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* Faculty mentors
† This article was accepted during the editorial term of Martha S. Zlokovich.
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During emerging adulthood, most 18- to 24-year-olds continue to explore identities and life goals and to seek independence, often delaying marriage, parenting, and career commitments (Arnett, 2000). A successful transition into adulthood appears to involve the completion of psychological maturity tasks such as establishing a stable identity, autonomy, and self-control (Shanahan, Porfeli, Mortimer, & Erickson, 2005). These tasks involve the emerging adult forming belief systems and behavior patterns that are consistent across time, learning to act independently and willingly taking responsibility for those actions, and behaving in a responsible manner without external oversight. Additional research has shown that the nuclear family plays a role in the resolution of these maturational tasks, especially in the areas of identity formation and self-esteem (e.g., Mandara & Murray, 2000; Mullis, Brailsford, & Mullis, 2003; Olson, Russell, & Sprenkle, 1983).

Identity Formation

Research related to identity formation and autonomy initially focused on the adolescent period rather than emerging adulthood. Erikson (1959) proposed that identity formation issues (i.e., ego identity versus role confusion) are central to adolescent development. He viewed adolescence as a time of separation and independence, when teenagers attempt to decide what they believe and how they fit into the surrounding world. However, today the issue of identity formation continues into the early adulthood stage for many people. For example, Waterman (1999) found that by the end of high school, only one-quarter of the senior students had reached identity achievement. College appears to facilitate the formation of occupational identity in emerging adults but not general ego identity (Waterman, 1992). By the age of 21 years, less than half of young adults exhibited a stable self view or consistent behavior patterns indicative of identity achievement status (Kroger, 2000). The identity-achieved adolescents tended to be self-directed, decisive, cooperative, higher in self-esteem, and stronger in family connections (Berzonsky & Adams, 1999). Diffused status adolescents were apathetic and had lower self-esteem, lower self-control, and more detached parental relationships.

Several aspects of family structure and interaction influence identity formation during the adolescent period. Parents who accept and positively encourage their adolescent children facilitate identity development (Arnett, 2001). For example, higher levels of ego identity among emerging adults is associated with higher levels of self-esteem and family functioning.

We examined the potential influence of family characteristics on ego identity and self-esteem among emerging adults. College students (N = 210, M = 19.52 years, 65% women) completed measures of self-esteem, ego-identity, and family functioning (General Family Functioning, Communication, Roles, Affective Responsiveness, Affective Involvement, and Behavior Control). In a multiple regression analysis, self-esteem was predicted by ego identity, general family functioning, and gender. Similarly, when ego-identity was the criterion variable, it was predicted by self-esteem, general family functioning, and gender. We further examined the nature of these relations using a path model. Healthy family functioning predicted stronger ego identity which in turn was predictive of higher self-esteem. In addition, being male was significantly related to higher self-esteem whereas being female was related to higher ego identity.

The Relation Between Family Functioning, Ego Identity, and Self-Esteem in Young Adults

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Author Note. Jennifer Schumacher completed this research as partial fulfillment of requirements for an independent research course at Marian University. The work was presented at the 2007 Butler Undergraduate Research Conference (April 13, 2007).

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*Faculty mentor
identity were associated with families who provided emotional support and simultaneously encouraged independence (Cooper, Grotevant, & Condon, 1983). Olson et al. (1983) concluded that balanced levels of family adaptability (flexibility and structure) and family cohesion (togetherness and separateness) were essential to adolescent identity development. Similarly, strong family emotional bonds were associated with higher levels of identity achievement in emerging adults (Mullis et al., 2003).

However, parents who judge and devalue their adolescent child may impede identity development (Arnett, 2001). Adolescents with low levels of identity formation reported hostile fighting and/or a lack of communication with their parents (Cooper et al., 1983). In addition, Quintana and Lapsley (1990) found that high levels of parental control were associated with delayed identity development in both adolescents and young adults.

**Self-Esteem**

Many family characteristics, including perceived parental nurturance, communication, availability, marital satisfaction, family structure, and family size, have been linked to adolescent self-esteem levels. Adolescents with high self-esteem tend to perceive parents as supportive, affectionate, effective communicators, and active participants in their lives (Barber, Chadwick, & Oerter, 1992; Gecas & Schwalbe, 1986; Matteson, 1974). Higher self-esteem was also related to having parents who rated marriage as satisfying (Mandara & Murray, 2000; Parish & Wigle, 1985) and was negatively related to family size (Sears, 1970). Adolescents with low self-esteem reported poorer communication with parents and were more likely to be part of a nontraditional family structure, including parents who were unmarried, had an unsatisfying marriage, or were divorced (Matteson, 1974; Parish & Wigle, 1985). Negative controlling behaviors (e.g., inconsistent control, coercion) were also related to low self-esteem (Barber et al., 1992).

Research has shown similar relational patterns between family characteristics and self-esteem for young adults. Parental nurturance, perceived level of family support, and closeness of the maternal relationship were positively correlated with high self-esteem (Amato, 1994; Buri, Kirchner, & Walsh, 1987; Crocker, Luhtanen, Copper, & Bovurette, 2003). However, these studies also show that other family variables including parents’ self-esteem and marital satisfaction, family size, and the closeness of the paternal relationship were not related to self-esteem levels of young adults.

We conducted this study to further examine the relation between family functioning characteristics and the development of ego identity and self-esteem during the period of emerging adulthood. Based on the literature, we expected that high self-esteem and identity formation would be positively related to nurturing parental behaviors (e.g., affective responsiveness, affective involvement, communication, participatory family problem-solving). In addition, multivariate analyses examined the relation between ego identity formation and self-esteem, including age and gender as additional predictor variables.

**Method**

**Participants**

Two hundred and ten young adult students (73 men and 137 women) from a midwestern liberal arts college participated in this study. Their ages ranged from 18 to 24 (M = 19.52 years). Participants were enrolled in lower division psychology courses and received extra credit for their participation.

**Materials**

A survey packet consisted of three separate self-report inventories. The order of the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1979), the Family Assessment Device (FAD; Epstein, Baldwin, & Bishop, 1983), and the Ego Identity Scale (EIS; Tan, Kendis, Fine, & Porac, 1977) was counterbalanced.

The RSES (Rosenberg, 1979) is a 10-item questionnaire that measures global self-esteem. Participants indicated their level of agreement with statements such as “On the whole I am satisfied with myself” on a 4-point scale. High scores indicated higher levels of self-esteem. The RSES has high test-retest reliability (.85), internal consistency reliability (.92), and significantly correlates with other measures of self-esteem (Cochran & Fisher, 1987).

The FAD (Epstein, Baldwin, & Bishop, 1983) is a 60-item questionnaire designed to evaluate family functioning according to structural, organizational, and transactional properties. The FAD has seven subscales, including a 12-item General Family Functioning subscale which assesses overall health and pathology of the family, and six subscales made up of 6 to 11 items that measure key areas of family functioning (Communication, Roles, Problem-solving, Affective Responsiveness, Affective Involvement, Behavior Control). Participants indicate their level of agreement on a 4-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree) with items such as “We try to think of different ways to solve problems” and “In time of crisis we can turn to each other for support.” Mean subscale scores were calculated for each participant and ranged from 1 to 4. Higher mean scores indicate better family functioning. A score less than 2 indicates problematic family functioning (Miller, Epstein, Bishop, & Keitner,
The FAD has fair to good internal consistency with Cronbach’s alphas for subscales ranging from .57 to .83 for a nonclinical population (Kabacoff, Miller, Bishop, Epstein, & Keitner, 1990). Validity measures indicate that the FAD has low correlations with social desirability (-.06 to -.15), moderate correlations with other self-report measures of family functioning, and can differentiate between clinician-rated healthy and unhealthy families (Miller et al., 1985).

The EIS (Tan, Kendis, Fine, & Porac, 1977) is a 12-item forced-choice measure of Erikson’s (1959) concept of ego identity. An example of a forced-choice item is “Because of my philosophy of life, I have faith in myself, and in society in general” versus “Because of the uncertain nature of the individual and society, it is not natural for me to have a basic trust in society, in others, or even in myself.” The score is comprised of 1 point for every item a participant chooses that reflects ego identity achievement, resulting in scores ranging from 0 to 12. Ego identity is measured along a continuum, with higher scores on the EIS indicating greater ego identity achievement, and lower scores indicating greater ego diffusion. The EIS has an odd-even split-half reliability coefficient of .68. The EIS is significantly positively correlated with measures of internal control, intimacy, political commitment, and occupational commitment and is negatively correlated with dogmatism (Tan et al., 1977).

**Procedure**

We instructed the participants that they would be participating in a study assessing family and personality traits. After each signed an informed consent form, we distributed the survey packets in a classroom setting. We debriefed the participants after they completed the surveys.

**Results**

All scale means, standard deviations, ranges, and reliabilities appear in Table 1. In this sample of university students, 58% had a mixed ego identity status scoring in the middle range (4–8) of the EIS continuum while...
37% were in the high ego identity status range (9–12). Most students (71%) scored within the normal range (15–25) on the RSES. All FAD family subscale means were above the cut-off value of 2 (Miller et al., 1985) indicating healthy functioning. However, the obtained score ranges on all subscales (except Behavior Control) indicated healthy and unhealthy family functioning in our student sample.

Table 2 presents the correlation matrix for factors entered into the multiple regression analysis. All 7 family subscales, identity, and self-esteem were significantly intercorrelated ($p$ values < .01). Identity was positively correlated with gender, indicating that women tended to have higher ego identity achievement scores than men. Neither gender nor age was correlated with any of the family subscales.

We used step-wise multiple regression analyses to create predictive models for identity and self-esteem. Higher self-esteem, healthier general family functioning, and being female predicted higher identity scores, explaining 25% of the variance (see Table 3). Higher identity scores, healthier family functioning, and being male predicted higher self-esteem scores, accounting for 23% of the variance (see Table 4).

We developed a post hoc path model based on regression beta weights (see Figure 1) to further examine the nature of these relations when using self-esteem or identity as the criterion variable. The model posits that family functioning and gender are directly related to identity, which is in turn predictive of self-esteem levels in emerging adults. There are also two indirect paths of gender and family functioning predicting self-esteem. Being female and having healthy family functioning predicts stronger ego identity, which is predictive of high self-esteem. Being male and having healthy family functioning also have a small but significant predictive relation to high self-esteem.

**Discussion**

We hypothesized that nurturing family factors (i.e., Affective Responsiveness, Affective Involvement, Communication, and Problem-solving) would positively

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**TABLE 2**

Correlation Matrix for Variables Used in Multiple Regression Analyses

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<tr>
<td>1. Identity</td>
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<td>.39&quot;</td>
<td>.37&quot;</td>
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<td>2. SE</td>
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<td>.25&quot;</td>
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<td>-.10</td>
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<td>3. GenFunc</td>
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<td>.74&quot;</td>
<td>.66&quot;</td>
<td>.75&quot;</td>
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<td>4. Comm</td>
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<td>5. Roles</td>
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<td>6. Prosolv</td>
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<td>7. Affresp</td>
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<td>8. Affinvol</td>
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<td>9. Control</td>
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<td>10. Gender</td>
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Note. $N = 210$. SE = self-esteem; GenFunc = General Family Functioning; Comm = Communication; Roles = Family Roles; Prosolv = Problem-solving; Affresp = Affective Responsiveness; Affinvol = Affective Involvement; Control = Behavioral Control. * $p < .05$. ** $p < .01$. 

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Family, Identity, and Self-Esteem

Schumacher and Camp

relate to self-esteem and ego identity in emerging adults. All family subscales, self-esteem, and identity were significantly intercorrelated. We expected FAD subscale intercorrelations because the questionnaire is based on a systems theory that assumes that all parts of a family are interrelated (Miller et al., 1985). However, a step-wise regression analysis indicated that only the General Family Functioning subscale significantly increased the predictive efficiency of the self-esteem and identity models. According to Miller et al. (1985), the general family functioning measure is a multi-factor scale that distinguishes overall health and pathology of the family (i.e., presence of acceptance, support, and intimacy versus chaos, conflict, and avoidance). Our results suggest that the overall health of the family is predictive of identity development and self-esteem in emerging adults. However, previous research often studied individual components of family functioning such as nurturance, emotional support, or communication factors and found these factors to be positively related to identity development (e.g., Cooper et al., 1983; Mullis et al., 2003) and self-esteem (e.g., Barber et al., 1992; Gecas & Schwalbe, 1986) in adolescents.

The path model results suggest that healthy family

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<th>TABLE 3</th>
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<td>Hierarchical Regression Analysis Predicting Identity From Self-Esteem, General Family Functioning, and Gender</td>
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<td>Predictor</td>
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<td>Step 1</td>
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<td>Self-esteem</td>
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<td>Step 2</td>
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<td>General function</td>
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<td>Step 3</td>
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<td>Total R²</td>
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*a Male = 1, Female = 2.
**p < .01.

