is possible that some of the significant findings were due to Type I error. Finally, our methods relied on self-report questionnaires, which may introduce biases in memory or biases due to socially desirable responding.

REFERENCES