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<th>TABLE 4</th>
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<tr>
<td>Hierarchical Regression Analysis for Variables Predicting Self-Esteem From Identity, General Family Functioning, and Gender</td>
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*a Male = 1, Female = 2.
* p < .05.  ** p < .01.
functioning positively predicted ego identity, which in turn was predictive of higher self-esteem. An important concept suggested by our model is that there is an indirect relation between family functioning and the emerging adults’ self-esteem. Family functioning was more strongly predictive of identity formation in young adults and the closer they were to identity achievement, the higher their self-esteem levels.

Past research has often examined family influences on self-esteem and identity formation separately and generally has reported a direct family link to both of these factors. An exception is Hoelter and Harper’s (1987) study that examined family influences on self-esteem and son/daughter identity salience. Their model showed self-esteem and identity salience to be independent and that both were directly correlated with family characteristics. The difference in their outcome does not necessarily contradict our model because the ego identity measure and the son/daughter identity measure they used represent different aspects of one’s self-concept. It is also unclear whether such an indirect relation would be found in adolescents if a measure of ego identity were added into path regression models that link family characteristics to self-esteem. It is important for future research to replicate the indirect relation between family functioning and self-esteem in emerging adults that we found in our study.

Finally, the path model indicated small but significant gender differences. Being female was predictive of higher identity scores whereas higher self-esteem was associated with being male. This finding in emerging adults is consistent with patterns reported during adolescence. As in the current study, adolescent boys consistently report somewhat higher self-esteem than do adolescent girls (Baldwin & Hoffmann, 2002; Chubb, Fertman, & Ross, 1997). Dyk and Adams (1990) found that girls move toward identity achievement somewhat faster than do boys. To understand these differences, future path models might include additional predictors of self-esteem such as physical appearance and peer acceptance which have been identified as factors related to lower self-esteem scores in adolescent girls (DuBois, Felner, Brand, Phillip, & Lease, 1996; Harter, 1990).

In conclusion, the path analysis model derived from the data indicates that families continue to influence the psychological development of students even though they are no longer living at home. Although healthy family functioning almost certainly contributes to the development of psychological traits throughout a child’s lifetime, it appears that parental encouragement and acceptance of a unique stable identity in the emerging adult is especially important during this period. Students who reported family acceptance, support, and intimacy had higher identity achievement scores which appeared to mediate higher self-esteem scores.

References


Over the past 50 years, new cultural influences have pushed the social sciences to change their understanding of religiousness and spirituality (Pargament, 1999). Traditionally, the term “religion” applied to any aspect of spiritual or religious faith (Spilka, Hood, Hunsberger, & Gorsuch, 2003; Wulff, 1997). Religion was a source of meaning that drew people together under a common, collective understanding of the world (Wulff, 1997). However, the terms “spiritual” and “religious” are becoming increasingly distinct in how people define themselves and their faith. Gallup & Lindsay (1999) found that 30% of Americans reported being spiritual but not religious. Further studies showed that 14-20% of subjects saw themselves as spiritual only and 4-15% as religious only (Roof, 2001; Scott, 2001; Zinnbauer et al., 1997). Clearly, people have not only begun to separate these terms, but they are also identifying with one more than the other.

One explanation considers this shift a reflection of large-scale sociodemographic changes as cultural interaction increases (Pargament, 1999). Many Eastern religions and alternative religious beliefs—which focus on meaning and spirituality separate from organized faith—have spread throughout the United States (Barrett, 1996; Ellwood, 1973). These new religious influences offer perspectives outside of traditional Western philosophy, thereby affecting individuals’ interpretation of religious experience (Saliba, 2003). Similarly, McLoughlin (1978) pointed out that the increased number of religious revitalizations and new religious movements in America has redefined religious involvement. These movements may imply that the population views traditional religion as insufficient in dealing with critical personal and social issues, thereby emphasizing a desire to add more “spirit” (personal investigation of faith) into the religious experience (Pargament, 1999; Spilka et al., 2003). Distinctions between the terms “religion” and “spirituality” help differentiate between distinct philosophies and approaches.

In contrast to studies comparing personal and social aspects of faith, this study used measures of religious orientation (Allport & Ross, 1967), self-construal (Singelis, 1994), organizational religiousness (National Institute on Aging, 2003), and spiritual transcendence (Seidtitz et al., 2002) to investigate the psychosocial mindsets related to an individual’s religiousness and spirituality. We hypothesized that internal desires to believe as well as the tendency to define the self in terms of internal thoughts and actions would predict spiritual transcendence (spirituality). Conversely, we hypothesized that external motivations and the tendency to gain self-understanding from interpersonal relationships would predict organizational religiousness (religion). Findings from 244 online survey responses indicated that external influences largely motivated organizational religiousness, yet there also had to exist an internal desire to believe. In addition, measures of spirituality showed greater relation to external motivations and interdependence than hypothesized.

Dissecting Faith: Comparing Religiousness and Spirituality to Self-Construal and Religious Orientation

Michael Dooley
Donna Jones
Eric Zupko
University of Mary Washington

In contrast to studies comparing personal and social aspects of faith, this study used measures of religious orientation (Allport & Ross, 1967), self-construal (Singelis, 1994), organizational religiousness (National Institute on Aging, 2003), and spiritual transcendence (Seidtitz et al., 2002) to investigate the psychosocial mindsets related to an individual’s religiousness and spirituality. We hypothesized that internal desires to believe as well as the tendency to define the self in terms of internal thoughts and actions would predict spiritual transcendence (spirituality). Conversely, we hypothesized that external motivations and the tendency to gain self-understanding from interpersonal relationships would predict organizational religiousness (religion). Findings from 244 online survey responses indicated that external influences largely motivated organizational religiousness, yet there also had to exist an internal desire to believe. In addition, measures of spirituality showed greater relation to external motivations and interdependence than hypothesized.

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Another theorist noted the sociocultural shift toward deinstitutionalization and individualization in American culture (Berger, 1967). Faith acts as another medium for people to express their individuality by emphasizing a unique spirituality rather than a collective institutional belief. For instance, American baby boomers, a group that often ascribes to higher individualistic practices (Bellah, Madsen, Sullivan, Swidler, & Tipton, 1985), are particularly likely to describe themselves as spiritual rather than religious (Roof, 1993). Similarly, as American culture emphasizes individuality, institutions have lost authority in the eyes of Americans, and people have begun searching for personal meaning, picking and choosing what they want to believe (Bibby, 1987; Roof, 1993, 2001).

As research and culture draw lines between spirituality and religion, social scientists must understand the attributes distinct to these constructs. Increasingly, researchers conceptualize spirituality as an individual search for meaning, unity, and highest human potential (Hill et al., 2000; Pargament, 1999; Spilka et al., 2003). Religion, in contrast, is associated with formalized and collective traditions based more on social connection than self-contemplation (Wulff, 1997). Accordingly, Spilka et al. (2003) provided a classic definition for the study of religion and spirituality: “Spirituality is about a person’s beliefs, values, and behavior, whereas religiousness is about the person’s involvement with a religious tradition and institution” (p. 10). This definition attributes the institutional, ritual, and ideological aspects of faith to religiousness, whereas it attributes the individual, affective, and thoughtful aspects to spirituality.

Neither aspect of faith is inherently more beneficial or detrimental to psychological growth (Wulff, 1997). Instead, researchers must understand what characteristics are associated with individuals’ identification in order to understand what these constructs are. Pargament (1999) pointed out that every form of religious or spiritual experience occurs in relation to social context. That is, the social situations people choose are reflective of their social motivation and understanding. For instance, the benefits inherent to the institutional aspects of religion may draw one person, whereas for another person, the individual aspects of spiritual self-seeking may be more attractive. Therefore, we hypothesized that individuals who gain their self-understanding from interpersonal relationships and are motivated by extrinsic rewards would be more likely to participate in organizational religiousness (religion). In contrast, we hypothesized that individuals who gain their self-understanding from their independent thoughts and actions and are motivated internally would indicate higher spiritual transcendence (spirituality). If spirituality and religion represent distinct individual versus collective constructs, then psychologists could appropriately use both based on an understanding of the individual’s mindset.

Intrinsic and Extrinsic Religious Orientation
Following from the idea that social context frames all aspects of belief, institutional involvement and spiritual self-seeking should attract people based on personal motivations. Allport and Ross (1967) argued that a person’s beliefs and religious behaviors were either intrinsically motivated, where religiousness comes from an internal desire to understand faith, or extrinsically motivated, where religiousness comes from an external pull to believe. As these definitions became more specific, researchers divided extrinsic religiousness into two types: the extrinsic-social (concern with social rewards) and extrinsic-personal (concern with gaining comfort, security, and protection; Gorsuch & McPherson, 1989; Kirkpatrick, 1989). Allport and Ross (1967) pointed out that religious participation is not always for faith-based purposes but can also be a way to fulfill other social or personal needs.

In this study, we examined the relations among religious orientation, spirituality, and religious involvement. Due to the individualistic nature of spirituality’s definition, we expected internal spiritual/religious desires to be a greater motivator for people with higher spirituality. We hypothesized that intrinsic religious orientation would predict spiritual transcendence. In contrast, because being part of a religious organization or group offers some external reward, extrinsic spiritual/religious desires should be a greater motivator for people with higher involvement in religious institutions. We hypothesized that extrinsic religious orientation would predict organizational religiousness. Relations between variables could illustrate how spirituality and religiousness represent different social/personal motivations in the religious and spiritual life of the individual.

Interdependent and Independent Self-Construal
How people understand themselves in relation to the world can play a part in how religious and/or spiritual they are. According to William James (1890), people want to understand themselves, so they will be attracted to situations and practices that allow for this understanding. For instance, Wink and Dillon (2003) found that religiousness correlated with positive social relationships, whereas spirituality related positively with personal growth. It follows that individuals who use institutional religion as means for self-understanding would also seek other interpersonal relationships for self-awareness. Similarly, individuals who approach
their faith through personal, spiritual means should have a tendency toward individual contemplation for self-awareness.

Singelis (1994) defined two traits that identify how individuals gain their self-understanding: independent and interdependent views of self, or self-construal. Individuals with an independent self-construal define themselves in terms of their internal thoughts, feelings, and actions, not in terms of the thoughts, feelings, and actions of other people. In contrast, people with an interdependent view of self define themselves in terms of their relationships to other people, recognizing that the thoughts, feelings, and actions of others often determine their behavior. These two concepts are highly linked to individualistic and collectivistic cultures, respectively (Markus & Kitayama, 1991). Typically, Western cultures are more individualistic, seeking independence and nonconformity, whereas Eastern cultures are more collectivistic and have a desire for interdependence and social bonds (Markus & Kitayama, 1991; Triandis, 1994). However, independent and interdependent views of self are not mutually exclusive and exist within each person of every culture to different degrees (Singelis, 1994).

In this study, we examined the relations among self-construal, spirituality, and religious involvement. As mentioned earlier, a person’s spirituality and religiousness is dependent upon the social and personal context. Because involvement in social organizations provides a multitude of potentially defining relationships (Festinger, 1954), we hypothesized that people with higher involvement in religious institutions would be more likely to gain self-understanding from interpersonal relationships. Therefore, interdependent self-construal should predict organizational religiousness, whereas independent self-construal should not. In contrast, because involvement with groups is not necessary to analyze one’s personal thoughts and beliefs, we hypothesized that people with higher individual spirituality would be more likely to gain self-understanding from their independent thoughts and actions. Thus, independent self-construal should predict spiritual transcendence, whereas interdependent self-construal should not. Identifying existing relations among degrees of religiousness/spirituality and self-construal as well as extrinsic/intrinsic motivation would provide a greater understanding of the psychosocial mindset behind religious involvement and spiritual self-seeking.

Method

Participants
In this study, 244 participants (122 men, 122 women) completed an online survey. Participants came from across many age groups: 47% were 18–21, 24% were 22–34; 5% were 35–44; 12% were 45–54; 9% were 55–64; and 3% were 65 and older. In addition, participants came from many religious backgrounds: 54% Christian; 5% Jewish; 8% Muslim; 3% Agnostic; 9% Atheist; 18% nonaffiliated; and 8% other. We solicited participants through social networking tools such as Facebook and Twitter and offered no incentives for participation.

Materials
The online survey included scales to measure participants’ religious/spiritual self-identification, organizational religiousness, spiritual transcendence, intrinsic/extrinsic religiousness, and interdependent/independent view of self. We presented the scales in the order they are listed subsequently followed by demographic questions about age, sex, and religious affiliation.

Religious/Spiritual Identification Scale (R/SI). The R/SI (Zimbauer et al., 1997) is a single-item measure that assesses participants’ identification according to one of four groupings: (a) “I am Spiritual and Religious,” (b) “I am Spiritual but not Religious,” (c) “I am Religious but not Spiritual,” or (d) “I am neither Spiritual nor Religious.” We also used this item to assess how adequately the following scales represented the sample’s interpretation of spirituality and religiousness.

Self-Construal Scale (SCS). The SCS (Singelis, 1994) measures how independent and interdependent an individual’s self-construal is. It consists of 15 items for both the independent and interdependent subscales, for a total of 30 questions. We measured each item on a 7-point scale ranging from 1 (strongly disagree) to 7 (strongly agree). The independent self-construal aspect of the scale included questions such as “I enjoy being unique and different from others in many respects,” whereas the interdependent self-construal subscale consisted of questions such as “I feel my fate is intertwined with the fate of those around me.” The scores were calculated separately for each of the two dimensions (i.e., independent and interdependent) and evaluated as distinct but nonopposite variables.

Spiritual Transcendence Index (STI). The STI (Seidlitz et al., 2002) is an 8-item survey that measures perceived experience of the sacred that affects one’s self-perception, feelings, goals, and ability to transcend difficulties. This scale best represents the research definition of spirituality as a focus on beliefs, thoughts, and actions (Spilka et al., 2003). We measured each item on a 6-point scale ranging from 1 (strongly disagree) to 6 (strongly agree). Examples of questions include “My spirituality gives me a feeling of fulfillment,” and “My spirituality helps me to understand my life’s purpose.”

Organizational Religiousness Form (OREF). The OREF (National Institute on Aging, 2003) is a 6-item
scale that assesses the involvement of the respondent with a formal public religious institution. It is a combined measure using two questions about religious attendance (Wingrove & Alston, 1974) as well as three questions about fit within the specific religious institution (Pargament, Tyler, & Steele, 1979). Questions for the first section included “How often do you attend religious services?” and “Besides religious services, how often do you take part in other activities at places of worship?” using a 5-point scale ranging from 1 (less than once a year) to 5 (at least once a week). The second set included questions such as “I feel at home in this religious organization” with a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Religious Orientation Scale-Revised (I/E-R). The I/E-R (Gorsuch & McPherson, 1989) is a revised version of Allport and Ross’s (1967) Intrinsic/Extrinsic Religious Orientation Scale. The scale contains eight intrinsic items (e.g., “It is important for me to spend time in thought and prayer”), three extrinsic-personal items (e.g., “What religion offers me most is comfort in times of trouble and sorrow”), and three extrinsic-social items (e.g., “I go to church mainly because I enjoy seeing people I know”; Gorsuch & McPherson, 1989; Kirkpatrick, 1989). We measured all I/E-R responses on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Procedure
The recruitment materials specified the nature of the study and contained a link to reach the survey, which we compiled using the SurveyGizmo online survey host (www.surveygizmo.com). The combined survey took under 15 min to complete; we assured the participants that the results would be strictly anonymous. The link stayed available for 1 week. Treatment of subjects was within the ethical standards of the American Psychological Association.

Results
Reliability analyses showed that the Cronbach’s alphas calculated for each scale all indicated good reliability (range = .76–.92). Based on responses to the religious/spiritual identification scale (R/SI), we ran a chi-square test comparing current responses to those previously reported (Scott, 2001) and found a significant change over time and samples, $\chi^2(3, N = 242) = 93.25, p < .001$. A smaller percentage of our participants reported being “Spiritual and Religious” than expected, whereas a larger percentage reported being “Spiritual but not Religious” and “neither Spiritual nor Religious.” There was no significant difference in the percentage of participants who reported being “Religious but not Spiritual.” Table 1 displays the numbers and percentages of participants who fell into each category with results from past research along with additional results from chi-square comparisons.

Participant Definition
To test the validity of the classic definitions of spirituality and religiousness (Spilka et al., 2003, p. 10) against participants’ perceptions of their religiousness/spiri-

<table>
<thead>
<tr>
<th>Identification</th>
<th>N</th>
<th>Current</th>
<th>Past (Scott, 2001)</th>
<th>$\chi^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am Spiritual and Religious</td>
<td>83</td>
<td>34.3%</td>
<td>61%</td>
<td>72.53**</td>
</tr>
<tr>
<td>I am Spiritual but not Religious</td>
<td>96</td>
<td>39.7%</td>
<td>20%</td>
<td>58.52**</td>
</tr>
<tr>
<td>I am Religious but not Spiritual</td>
<td>15</td>
<td>6.2%</td>
<td>8%</td>
<td>1.07</td>
</tr>
<tr>
<td>I am neither Spiritual nor Religious</td>
<td>48</td>
<td>19.8%</td>
<td>11%</td>
<td>19.29**</td>
</tr>
<tr>
<td>Combined Totals</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am Spiritual</td>
<td>179</td>
<td>74.0%</td>
<td>81%</td>
<td>7.77*</td>
</tr>
<tr>
<td>I am Religious</td>
<td>98</td>
<td>41.0%</td>
<td>69%</td>
<td>91.99**</td>
</tr>
</tbody>
</table>

* $p < .05$. ** $p < .01$. 

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TABLE 1
Number, Percentages, and Chi-Square Values for Religious/Spiritual Self-Identification Scale ($N = 242$)

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tuality, we used results from the R/SI to develop two new variables for each participant: self-identification as religious (religious or nonreligious) and self-identification as spiritual (spiritual or nonspiritual). Using these variables, we compared self-identification to results on the STI and OREF. We evaluated all results in this study at the .01 alpha level to account for family-wise error increased by multiple analyses.

An independent-samples *t* test between STI and participant spiritual self-identification showed that the STI score for people who answered “I am Spiritual” (*M* = 4.41, *SD* = 1.15) was significantly higher than for people who responded “I am not Spiritual” (*M* = 1.99, *SD* = 1.05), *t*(239) = 14.64, *p* < .001, *d* = .68. Therefore, the STI scale measure is an excellent indicator of how people understand their spirituality.

Another independent-samples *t* test showed that OREF was significantly higher for people who responded, “I am not Religious” (*M* = 4.43, *SD* = 2.40) than for people who answered, “I am Religious” (*M* = 3.34, *SD* = 1.66), *t*(232) = 3.86, *p* < .001, *d* = .25. This result means that a significant portion of the participants had a different understanding of religiousness than the research definition of institutional involvement.

How, then, do people define their religiousness? A possible answer is that participants did not differentiate between the concepts of spirituality and religion. We conducted an independent-samples *t* test to investigate whether participants who were high in STI associated this trait with their definition of religiousness. This analysis showed that STI did not differ between participants who self-identified as religious (*M* = 3.75, *SD* = 3.78) and not religious (*M* = 3.78, *SD* = 1.77), *t*(239) = .14, *p* = .89, *d* = .01. Therefore, religion and spirituality were two distinct ideas in the minds of those in this sample.

After testing self-identification, we used multiple regression to determine how well religious orientation predicted organizational religiousness and spiritual transcendence. We hypothesized that both types of extrinsic religious motivation would predict OREF, whereas only intrinsic religious motivation would predict STI. Table 2 displays the means, standard deviations, and intercorrelations for the variables involved.

The overall model predicting OREF was significant, *F*(3, 181) = 63.74, *p* < .001, *R*² = .51, with extrinsic-social (*β* = .25, *p* < .001), extrinsic-personal (*β* = .15, *p* = .009), and intrinsic religious orientation (*β* = .59, *p* < .001) as significant predictors. The overall model predicting STI was also significant, *F*(2, 237) = 338.85, *p* < .001, *R*² = .74, with intrinsic (*β* = .73, *p* < .001) and extrinsic-personal religious motivation (*β* = .25, *p* < .001) as significant predictors. Extrinsic-social religion motivation was not a significant predictor of STI (*β* = .03, *p* = .41). These

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spiritual Transcendence</td>
<td>3.78</td>
<td>1.54</td>
<td>.83*</td>
<td>.15</td>
<td>.54*</td>
<td>.02</td>
<td>.21*</td>
</tr>
<tr>
<td>Org. Religiousness</td>
<td>2.96</td>
<td>1.08</td>
<td>.64*</td>
<td>.29*</td>
<td>.29*</td>
<td>.08</td>
<td>.29*</td>
</tr>
<tr>
<td>Predictor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Intrinsic</td>
<td>3.10</td>
<td>.89</td>
<td>-</td>
<td>.07</td>
<td>.40*</td>
<td>-.04</td>
<td>.19</td>
</tr>
<tr>
<td>2. Extrinsic-Social</td>
<td>2.39</td>
<td>.88</td>
<td>-</td>
<td>.31*</td>
<td>-.15</td>
<td>.24*</td>
<td></td>
</tr>
<tr>
<td>3. Extrinsic-Personal</td>
<td>2.75</td>
<td>.93</td>
<td>-</td>
<td>-.04</td>
<td>.32*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Independent</td>
<td>4.62</td>
<td>.69</td>
<td>-</td>
<td>-.14</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Interdependent</td>
<td>4.93</td>
<td>.65</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p* < .01, **p** < .001.
results supported our hypotheses, yet also showed that both aspects of faith involve additional types of religious orientation.

Next, we used regression to determine how well self-construals predicted organizational religiousness and spiritual transcendence. We hypothesized that interdependent self-construal would predict OREF whereas independent self-construal would predict STI. Table 2 displays the means, standard deviations, and intercorrelations for the variables involved. As hypothesized, the model predicting OREF was significant, $F(1, 185) = 16.66, p < .001, R^2 = .08$, with interdependent self-construal ($\beta = .28, p < .001$) as a significant predictor, whereas independent self-construal ($\beta = -.04, p = .54$) was not. The overall model predicting STI was also significant, $F(1, 241) = 11.34, p < .001, R^2 = .05$, with interdependent self-construal ($\beta = .22, p = .001$) as a significant predictor and independent self-construal ($\beta = .05, p = .42$) as nonsignificant. These results supported the research hypothesis that interdependent self-construal relates to organizational religiousness, yet they contradicted the hypothesis in terms of spiritual transcendence, finding that interdependent self-construal related instead. These analyses showed that both aspects of faith were higher for people who understood themselves in terms of their relationships.

**Discussion**

Defining Religiousness and Spirituality

Both religiousness and spirituality are difficult terms to separate and define. This dilemma is true for both theoretical conceptualizations and in terms of their operationalizations for use in the average population (Hill et al., 2000; Marler & Hadaway, 2002; Pargament, 1999). Our study showed that the participants in this study had shifted their identification of whether they were religious or spiritual from rates of a decade ago (Scott, 2001). Recent studies have shown that people seem to focus more on internal beliefs and less on institutional involvement when responding to questions about faith (Marler & Hadaway, 2002; Roof, 1993, 2001). However, people’s self-identification could also be changing because of different societal connotations associated with the terms religion and spirituality rather than actual differences in practice and belief (Pargament, 1999). Therefore, researchers must try to understand how the population understands these faith constructs. Our study indicated that people who identified as spiritual also scored high on the STI, showing that it is a good measure of how people understand their spirituality.

In contrast, participants’ religious self-identification showed no relation to their level of organizational religiousness, indicating that participants did not define their religiousness by how often they attended or how well they fit into a religious institution. Thus, researchers must reevaluate the classic definition of religiousness as well as other research definitions. Within the boundaries of this study, religious self-identification was different from spirituality in that religious self-identification did not significantly relate to spiritual transcendence.

One possible explanation for the discrepancy between participants’ religious self-identification and their involvement in religious institutions is that participants are less willing to self-identify as religious given that the term “religion” has taken on negative connotations because of its institutional affiliation (Zinnbauer et al., 1997). This explanation relates to the idea that spirituality is now “cool,” whereas religion is “uncool” (Marler & Hadaway, 2002). Therefore, social desirability could play a part in how participants responded. The difference between the definition used in this study and the participants’ responses indicates that psychologists require more research into how people understand what it means to be religious, because institutional involvement does not capture participants’ definition.

Despite participants having a different understanding of religiousness, this study remains useful in its analysis of organizational religiousness and spirituality in relation to religious orientation and self-construal. We found that both extrinsic-social and extrinsic-personal religious motivations were significant predictors of organizational religiousness, clearly indicating that people are more likely to be religiously involved if they recognize and value social and personal rewards from attendance (Zinnbauer et al., 1997). The relation to intrinsic religious orientation, however, implies that independent religious desire also motivates organizational religiousness. This finding indicates that people simply looking for social connections can find other secular venues with the same reward (e.g., YMCAs, social clubs), but that organizational religiousness provides something more to satisfy the religious inclination. Therefore, organizational religiousness is not a solely social and interpersonal aspect of faith, but internal, spiritual desires are a large motivation behind involvement.

This study also supported the hypothesis that participants’ personal spiritual transcendence correlated with their internal desire to believe (intrinsic religious orientation). Interestingly, an individual’s desire to gain external comfort, security, and protection (extrinsic-personal religious orientation) was also a predictor of spiritual transcendence. We assumed that spirituality would be more for personal edification than external reward, yet this finding indicates that people may believe that personal spirituality has the ability to affect
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a person’s sense of comfort in life (Gilbert, 2006). However, researchers should perform additional studies to further understand these motivations.

Like religious motivation, an understanding of self-construal can provide insight into what types of people attend religious institutions. Research shows that there is considerable variation within North American culture with respect to self-construal (Singelis, 1994), yet many religious groups emphasize an interdependent or relational nature (Spilka et al., 2003; Wulff, 1997). This study supports the idea that organized religion attracts people who look to relationships to understand themselves. Individuals who place greater value on independent understanding are less likely to utilize the services that a religious institution provides.

The relation between our measure of spirituality and interdependent self-construal, however, provides an interesting challenge. Following the definition provided by Spilka et al. (2003), spirituality is the individual’s search for meaning apart from others. However, our findings indicate that spirituality is not an isolated and solely personal aspect of an individual’s faith. It is possible, though, that even if a person’s main spiritual interaction (e.g., prayer, meditation) is not with other people, spirituality could represent a connection and response to a higher power or some influence outside the self (e.g., nature, karma; Pargament, 1999). Therefore, the beliefs, thoughts, and behaviors may be internal, but they can originate from an understanding of oneself in relation to another. The opposite would be true if spirituality correlated with independent self-construal, which implies individuality and separation from others. It is crucial, then, to recognize that spiritual transcendence is not an isolated phenomenon. Like its relation to extrinsic-personal religious motivation, a person’s spirituality comprises of a belief that the person is either having an effect on or being affected by something external.

Application

A better understanding of religion and spirituality in its social context has a number of benefits. As researchers define what it means to be spiritual and religious, therapists and counselors can better aid their clients. Empirical evidence has demonstrated positive relations between religious beliefs and health (Koenig, McCullough, & Larson, 2001; Miller & Thoresen, 2003). For instance, religious people are less likely to use illegal substances, abuse alcohol, or be sexually promiscuous (Davidson, Moore, Earle, & Davis, 2008; Nelms, Hutchins, Hutchins, & Pursley, 2007). Research also links religion to generativity and positive relations, whereas spirituality links to creativity, wisdom, and personal growth (Wink & Dillon, 2003). In addition, intrinsic religiousness positively relates to one’s subjective well-being (Byrd, Hageman, & Isle, 2007). Therefore, the internal desire to believe (intrinsic religious orientation) may be a predictor of how successfully a person copes with life events.

Markus and Kitayama (1991) also found that self-construal has an effect on cognitive, motivational, and emotional processes. As such, if one knows how religion and spirituality interact with self-construal, then therapists can better use both aspects of faith to help people work through issues related to self-understanding. More broadly, researchers can compare coping levels in individualistic and collectivistic cultures and recognize their relation to levels of religious and spiritual belief.

Knowledge of religious practices will better aid in cross-cultural understanding. Commonly, American culture has a positive bias toward independent self-construal and a negative bias toward interdependent self-construal (Markus & Kitayama, 1991; Singelis, 1994). Our study shows that interdependence relates to religion and spirituality, which could explain the negative bias toward religion. Thus, as American culture continues to embrace the norm of individualism, it follows that religiousness and spirituality will continue to decline. Our study supports this theory as well, demonstrating that since 10 years ago (Scott, 2001) people are less likely to report either spirituality (from 81% to 74%) or religiousness (from 69% to 41%; see Table 1). Overall, participants were more likely to report having neither aspect of faith (from 11% to 20%). This bias against collectivism affects organized religion most clearly, yet our study shows that spirituality has many of the same interdependent elements and may soon be regarded in the same negative light as religion. Therefore, the shift may not be from religious to spiritual but from believing to nonbelieving (Marler & Hadaway, 2002; Zinnbauer et al., 1997). Given the positive effects of both religion and spirituality in terms of risk behaviors and coping, this shift may not be a desirable trend.

Limitations and Future Research

In addition to the information regarding religiousness and spirituality this study has provided, future studies should incorporate additional measures of religiousness to determine how the average person perceives distinctions between spirituality and religion. Often, researchers attempt to identify the nuances of modern spirituality and have pushed the study of religion into the background (Spilka et al., 2003; Wulff, 1997). However, the changes in how people understand their faith occurring over the past 50 years apply as much to people’s religion as their spirituality. Using measures that offer greater variability in terms of self-identification responses—as opposed to the single-item scale used by
Zinnbauer et al. (1997) and Roof (2001)—could also provide a better analysis of how participants understand spirituality and religiousness. Therefore, there is a need for further studies that track current cultural definitions of both constructs.

In addition, although the sample for this study was relatively diverse in age, there was limited diversity in other respects (e.g., 54% Christian). In addition, due to the marketing of the study—as a survey on religion and spirituality—the sample may be weighted toward a segment of the population who felt motivated or passionate about sharing their spirituality and religiousness. The Web-based nature of the survey also limited the survey to people with the time and means to access the Internet for the purposes of filling out the survey. Future research should examine whether these findings are consistent among a more varied sample.

Until then, it is clear that understanding spirituality and religion requires an investigation of the psychosocial mindsets that draw people toward faith rather than simply ascertaining academic definitions. Just as this study challenged preconceived ideas of the characteristics that factor into a person’s spirituality and religious involvement, it is likely that despite faith-based beliefs and behaviors requiring an internal religious draw, they are more influenced by social factors than personal ones. Only by looking at the characteristics related to an individual’s tendency to become spiritual or religious can researchers really understand religion and spirituality.

References


The choice for adolescents to engage in sexual intercourse can lead to detrimental outcomes. Several researchers have investigated the negative consequences of sexual intercourse from an individual perspective, such as sexually transmitted infections, unwanted pregnancies, and HIV/AIDS. Despite these possible negative consequences, adolescents continue to engage in premarital sexual activity. Researchers have found certain individual predictors of adolescents’ sexual activity, such as an individual’s parents’ behavior, activities with peer groups, or the individual’s problem behaviors (Boislad, Poulin, Kiesner, & Dishion, 2009; Keller et al., 1991), but few have explored the dyadic characteristics associated with sexual behaviors. One of the traits consistently positively associated with less risky sexual decisions in romantic relationships, such as waiting to have sexual intercourse or practicing safe sex, is communication (Goodman & Ofshe, 1968; Parks & Adelman, 1983; Rusbult, Olsen, Davis, & Hannon, 2004). Most studies investigating adolescent communication have focused on adolescents’ communication with peers or with parents—that is, communication outside of the romantic relationship—and its impact on adolescents’ sexual activity (for a review, see Powell & Segrin, 2004). The literature examining communication within adolescent couples and its effect on the decision to engage in premarital sexual intercourse is limited (Welsh, Haugen, Widman, Darling, & Grello, 2005). The collaborative decision to participate in sexual activity may be important for adolescent couples if it promotes better decision making within the relationship, which may also elevate relationship satisfaction levels (Powell & Segrin, 2004). Practice with communication during adolescence, a difficult task during this developmental period, may help advance the development of communication skills and potentially lead to healthier and more effective decision making in young adulthood (Rusbult, 1983).

Communication and Affectionate Behavior

It is well known that affectionate behaviors, such as holding hands while walking down the hallway to class or giving a kiss on the cheek before saying goodbye, are common in adolescent romantic relationships. Affectionate behaviors are defined and measured as interpersonal behaviors and actions that result in partner pleasure (Wills, Weiss, & Patterson, 1974); kissing, hugging, and cuddling (Miller, Caughlin, & Huston, 2003); intimate touching, such as holding each other and giving back rubs (Johnson & Edwards, 1991); and holding hands (Floyd et al., 2009). Adolescents typically do not participate in sexual behaviors without first experiencing some level of affectionate behaviors (Collins & van Dulmen, 2006; Seiffge-Krenke, 2003). Collins and van Dulmen (2006) stated that romantic relationships, although similar to adolescent friend-
ships, have a “peculiar intensity” (p. 63) that first involves participation in affectionate behaviors, usually followed by expectations of sexual behaviors. The initial participation in affectionate behaviors before sexual behaviors was also found in an 8-year longitudinal study of German adolescents (Seiffge-Krenke, 2003). Seiffge-Krenke (2003) found no consistent trends in affectionate behaviors around or before age 15, but by age 17, teenagers consistently engaged in affectionate behaviors before sexual behaviors, which helped the formation of romantic partnerships.

Affectionate behaviors play a critical role in romantic relationships during adolescence. Based on data from the National Longitudinal Study of Adolescent Health, Carver, Joyner, and Udry (2003) found that adolescents used affectionate behaviors to enhance their group status or validate their gender identity. The adolescents’ affectionate behaviors reflected a representation of maturity and young adulthood to other peers that made them more popular. Not surprisingly, the researchers also found that adolescent couples were more likely to engage in affectionate behaviors than sexual intercourse. Welsh et al. (2005) revealed that affectionate behaviors were related to higher dyadic satisfaction and commitment in adolescent heterosexual couples. Although affectionate behaviors typically lead to sexual behaviors, they also appear to possess a developmental context that provides other benefits for the adolescents within the couples. The relation between affectionate behaviors and the communication within couples, whether general or sexual, is understudied. An exception is a study on adolescent couples by Rostosky, Welsh, Kawaguchi, and Galliher (1999), in which the authors described the infrequency of females’ discussion of sexual intercourse with their male partners. However, female adolescents who discussed topics concerning sexual behaviors were more apt to display affectionate behaviors in general toward their partners than those adolescents who refrained from discussing these mature topics.

Although the Rostosky et al. (1999) study offers some perspective on the relation between sexual communication in adolescent couples and affectionate behaviors, the link between general communication (open and honest communication between partners) and affectionate behavior remains unclear. In order to better understand the role of affectionate behaviors in adolescent romantic relationships, we examined different types of communication that may be related to couples’ affectionate behaviors. Our first hypothesis was that more communication within adolescent couples, including communication regarding sexual behaviors, would be related to more frequent affectionate behavior.

Communication, Oral Sex, and Sexual Intercourse

The majority of investigations of communication and sexual activity in adolescent romantic relationships have focused on how peers and parents influence the frequency of adolescent sexual activity (Ballard & Morris, 1998; Epstein & Ward, 2008; Ford & Norris, 1991; Gordon, 1985; Powell & Segrin, 2004). Although current research has focused primarily on adult samples regarding the link between communication and couples’ frequency of engaging in sexual intercourse (Carrère & Gottman, 1999; Christensen & Shenk, 1991; Feeney & Noller, 2004; Litzinger & Gordon, 2005), emerging research suggests that adolescents who communicate about sex with friends, family, and dating partners show a lower likelihood of engaging in sexual intercourse (Gordon, 1985; Guzmán et al., 2003). Guzmán et al. (2003) studied a large group of Latino adolescents by administering questionnaires to over 1,000 eighth and ninth graders. The researchers found that when adolescents discussed sex with their parents, partners, or friends, adolescents were less likely to engage in sexual intercourse, although only 10% of the study sample was sexually active. They also found that slightly more than half of their sample felt comfortable talking to their partners about sex (Guzmán et al.). Other investigators found that female adolescents who inhibited their self-expression, a concept termed self-silencing, were more likely to engage in sexual intercourse and less likely to use contraception (Harper & Welsh, 2007; Widman, Welsh, McNulty, & Little, 2006). Taken together, these results suggest that communication within adolescent romantic dyads is associated with a lower likelihood of engaging in sexual intercourse, whether or not the adolescent is a virgin. In order to unite these various findings within a single study, we hypothesized a negative relation among communication, whether general or sexual, and intimate touching, oral sex, and sexual intercourse.

Communication and Age of First Sexual Intercourse

Rates of engaging in sexual intercourse at an earlier age are increasing, and the age at which adolescents lose their virginity continues to decrease (Santelli, Carter, Orr, & Dittus, 2009). Deciding to have intercourse, as mentioned previously, involves communication within the dyad. The decision to first participate in sexual intercourse is a major decision for adolescents and is often a difficult, confusing, and unpracticed conversation with one’s partner. Studies reveal that younger adolescents in romantic relationships have more difficulty communicating about sexual intercourse than older adolescents and emerging or early adults (Egeci & Gençöz, 2006; Guzmán et al., 2003; Mercer et al., 2006; Parks & Adelman, 1983; Wheeless, Wheeless,
Baus, 1984). In Guzmán et al.'s (2003) study of Latino adolescents, younger adolescents were more likely to engage in sexual intercourse instead of discussing their sexual behaviors with friends, family, or their dating partner. Adolescents appeared uncomfortable or did not have practice in discussing sexual intercourse, but were interested in sexual experimentation (Guzmán et al.). When adolescents become older and their romantic relationships increase in duration, both the frequency of communication and the maturity of their conversations with romantic partners increase (Parks & Adelman, 1983; Wheeless et al., 1984).

Communication between partners in a romantic relationship is important when the couple faces problems, and addressing sexual intercourse early could delay negative consequences involved in risky sexual behaviors (Eğeci & Gençöz, 2006; Guzmán et al., 2003; Widman et al., 2006). The literature concerning the relation between communication and age of first sexual intercourse consistently shows that adolescent couples who did discuss sex were more likely to delay losing their virginity (Guzmán et al., 2003; Parks & Adelman, 1983; Wheeless et al., 1984). Consequently, we hypothesized that more positive and open general or sexual communication within adolescent couples would be negatively related to age at first sexual intercourse.

**Method**

**Participants**

Data for this investigation came from the Study of Tennessee Adolescent Romantic Relationships (STARR; Welsh, 1999). Participants in the STARR study were recruited from a prior study of over 2000 high school students, who indicated interest in future research participation, from a city in the southeastern United States. Participants were 209 male-female dating couples (102 middle-adolescent couples aged 14–17 years old and 107 late adolescent couples aged 17–21 years) who had been dating for a minimum of 4 weeks. The adolescents in the sample were primarily European-American (90% of females and 93% of males), with the remainder being comprised of approximately 2–3% Native American, Asian, African-American, and Hispanic individuals. Over half of the participants (62% of females; 59% of males) listed their religious affiliation as Protestant.

**Procedure**

We contacted students participating in the larger study by telephone and provided them with information regarding the purpose and procedures of the present study. We mailed consent forms to adolescents in a romantic relationship who met the age criteria and contacted them 1 week later regarding their willingness to participate. Participants under 18 years old were required to bring signed parental consent forms prior to participation. Adolescents also provided written informed consent at the time of participation. We paid couple members $30 each ($60 per couple) for their participation in approximately three hours of data collection. The university’s Institutional Review Board approved all procedures.

**Materials**

**Demographics.** A demographic questionnaire presented questions about gender, age, race, and length of relationship (in weeks).

**General couple communication scale.** We assessed general couple communication using the General Communication subscale from the Couple’s Communication Scale (CCS: Grello & Harper, 2001). The General Communication subscale assessed open communication with one’s romantic partner (e.g., “I openly tell my partner when I feel ignored by him or her” and “I tell my partner when he/she has hurt my feelings”). The scale consisted of eight items on a scale from 1 (strongly disagree) to 6 (strongly agree). Internal consistency for the current sample was adequate (females’ $\alpha = .79$, males’ $\alpha = .79$). Scores can range from 8 to 48, with higher values indicating more positive general communication strategies.

**Sexual communication scale.** We assessed general sexual communication using the Sexual Communication subscale from the Couple’s Communication Scale (Grello & Harper, 2001). The Sexual Communication subscale assessed open sexual communication with one’s romantic partner (e.g., “I freely discuss sex with my partner,” “I communicate to my partner when I want to try something new sexually,” and “I tell my partner my sexual fantasies”). The scale consisted of three items on a scale from 1 (strongly disagree) to 6 (strongly agree). Scores for the current sample ranged from 3 to 18 with higher scores indicating more open sexual communication, and showed adequate internal consistency (females’ $\alpha = .78$, males’ $\alpha = .72$).

**Sexual behaviors questionnaire.** We used a portion of the Sexual Behaviors Questionnaire (SBQ; Rostosky et al., 1999) developed for the larger study from which we drew this sample to assess sexual activity within romantic relationships. The SBQ is a 45-item instrument comprised of several frequency ranges, checklists, and open-ended questions asking about past and present sexual behaviors and contraception use. For this study, we used four SBQ items that addressed the frequency of affectionate and sexual behaviors within the current romantic relationship. Specifically, participants responded to questions that asked, “In the last month (30 days) how many times have you: kissed your partner; engaged in intimate touching
over clothing (light petting); engaged in oral sex; had sexual intercourse (where the penis is in the vagina)?” Participants reported the frequency of engaging in each sexual behavior by marking one of six choices: 0 (never), 1 (1–3 times), 2 (4–6 times), 3 (7–15 times), 4 (16–50 times), or 5 (51+ times).

Results

Descriptive Statistics

Descriptive statistics for males’ and females’ individual self-report variables appear in Table 1. Paired sample t tests revealed that, for the majority of study variables, there were few significant differences between male and female partners’ reports. Couples reported having dated 45.58 weeks, on average (SD = 46.77). However, two differences did emerge. First, males reported significantly lower general communication than their female partners (males M = 37.44, females M = 40.25), t(165) = -4.24, p < .001, r = .31. Second, males in the sample were significantly older than their female partners (males M = 17.42, females M = 16.75), t(208) = 7.78, p < .001, r = .47, with a mean difference in age of about 8 months.

Table 2 contains correlations among study variables. Males’ correlations appear above the diagonal, females’ are below the diagonal, and correlations between males and females are in bold on the diagonal. For males, general communication was positively correlated with frequency of kissing and showed a negative trend with sexual intercourse. Males’ sexual communication was positively correlated with frequency of kissing, intimate touching, oral sex, and sexual intercourse. For females, general communication was positively correlated with kissing and age at first intercourse. Females’ sexual communication was positively correlated with kissing, intimate touching, oral sex, intercourse, and age at first intercourse. General and sexual communication were highly correlated for males and moderately correlated for females, indicating the importance of adding both variables simultaneously in the subsequent regression analyses to control for their shared effects.

Analytic Strategy

We conducted our analyses using hierarchical linear modeling techniques (HLM). HLM decomposes variance into common source and situational variance (Raudenbush & Bryk, 2002). In other words, variance within couples and variance between couples allows researchers to analyze data that violate the assumption of independence of data (e.g., couples’ data).

Main Analyses

Overview. Using HLM techniques, we investigated

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<td>5</td>
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<td>0</td>
<td>1.05</td>
<td>(1.40)</td>
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*a p < .001. *All frequencies are forced category counts of behavior in the past 30 days.
three hypotheses concerning adolescent romantic relationships: (a) General and sexual communication would be positively associated with affectionate behaviors (kissing and intimate touching), (b) general and sexual communication would be negatively associated with sexual behaviors (oral sex and sexual intercourse), and (c) general and sexual communication would be negatively associated with age of first sexual intercourse. We present our results in Table 3 accounting for individual age, gender, and couple’s length of time dating (in weeks).

**Communication and frequency of affectionate behavior.** First, we examined the associations between communication and affectionate behavior within adolescent couples. Kissing and intimate touching over clothes were simultaneously regressed on general communication, controlling for sexual communication, age, gender, and weeks dating. As shown in Table 3 (top), couples who engaged in more general communication reported less frequent intimate touching, $B = -.63$, $p < .01$, but kissing was unrelated to general communication. Kissing and intimate touching over clothes were then simultaneously regressed on sexual communication, controlling for general communication, age, gender, and weeks dating. Couples who engaged in more sexual communication reported frequent kissing, $B = .49$, $p < .01$, and more frequent intimate touching, $B = .70$, $p < .001$.

**Communication and frequency of sexual behaviors.** Next, we examined the association between communication and sexual behaviors. Oral sex and sexual intercourse were simultaneously regressed on general communication, controlling for sexual communication, age, gender, and weeks dating (see Table 3, bottom). General communication had a negative relation with oral sex, $B = -.98$, $p < .05$, and showed a negative trend with sexual intercourse, $B = -.68$, $p = .05$. Oral sex and sexual intercourse were then simultaneously regressed on sexual communication, controlling for general communication, age, gender, and weeks dating. Contrary to our hypotheses, sexual communication was positively associated with oral sex and sexual intercourse, $B = .83$, $p < .01$ and $B = .48$, $p < .05$, respectively.

**Communication and age of first sexual intercourse.** Finally, we examined the relation between communication and an individual’s age of first sexual intercourse among adolescents who reported having had intercourse. General and sexual communication were simultaneously regressed on age of first intercourse, controlling for current age, gender, and weeks dating. Consistent with the literature, age was positively associated with age of first sexual intercourse, $B = .46$, $SE = .08$, $t(165) = 5.74$, $p < .001$, $r = .41$. General communication also showed a trend toward a positive relation with age of first sexual intercourse, $B = .04$, $SE = .02$, $t(165) = 1.92$, $p < .06$, $r = .15$. Contrary to our hypothesis, sexual

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**TABLE 2**

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<td>-.04</td>
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<td>.09</td>
<td>.24’</td>
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Males’ correlations appear above the diagonal, females’ correlations appear below the diagonal, and correlations between males and females appear on the diagonal in bold.

*aAll frequencies are forced category counts of behavior in the past 30 days.

*p < .05. **p < .01. ***p < .001.
communication was not significantly related to age of first sexual intercourse, $B = -.01, SE = .05, t(165) = -.68, p = .97, r = .05$. Interestingly, gender was also related to age of first intercourse, $B = .55, SE = .24, t(165) = 2.32, p = .02, r = .18$, such that being female was associated with a later age of first intercourse. Age of first intercourse was unrelated to the length of time (in weeks) that adolescents reported dating their current partners, $B = .01, SE = .01, t(96) = .15, p = .88, r = .01$.

Given the descriptive findings noting different correlation values for males' and females' sexual behavior and communication, we tested an interaction model regressing Gender x General Communication and Gender x Sexual Communication (controlling for age, gender, and weeks dating).

### TABLE 3

Relations Between General Communication, Sexual Communication, and Affectionate Behaviors in the Past Month (top); Relationships Between General Communication, Sexual Communication, and Sexual Behaviors in the Past Month (bottom), Accounting for Individual Age and Couple Weeks dating.

#### General Communication

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#### General Communication

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<td>.20</td>
<td>2.44</td>
<td>316</td>
<td>&lt; .05</td>
<td>.14</td>
</tr>
</tbody>
</table>

$^a$All frequencies are forced category counts of behavior in the past 30 days.

$^b$Effect size $r = \sqrt{t^2/(t^2 + df)}$
weeks dating, gender, general communication, and sexual communication) on age of first intercourse. These interactive effects were nonsignificant.

**Discussion**

Our primary objective was to better understand the link between communication within adolescent couples and adolescent couples’ affectionate and sexual behaviors. We hypothesized that general and sexual communication would be positively related to affectionate behaviors and negatively related to sexual behaviors and age of first sexual intercourse. Our analyses revealed partial support for our hypotheses. Adolescent couples who reported more positive general communication also reported less frequent intimate touching, oral sex, and sexual intercourse, but general communication was unrelated to kissing. Adolescent couples who reported more positive general communication also reported initiating first sexual intercourse at older ages. Contrary to our hypotheses, adolescents who engaged in more open sexual communication also reported more frequent affectionate behavior, intimate touching, oral sex, and sexual intercourse. We explore implications of these results in the following sections.

**General Communication**

General communication plays a critical role in adolescent romantic relationships. In our sample, adolescents who were more apt to share their feelings and felt listened to by their partners reported less frequent intimate touching, oral sex, and sexual intercourse. This finding is consistent with previous research suggesting that one function served by adolescent romantic partners is affiliation and social support, as these relationships typically develop out of a peer group context (Connolly, Craig, Goldberg, & Pepler, 2004; Seiffge-Krenke, 2003). Adolescents in romantic relationships with more positive communication in general may spend more time in romantic relationships meeting the needs of the affiliation system, an important behavioral system (Bowlby, 1969/1982).

On the other hand, adolescents who communicated less openly with their partners engaged in more frequent sexual behaviors, suggesting that relationships where there is less verbal communication may be more focused on meeting sexual needs and less focused on meeting affiliation needs (Bowlby, 1969/1982). Contrary to the existing literature, we did not find an association between general communication and affectionate behaviors. It is possible that the relatively positive communication (on average) combined with very high counts of kissing in the past month reported by couples in our sample reduced the likelihood of finding a relation between these variables.

Furthermore, adolescent couples who communicated their feelings more openly were more likely to report later initiation of first sexual intercourse. This finding is consistent with the literature (Guzmán et al., 2003). In addition, being female was associated with a later age of first intercourse, consistent with past studies (Carver et al., 2003; Santelli et al., 2009). Adolescent couples may value the support and affiliation they receive when communicating with their partner. In terms of social exchange theory, positive communication could be seen as a benefit in an adolescent romantic relationship (Thibaut & Kelley, 1959). The link between positive communication with romantic partners and older age of initiating sexual intercourse may represent an ability to approach general relationship issues in a mature way. For example, these couples may spend a longer time building communication skills and trust in the relationship before engaging in intense sexual intimacy or spend more time communicating instead of engaging in sex. Alternatively, these adolescents may be more able to communicate their needs in general. This idea is consistent with findings that verbal skills are linked to delay of gratification in adolescence (Olson, Hooper, Collins, & Luciana, 2007). Delaying sexual intercourse may be especially beneficial for adolescent girls, given possible negative connotations and consequences for adolescent females who engage in sexual behaviors.

However, given the correlational nature of the study, the temporal sequence of these events is an avenue for future research. With these data, we cannot imply that communication causes changes in affectionate or sexual behaviors, or vice versa. The results may also be explained by other factors related to both communication skills and delay of sexual intercourse, such as parental monitoring or involvement in extracurricular activities. Future research should investigate reasons for this link between communication skills and delay of sexual intercourse. Alternatively, adolescents who are unable to communicate their needs in their romantic relationships in a clear and mature manner may be at risk for engaging in risky or unwanted behaviors. Emerging research suggests a link between self-silencing and risky and/or unwanted sexual behaviors in adolescent couples (Little, Welsh, Darling, & Holmes, in press; Widman et al., 2006).

**Sexual Communication**

Our results regarding sexual communication were contrary to our hypotheses. More open communication about sexual behaviors and ideas was associated with more frequent kissing, intimate touching, oral sex, and sexual intercourse. Although this finding is not what we predicted, it may make sense in light of the choice
to account for general communication within the same analyses. Previous studies linking sexual communication to sexual behaviors did not account for general communication styles. In past studies, variance in sexual communication may have also accounted for a generally open communication style. One of the strengths of the current study is that we accounted for general communication in analyses targeting sexual communication and vice versa. This approach allowed us to parse apart how different aspects of communication (general and sex-specific) are associated with sexual behavior.

When accounting for the general level of open communication (as in the current study), open and positive communication about sex specifically may reflect an interest in meeting the sexual needs of one’s partner and oneself and a clear strategy for doing so. For example, open and positive communication about sexual needs and desires likely makes participation in sexual behaviors less awkward and helps adolescents feel more mature and responsible for their actions. It is important for adolescents to communicate their ideas about sexual behaviors because they are curious and interested in learning more about an adult topic (Chilman, 1983). However, we cannot infer causation from our correlational findings. It is unclear if more frequent sexual behaviors are facilitated by sexual communication, if sexual communication develops out of necessity due to engaging in affectionate and sexual behaviors, or if both develop out of a potential third variable. This finding remains a topic for future research.

Limitations and Future Directions

Despite the uniqueness of this study in examining a large group of adolescent dating couples, this study has some limitations. The main limitation is the self-report method. Adolescents may have under- or overreported their sexual behaviors because of embarrassment or worries about privacy, and exclusive use of self-report data may result in common-method error variance. Similarly, self-report measures of communication may not completely encompass the process of communication within adolescent couples. Future studies should further examine this relation with more process-oriented communication measures, such as observational methodology. Furthermore, the correlational nature of this study prevents us from making causal connections between communication and sexual behaviors. Last, the homogeneity of our sample and its willingness to participate together in a study of romantic relationships decreases the ability to generalize to minority adolescent romantic couples or to those with relatively poorer communication. Future studies should examine more diverse couples’ communication and sexual behavior patterns, for example, those patterns of ethnic and sexual minority adolescents.

In conclusion, we were able to discern a relation between general and sexual communication and adolescent couples’ affectionate and sexual behaviors, as well as age of first sexual intercourse. Our findings should be viewed as a possible framework for future studies to examine directional relationships between communication and sexual behaviors within adolescent romantic relationships.

References


Communication and Adolescent Sexual Behaviors | Langlais, Kivisto, and Welsh


Education and Communication: Prevention of Intimate Partner Violence

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We examined the relation between sex and relationship education, communication, and prevalence of intimate partner violence (IPV) among college-aged women. We hypothesized that (a) women who received more comprehensive sex and relationship education would report fewer IPV experiences, (b) women who received their sex and relationship education from certain sources would report fewer instances of IPV, and (c) women who communicated more with partners would experience fewer instances of IPV. The study consisted of a survey completed by 48 women at a liberal arts college regarding their IPV history, sex and relationship education, and communication with partners. The first hypothesis was not supported; however, the results showed that women who did not receive their education from a medical professional and women who communicated more with their partner experienced fewer instances of IPV. These results suggest the need for additional research into types of education as tools for preventing IPV and the importance of communication within relationships.

One of the many problems that American society faces today is intimate partner violence (IPV), or violence perpetrated by one intimate partner toward another including psychological, physical, and sexual violence (McDonnell, Burke, Gielen, & O’Campo, 2006). According to the Centers for Disease Control and Prevention’s (CDC) estimates (2009b), 4.8 million women and 2.9 million men are raped or physically assaulted by their intimate partners every year. It is important to note that IPV includes not just rape and physical assault but also other violations such as sexual misconduct, verbal abuse, and psychological abuse; the CDC’s IPV estimates do not take into account these latter violations. With these other incidents included, the National Center for Injury Prevention and Control (2003) estimated that 5.3 million IPV incidents occur among women 18 years or older a year. The U.S. Department of Justice and the CDC found in a 2000 study that 25% of women experience rape or physical assault during their life (Tjaden & Thoennes, 2000). IPV can have multiple negative effects. Beyond the apparent psychological side effects, studies show that IPV has negative health effects such as an inability to handle stress, increased number of days sick, and increased drinking of alcohol (Bell & Naugle, 2008; Tollestrup et al., 1999). In general women are victims of IPV more often than men, although both men and women experience IPV (CDC, 2009b). The numbers produced by this research show the need for additional research among women in the hopes of lowering IPV within this population. One prevention tactic supported by the CDC is comprehensive sex and relationship education (CDC, 2009a), but few researchers have investigated how certain types and sources of education might reduce the occurrence of IPV. For this reason, we sought to determine if a relation exists between women’s education regarding sex and relationships and IPV. The main question we investigated was how the type and source of sex and relationship education—information about sex and intimate relationships that aims to encourage physical and emotional health—related to the number of IPV experiences (including experiences of IPV as a victim or perpetrator).

A small body of research has indicated that certain types of sex and relationship education can prevent future IPV (Foshee et al., 2004); specifically comprehensive sex education programs (Kirby, 2008). The research regarding sex education suggests that education should expand beyond abstinence-only programs into a broader study of sexuality found in comprehensive programs (Ashcraft, 2008; Kendall, 2008; Kirby, 2008; Miller & Schleifer, 2008). Comprehensive education...
programs provide students with information from all perspectives (e.g., pro-sex and abstinence) and teach them about the many aspects of sex (e.g., physical, emotional, social). The goal of this type of education is to equip students with tools—such as communication techniques, questions, and activities for couples—so that they can make informed decisions about sex and their relationships (Kirby, 2008).

Some researchers and educators may want to move beyond abstinence-only programs because research has shown that these programs can be detrimental to public health and ineffective in meeting the school’s goals. For example, some studies (Boonstra, 2004; Kirby, 2008; Miller & Schleifer, 2008) have shown that abstinence-only programs can cause a public health problem because they discourage condom use, which can lead to unintended pregnancy and the spread of sexually transmitted infections (STIs). Further, a recent meta-analysis of abstinence-only and comprehensive sex education programs found that only three of nine abstinence-only programs had positive benefits (Kirby, 2008). However, the same study found that, relative to abstinence-only programs, comprehensive programs delayed the initiation of sex, reduced the students’ number of sexual partners, increased condom/contraceptive use, and reduced the amount of risky sexual behavior in which students engaged. Overall, these studies indicate that comprehensive programs create a healthier attitude toward sex because they encourage discussion of its positive and negative effects. In addition, research reveals that comprehensive programs that include relationship education can help people maintain healthy relationships (Kirby, 2008; Miller & Schleifer, 2008). Therefore, one unrecognized possible benefit of comprehensive sex and relationship education could be the prevention of IPV. Specifically, researchers (Foshee et al., 2004; Kirby, 2008; Miller & Schleifer, 2008) showed that, if women learn that they have power within their relationships and receive tools to deal with difficult situations that might lead to IPV, then violence might be preventable. In sum, comprehensive sex-education can result in improved health and relationships.

Instead of examining how comprehensive sex and relationship education might prevent future IPV, most current research revolves around programs for women who have already experienced abuse (McFarlane, Groff, O’Brien, & Watson, 2006; McFarlane, Soeken, & Wiist, 2000; Melendez, Hoffman, Exner, Leu, & Ehrhardt, 2003) and theory about how to define, treat, and prevent future occurrences of IPV in women who have already experienced IPV (Bell & Naugle, 2008; Ehrensaft, 2008; Tollestrup et al., 1999). For example, Ehrensaft (2008) proposed a developmental theory for IPV that looked to the intersection of IPV and violence in and outside the family. Specifically children who are exposed to violence within other intimate relationships at an early age expect to experience it in their own relationships and then teach these expectations to their peers. Therefore, the expectation of violence develops from early observations within certain children and spreads to peers throughout life. This developmental theory seeks to identify specific risk factors for IPV but research using this theory has not investigated how best to prevent IPV.

However, rather than identify risk factors, some researchers have begun to look directly into methods of wide-spread prevention. According to Whitaker et al. (2006), Foshee et al.’s (2004) is one of the few scientifically rigorous research studies that investigated the effects of a comprehensive education system on adolescents, the majority of whom had not experienced IPV. This research team created a program called Safe Dates in which adolescents learned about what a healthy relationship was, what they should get out of relationships, how to communicate with partners and avoid violence, and how to approach the issue of sex with a partner. In examining how the program affected perpetration and victimization of physical, psychological, and sexual IPV, the researchers found that the Safe Dates program reduced perpetration and victimization of physical and sexual violence. However, the program was less effective in preventing future IPV in participants who had experienced previous violence.

Research programs that examine adult populations have found that relationship education programs lose effectiveness for women who previously experienced violence, especially if it was recent or current (Foshee et al., 2004; Melendez et al., 2003). This finding emphasizes the need for women to receive relationship education early in life, in hopes of them learning techniques for keeping relationships healthy before they have experienced any IPV. However, it is important to note that Foshee et al. (2004) and Melendez et al. (2003) assessed only newly created programs rather than examining the effects of preexisting forms of education. In addition, those researchers also used samples comprised of only children and adolescents. Further, to our knowledge, no research has examined the effect of prior sex and relationship education among college-aged women or the effects of education during the college years from various resources such as family planning centers or university health centers. To fill these gaps we conducted our research among a sample of college-aged women and examined the relations between IPV and (a) current educational systems and instances of IPV and (b) communication between intimate partners.
In sum, we sought to determine how different types of previous sex and relationship education relate to the prevalence of IPV in college-aged women and how these factors might relate to fewer instances of IPV. We hypothesized that students who received more comprehensive sex and relationship education would report fewer IPV experiences. Secondly, we hypothesized that students who received their sex and relationship education from certain sources (e.g., parents, medical professionals, Internet) would report fewer instances of IPV. Our third hypothesis was that women who communicated more within their relationship would experience fewer instances of IPV.

Method

Participants
Fifty-five women from a small liberal arts college in the Midwest participated in this study. Eligibility requirements for participants included (a) at least 18 years old, (b) enrolled at Grinnell College, and (c) self-identified as a woman. After data collection we removed seven women from the sample because they had never participated in an intimate relationship (i.e., romantic partner), reducing the sample size to 48. We recruited participants from introductory psychology courses, fliers posted around campus, and tabling. Tabling consists of setting up a table near areas of high student traffic and asking people walking by whether they would like more information regarding the study and then talking with people who chose to approach the table. Following recruitment, we contacted students by e-mail with more information regarding the time, location, and nature of the study.

The women included in the final sample were relatively evenly represented across class years (first year, \( n = 12 \); second year, \( n = 17 \); third year, \( n = 8 \); fourth year, \( n = 11 \)). The majority of the women identified their ethnicity as White (\( n = 37 \)), but other ethnicities were represented as well (Asian/Pacific Islander, \( n = 4 \); African American, \( n = 1 \); Latin American/Hispanic, \( n = 3 \); Native American, \( n = 1 \); other, \( n = 2 \)). The participants also identified under a variety of sexual orientations (bisexual, \( n = 5 \); heterosexual, \( n = 39 \); lesbian, \( n = 1 \); not sure, \( n = 3 \)). In terms of intimate relationships, participants reported participating in various numbers of relationships during their lifetimes (1 relationship, \( n = 22 \); 2–4 relationships, \( n = 15 \); 5–9 relationships, \( n = 10 \); more than 10, \( n = 1 \)). The number of sexual partners each participant had varied from zero to greater than 10 (0 sexual partners, \( n = 11 \); 1 sexual partner, \( n = 11 \); 2–4 sexual partners, \( n = 19 \); 5–9 sexual partners, \( n = 6 \); greater than 10, \( n = 1 \)).

Design
The independent variables were sex and relationship information received, source of sex and relationship education, and use of communication within relationships. The dependent variables were types of IPV (i.e., physical, sexual, psychological) and lifetime numbers of IPV experiences.

Measures
Demographics. This 20-item section of the survey asked for basic information such as age, ethnicity, sexual history, and relationship history.

IPV history. This section consisted of 28 questions asking if the participant ever experienced or perpetrated various types of IPV. The questions were phrased as “I have [insert description of IPV; e.g., assaulted my intimate partner]…times in my life” or “An intimate partner [insert description of IPV; e.g., has assaulted me]…times in my life.” Participants then circled the range of numbers that represented the number of times (from 0 to more than 7) they had experienced or perpetrated that type of IPV. Questions addressed physical violence (e.g., hurt an intimate partner in a way that left a bruise, cut, or sprain), psychological violence (e.g., my intimate partner made me feel unsafe), and sexual violence (e.g., began to have either anal, oral, or vaginal sex with me even though I recently told him/her I did not want to have sex). We adapted these questions from existing questions from various published studies (Melendez et al., 2003; Straus, Hamby, Boney-McCoy, & Sugarman, 1996).

Sex and relationship education. This section examined the source of 14 elements of sex and relationship education. Each question was framed as “I received information regarding [insert topic; e.g., sex, how to communicate with an intimate partner] from…” followed by a list of popular sources of sex and relationship education. The list included parents, adult family members (not parent), siblings, friends, school (all levels), religious organizations, community organizations, medical professionals (doctor, nurse, etc.), TV, Internet, magazines, was not taught, and other. We instructed participants to select the top two sources of information for the topic proposed. The questions ranged from basic topics such as sex, STIs, and intimate relationships to how to communicate with an intimate partner and the possible emotional reactions to sex/intimate relationships. We developed these questions partially from the research of Powell (2008), who examined the sources of sex education of adolescents in the United Kingdom.

Relationship beliefs. These four questions listed different relationship beliefs based on the frame “How important is it for you to…” followed by different
relationship philosophies. Some of the philosophies included the importance of communicating directly with an intimate partner about topics such as relationships, sex, and STIs. The participant circled one of the following answers: not important, somewhat important, very important, or essential.

**Procedure**

When a participant arrived at the location, she checked in with the researchers. While checking in, the participant was asked if she was participating in order to receive introductory psychology credit or $5. If she wanted to receive introductory psychology credit, she provided the appropriate information (i.e., name, student I.D., and section number). If she wanted to be compensated with cash, she did nothing further at that time. We kept compensation receipts separate from the survey information and destroyed the receipts after an appropriate amount of time. Next, we handed the participant the informed consent and asked her to read it and sign and date the bottom. The informed consent included a description of the research, discussed how the study was voluntary and confidential, and described the possible benefits and risks. After completing and returning the informed consent, the participant received the survey and the instructions. After completing the survey, the participant received a debriefing form, which discussed the aims of the study in more detail and provided contact information for the researcher and various counseling resources around campus. If the woman participated for cash, she received her $5 at this point and then printed and signed her name as proof that she received compensation.

**Results**

**Statistics of IPV Prevalence.** We conducted chi-squared tests on created IPV scores (general, physical, sexual, psychological) to test the hypothesis. The tests were conducted with a prevalence level of 25%, the estimated level of IPV in the USA (Tjaden & Thoennes, 2000), and the alpha level for all analyses was .05.

First, a significant number of women reported experiencing any number of instances of general IPV relative to women who reported no instances of IPV ($n = 33, 71.7\%$ of the total sample), $\chi^2(1, N = 46) = 53.58, p < 0.001$. Among women who reported experiencing IPV, psychological IPV ($n = 26, 55.7\%$), $\chi^2(1, N = 46) = 23.62, p < 0.001$, a significant number of women; and sexual IPV ($n = 23, 44.9\%$), $\chi^2(1, N = 46) = 15.33, p < 0.001$, a significant number of women, were the most common. However, experiencing physical IPV did not appear at a statistically significant level when comparing any level of reported instances to reporting no instances ($n = 8, 16.7\%$), $\chi^2(1, N = 46) = 1.41, p > 0.05$. Women were also found not to perpetrate general IPV or any subtype of IPV at a significant level ($n = 15, 31.2\%$), $\chi^2(1, N = 46) = 1.41, p > 0.05$.

**Testing the Hypotheses**

**Education and IPV.** Our first hypothesis stated that students who received more comprehensive sex and relationship education would report fewer IPV experiences. First we examined the frequency at which each educational source was reported (parents, 7%; adult family member, 8%; siblings, 8%; friends, 6%; school, 6%; religious organization, 8%; community organization, 8%; medical professional, 7%; TV, 7%; Internet, 8%; magazines, 7%; not taught, 8%; other, 8%); it appeared that no one source predominated.

With respect to the sex and relationship education section of the survey, we found that instead of entering the top two sources of information for each question, some participants noted every source of information for every subsection of sex and relationship education. To remedy this error, we analyzed every source of information for every subsection of sex and relationship education separately (i.e., each of the educational questions had 13 lines, and we noted “yes” or “no” on each line depending on whether the participant put a check mark next to it). Next, we conducted a one-way ANOVA (with the alpha level for all analyses set at .05) to determine if certain sources of sex and relationship education related to elevated or lowered levels of specific types of IPV (i.e., general, physical, psychological, sexual). In our analyses, we entered educational source for a specific topic (i.e., sex education, how to say no to an intimate partner) as the independent variable and a specific type of IPV (i.e., psychological, sexual) as the dependent variable. From these analyses, one significant difference was found. Specifically, the data indicated that women who were not taught how to say no to an intimate partner by a medical professional experienced more sexual IPV, $F(1, 46) = 9.06, p = .004$. No other sources of information (parents, adult family members [not parent], siblings, friends, school [all levels], religious organizations, community organizations, TV, Internet, magazines, was not taught, other) were found to change types or amounts of IPV. Through these analyses we determined that there was no support for the first hypothesis. Our second hypothesis was that students who received their sex and relationship education from certain sources (e.g., parents, medical professionals, Internet) would report fewer instances of IPV. The previous analyses partially supported our second hypothesis because college-aged women who received their sex and relationship education from a medical professional experienced fewer instances of sexual IPV.
Relationship beliefs and IPV. Most people stated that the relationship beliefs (e.g., equality between partners, communicating relationship expectations) were very important or essential to them (not important, $n = 13, 4\%$; somewhat important, $n = 40, 14\%$; very important, $n = 101, 35\%$; essential, $n = 134, 47\%$). This finding is important because it shows that women generally believe in communicating with their partners and creating egalitarian relationships. We conducted one-way ANOVAs to determine if certain relationship beliefs elevated or lowered levels of certain types of IPV or certain behaviors. We entered the relationship belief as the independent variable and the type of IPV as the dependent variable. We found that women who had conversations with their partners regarding relationship expectations experienced less sexual IPV, $F(1, 46) = 2.92, p = .045$. This finding supports our third hypothesis that college-aged women who communicated more within their relationships would experience fewer instances of IPV.

Discussion

The purpose of this study was to determine the relations between experiences of certain types of IPV, sex and relationship education, and specific beliefs within a relationship. We did not find evidence that comprehensive sex and relationship education was related to fewer instances of IPV. The findings did suggest that women whose medical professional did not teach them about how to talk to and say no to an intimate partner experienced more sexual IPV. These results imply that medical professionals might play an integral role in educating women about sex and relationships. Further, women who talked to their partners about relationship expectations in general experienced less IPV.

Our study has significant implications for the development of sex and relationship education. Previous research has shown that sex and relationship education is most effective in preventing violence when the information is taught before the person experiences violence (Foshee, et al., 2004, Melendez et al., 2003). Our research, in conjunction with these previous studies, suggests that adolescents (an age where fewer people have experienced some form of violence) should be taught about relationships and IPV because we found that college-aged women who communicated relationship expectations with their partners—something most likely taught in relationship education—experienced less sexual IPV. However, adolescents also need to learn this information from a reliable source. The current study suggests the importance of sex and relationship education through medical professionals, such as doctors or nurses. Implementing more sex and relationship education might take more time and money but these costs would be offset because preventing IPV in future generations could improve quality of life for many people and diminish costs to the public health system (McDonnell et al., 2006). This study, in combination with previous research (Foshee et al., 2004; Melendez et al., 2003), indicates that teaching adolescents about many elements of relationships, especially how and what to talk to an intimate partner about, could help diminish IPV.

One question this study raises is why medical professionals were the only source of information significantly related to fewer instances of IPV. Perhaps this finding is the result of the training medical professionals receive. Other studies have analyzed how nurse interventions could help detect IPV early and have found relative success (McFarlane et al., 2006; McFarlane et al. 2000). However, most of these studies focus on relatively small populations. A few factors that might make medical professionals better educators than the other sources listed (e.g., parents, friends, community organizations, Internet) include their awareness of the body and relative ease of discussing it, their patient-centered training, and the consistency of their training across the country. However, more research needs to be conducted to examine why medical professionals should conduct sex and relationship education.

This study also has important implications for the specific population studied: college-aged women. We found that intimate partner violence does happen among college-aged women. Ideally the discovery of this fact will encourage college communities to take actions to diminish IPV in their settings.

It is important to note that this study had some limitations. First, we were able to investigate the relation between IPV and sex and relationship education only via a survey because of restrictions on time and resources. We propose conducting additional studies consisting of one-on-one interviews with women, possibly across time. Only through discussing women’s changes in education, relationships, and relationship beliefs across time will researchers be able to gain a clearer picture of how sex and relationship education affects IPV. In addition, this population was not diverse in terms of ethnicity and sexual orientation. Further, during the course of the study, about half the participants did not read the directions correctly for the sex and relationship education section, causing them to check more than two choices for sources of sex and relationship education. We had difficulty analyzing the data because some participants checked all the sources they used and others picked the two most prominent sources. This difference in completion of the survey made it harder to distinguish possible relations between education sources and IPV. Our small sample size also
limited this study.

This study suggests that a relation exists between IPV and sex and relationship education and begins to unpack the relation between IPV and sex and relationship education and relationship communication. In addition, our results could influence the development of future sex and relationship education and IPV prevention programs for college-aged populations. This work could be done by analyzing the current sex and relationship education system and its connection to future healthy relationships and by creating new programs and evaluating their effectiveness. The current study is a stepping stone for investigating the relation between current sex and relationship education and prevention of IPV.

References
There may be a conflict between computer scientists’ recommendations for secure password formation and the capability of human memory to effectively use and remember passwords. However, there is little specific empirical evidence regarding computer passwords and their memorability, because computer technology and the use of passwords is still relatively new to both society and computer scientists. My study dealt with testing human memory for computer passwords constructed following the suggestions of computer science for creating a secure password.

Computer scientists recommend using secure passwords, which consist of combinations of uppercase and lowercase letters at a minimum length of eight characters (Brown, Bracken, Zoccoli, & Douglas, 2004). According to Microsoft (2006), a strong password should be lengthy and contain a combination of letters, numbers, and symbols. Microsoft also gives suggestions of what not to include in a password. People should avoid repeating letters or numbers in a row, look-alike substitutions of numbers or symbols for letters (e.g., using “zero” instead of “O”), and words found in a dictionary. Some login sites instruct or require users to change their login password every so many months. One of the most often-suggested rules is to avoid using the same password for more than one login site (Microsoft).

However, people often use short, meaningful, and previously-used passwords that are clearly insecure (Wiedenbeck, Waters, Birget, Brodskiy, & Memon, 2005). The practice of using insecure passwords instead of following computer scientists’ recommendations could be due to people’s concerns about limitations in their ability to remember more difficult passwords. People may not be able to recall passwords due to a failure to properly encode the password or a failure to retrieve an encoded password. Some computer scientists do realize that a password should not only meet the requirement of being secure, it should also be easily accessible, convenient, and memorable for the user (Renaud & De Angeli, 2004).

One method for people to create longer, more memorable passwords takes advantage of the ability of human memory to chunk information together to create passphrases as passwords. Chunking is the combination of single pieces of information into meaningful units (chunks). A passphrase is a password made up of a sentence or phrase with which the user is familiar (e.g., “Ilovepepperonipizza,” which is 19 single letters, but only 4 words or chunks). The amount of information to be remembered can be expanded by increasing the amount of information in a single chunk (Keith, Shao, & Steinbart, 2007). Because people tend to remember information that is meaningful to them rather than strings of random letters that do not hold meaning to them, chunking words together in a phrase should allow longer passwords to be remembered (Keith et al., 2007).

**Memory for Passwords: The Effects of Varying Number, Type, and Composition**

For optimal security, computer scientists recommend using long (at least 8 character) passwords containing randomly ordered, lower case letters, numbers, and capital letters. In the laboratory and more realistic longer term tests, I tested the effects of some of these recommendations on participants’ memory. Not surprisingly, longer passwords were less likely recalled than shorter ones, and accuracy for remembering random passwords was much lower than for remembering words. However, memory accuracy for letter strings constructed to be similar to words, both in letter frequency and in letter-to-letter transition probabilities, was not much lower than accuracy for words. Such pseudowords are not as secure as random passwords, but they are not susceptible to dictionary attack. The findings suggest that both memorability and security are important to consider in constructing useful passwords.

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The power law of forgetting (Neath, 1998) suggests that most forgetting occurs soon after learning. Forgetting is especially likely if the information is not meaningfully encoded into memory (Neath, 1998). Information may not be retrieved from memory due to having too much time between encoding and retrieval or too little time to properly encode information (Neath, 1998). Passwords are forgotten due to retroactive and proactive interference. Proactive interference can occur when a user is required to create a new password to replace an existing password and later fails to remember the new password because of remembering only the previous one. Retroactive interference can occur if a user creates a new password, which then interferes with memory for older passwords that are still in use.

The purpose of my study was to investigate the effects of computer scientists’ recommendations on password memorability. The study consisted of two parts, one of which was a realistic simulation of memory for passwords created by a user. The simulation asked participants to remember three different self-generated passwords that were based upon some of computer scientists’ recommendations over several weeks.

I conducted the second part of the experiment in the laboratory. The aim was to provide a systematic test of participants’ ability to remember experimenter-generated passwords varying in the degree to which they followed computer scientists’ guidelines. Based on the power law of forgetting, short-term lab studies should reveal significant forgetting in the absence of highly meaningful material or rehearsal. I controlled rehearsal by having the participants count backwards by threes in the period between study and test. I con- 

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**Method**

**Participants**

Thirty-six participants (29 women and 7 men, \( M = 20.3 \) years, \( SD = 1.3 \)) earned extra credit for their University of Akron psychology courses for their participation.

**Materials**

The study consisted of both a realistic password memory simulation using self-generated passwords and a lab session testing participants’ memory for experimenter-generated passwords.

Stimuli for the realistic simulation were icons for three fictitious websites, Snail Mail, Your Space, and Money R Us. Participants created a password for each icon, according to the instructions described in the procedure section. Each password memory test involved successive displays of the three icons in random order. I presented the stimuli for the lab portion of the study on flashcards to each participant individually.

For the Length by Type Design (see Figure 1, top), I tested four password types at two different lengths: 5 and 7. The four password types were word, transitional probability, letter frequency, and random. Word items were actual English dictionary words (e.g., advance), which are the least secure according to computer scientists. Transitional probability items (Mayzner & Tresselt, 1965) were nonword letter strings matching both the letter frequencies and pairwise transitional probabilities of the English language (e.g., defe, mandini). These items form very word-like stimuli; because they are not actual dictionary words, transitional probabilities are stronger passwords than the word stimuli. Letter frequency items consisted of letter strings matching English letter frequencies, but they did not match transitional probabilities or form words (e.g., aerts, eiheord). Random passwords were made up of randomly selected letters, which did not form words and were not based on English letter frequencies (e.g., sjgxv, afwrfkl). Random passwords, based on computer scientists’ recommendations, are the strongest password type. All of the passwords for the design consisted of lowercase letters only. I chose password lengths of 5 and 7, rather than the minimum length of 8 recommended by computer scientists, based on pilot work that indicated multiple tests in a single lab session would be difficult due to proactive interference from other items.

For the Composition by Type design (see Figure 1, bottom), I varied the characters making up the passwords. I used three levels of the composition variable: all lowercase, which is the weakest password composition (e.g., risrent); letters with a capital at the beginning and two numbers at the end (e.g., Uerso61); and lowercase letters with the capital and numbers randomly ordered, which is the strongest composition because it uses three different character types (e.g., she9R7). Two password types including letter frequency and transitional probability tested the three levels of the composition variable. For this design, the password length was always 7 characters.

The passwords for the lab portion of the study were researcher-generated. I constructed a computer program to create a different set of passwords for each participant. The passwords for the two designs were intermixed and presented in scrambled order.
**Procedure**

**Realistic simulation.** After completing a demographics sheet and informed consent, participants generated three passwords using written instructions presented on the computer display. The participants first saw a screen with directions telling them not to use any part of their name, social security number, address, phone number, or birthday, and not to use a password they had used before. According to Microsoft (2006), using personal information in passwords leaves them susceptible to being hacked. I instructed participants not to use previously-used passwords because my focus was on memory for new passwords and because I wished to avoid risking the security of their existing accounts.

Participants then constructed a passphrase containing at least six words by thinking of a sentence or phrase relating to their personal life such as “I got my cat, Baby, when I was three.” The participants then took the first letter of each word as their password (e.g., igmcbwiwt) and used only one symbol type: lowercase letters. This passphrase was associated with an icon for a Snail Mail e-mail account. In order to keep password lengths similar across conditions, I modified Keith et al.’s (2007) procedure; they used the whole phrase as the password, not just the first letters.

A second password instruction requested the participant to form a six-character password with two symbol types including all lowercase letters and one uppercase letter. This password was associated with a Your Space icon. Finally, because computer scientists recommend using lowercase letters, capitals, numbers, and symbols to create secure passwords, a third instruction asked participants to form a 6-character password including three symbol types with at least one number and one uppercase letter. This password was associated with a Money R Us bank account icon. These instructions resulted in passwords that were different from those in the lab portion of the study.

After creating these three passwords, I tested the participants twice during the lab memory tests and a final time before they left the lab. I then contacted the participants twice by e-mail to test their memory for the three passwords. Each e-mail contained a link to a webpage displaying the three icons used in the lab in randomized order. I instructed the participants to reply to the e-mail with the passwords that they had created, in the order that the icons appeared on the webpage. I sent the first e-mail 5 days after the lab session and the second e-mail 7 days after the participant responded to the first one.

**Lab study.** Participants received, at random, 14 experimenter-generated passwords to remember (8 to fill the cells of the Length by Type design and 6 for the Composition by Type design.). Participants had 15 s to study each password before beginning a 30 s filler task intended to inhibit or prevent rehearsal. The task was to count backwards by threes from a starting number, which changed for each of the 14 passwords. When the 30 s of counting backwards had ended, the participant recalled by writing the password on an answer sheet.

After 5 study-recall trials, I tested the participants on the three passwords they had created earlier for the realistic simulation. The participants saw a screen with the three icons and were instructed to type the password next to the corresponding icon. The program corrected errors after each time they were tested by reminding participants of their passwords and retesting. I tested the participants 3 times throughout the lab session and, each time, the order of the icons changed randomly.

Next, I tested the participants on five more passwords for the lab session and then retested the three passwords from the realistic simulation. Then I tested them on the last four passwords for the lab portion of the study and conducted a final test on the realistic passwords.

Finally, I thanked the participants. They left their e-mail addresses so they could be contacted later to complete the long-term recall portion of the study.

**Results**

**Realistic Simulation**

The realistic simulation had a 100% return rate for both

<table>
<thead>
<tr>
<th>Password Type</th>
<th>Length by Type Design</th>
<th>Composition by Type Design</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7</td>
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<tr>
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<td>Random</td>
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</table>

FIGURE 1

The two within-subject designs used in the laboratory part of the study.
e-mails 1 and 2. I scored the data for simple recall and site recall. Site recall was correct if the participant was able to remember the password with the correct login icon. Simple recall was correct if the password was remembered correctly, whether or not it was matched with the correct site icon. A repeated measures test of simple recall had factors of instruction (passphrase with a mean length of 7.6 characters, a 6-character password including one number, and a 6-character password including one capital and one number) and time (e-mail 1 and e-mail 2).

Time was not significant; there was no difference in percentage of passwords recalled between e-mail 1 (M = 87%) and e-mail 2 (M = 90%), F(2, 70) = .81, p > .05. There also was no significant effect for instruction. Passphrase (M = 91%), lowercase and number (M = 88%), and numbers and capitals (M = 85%) all had similar levels of simple recall, F(2, 70) = .89, p > .05.

Site recall was correct if participants associated the correctly-recalled password with its icon. Only instruction was significant for site recall, F(2, 70) = 3.85, p < .05.PASSPHRASE (M = 69%) and numbers and capitals (M = 69%) were more accurately recalled than the lowercase and number passwords (M = 54%).

**Lab Session**

Using 4 x 2 within-subject ANOVA with the factors of Stimulus Type (random, letter frequency, transitional probability, and word) and Length (5 and 7 characters), I analyzed participants’ recall of the passwords. Scores were 1 if participants remembered all the letters in the password in the correct serial order or 0 if they made an error.¹

The effect of Stimulus Type was significant, F(3, 105) = 5.32, p < .05. Participants remembered a lower percentage of random stimuli (M = 69%) than letter frequency stimuli (M = 82%) and transitional probabilities stimuli (M = 83%) combined, t(35) = 2.19, p < .05. Words (M = 94%) were easier to remember than letter frequency and transitional probabilities combined (M = 84%), t(35) = 2.56, p < .05.

The Length Effect was also significant, F(1, 35) = 7.61, p < .05. Participants remembered 88% of the 5-character passwords but only 77% of the 7-character passwords. The interaction of password type and length was not significant, F(3, 105) = 1.37, p > .10.

¹The dependent variable for the ANOVAs was dichotomous (each password was recalled correctly or incorrectly). This situation is not ideal because assumptions of homogeneity of variance and normality of error can be violated. Alternative analysis approaches such as Chi Square and logistic regression, however, assume independence and our within-subjects design violated this critical assumption. Inclusion of several items in each cell of the design would solve the dichotomous data problem because performance could then be averaged over items.

**Transitional probability and letter frequency.** Using a 2 x 3 within-subject ANOVA, I analyzed the six passwords in the Composition Type design. I then compared the two stimulus types, transitional probability and letter frequency with three different compositions, using all seven-character passwords.

In contrast to the analysis of the first set of passwords, this analysis showed a significant difference between transitional probabilities and letter frequency, F(1, 35) = 7.17, p < .05. Word-like, transitional probability stimuli (M = 78%) were more likely to be remembered than were stimuli matched only in letter frequencies (M = 60%). The three levels of composition—all lowercase letters (M = 68%), capital as the first letter and two numbers at the end (M = 69%), and capital letter and two numbers at random (M = 69%)—did not differ, F(2, 70) = .03, p > .05.

**Discussion**

Computer scientists suggest that longer passwords are stronger, and they recommend that passwords be at least eight characters long (Brown et al., 2004). My laboratory results showed that participants recalled 5-character passwords better than 7-character passwords. There is a memory cost in using longer passwords, and there would likely have been a larger memory effect if longer stimuli had been used.

Stimulus type had an effect in the Length by Type factorial design. As expected, words were the easiest and random items were the hardest to remember. According to Microsoft (2006), people should avoid using words when constructing passwords. Although word stimuli were the easiest to remember, they are also the least secure. Random stimuli form the most secure passwords. However, the random stimuli were clearly the hardest for participants to remember. Better security comes at a cost in recall accuracy.

In the Length by Type Design, recall of random stimuli and word stimuli was very different. However, I thought it was surprising to find no difference between transitional probability stimuli and letter frequency stimuli because the letter combinations for these password types were comparable to words. The Composition by Type Design did show transitional probability passwords to have significantly better recall than the letter frequency passwords. The Composition by Type Design had three 7-character passwords in the transitional probability and letter frequency conditions; the first design had only one 7-character password in each condition. The significant difference between transitional probability and letter frequency conditions in the second design may simply be a reflection of better statistical power, but I suspect that the transitional probability passwords could be more easily associated
with real words, thus increasing their memorability.

Prytulak (1971) demonstrated that ease of transforming nonsense syllables into words strongly predicted memorability. For example, “vam” would be relatively easy to remember because it can be recalled (using only one transformation) as “van,” with an “m.” On the other hand, “qyl” should be much more difficult to remember, possibly requiring three mental transformations as “quill” without the “u” and the second “l” and with “i” changed to “y.” Similarly, with transition probability letter strings, participants may be remembering words and transformations, so that “defle” might be remembered as “defile without the ‘i’.” Although this explanation is speculative, the data suggested that transitional probability passwords were considerably more likely to be recalled than the random or even letter frequency items. Transitional probability passwords are also more secure than word passwords because they are not susceptible to a password-guessing algorithm that successively tries real words (a dictionary attack).

Computer scientists recommend using strong passwords consisting of a combination of uppercase letters, lowercase letters, numbers, or symbols (Brown et al., 2004). I hypothesized that adding more symbol types to the passwords would reduce recall. The results from my second design found no effect of composition. However, these findings may be limited to the short-term recall conditions of my study.

The results from the realistic simulation showed that the participants generally had better success in remembering the passwords than I had expected; the only significant difference was with site recall. The participants did have difficulty remembering which password went with each website icon, and they had the most trouble remembering the lowercase letter and number password. They performed well on passphrase passwords despite the fact that the mean character length for this password type was slightly longer than the other passwords they created; the mean length participants used for the passphrase passwords was 7.6 characters. The use of first-letter passphrases could be a good way for people to create more random and more memorable passwords, because this method takes advantage of the meaning-based nature of the memory system. If the passwords can be made meaningful (and therefore memorable), the longer letter strings would create more secure passwords (Keith et al., 2007).

Participants did unexpectedly well on the capital letter and number passwords. It is not clear why these password types were easier to remember than lower case letter and number passwords. It is possible that adding capital letters failed to increase difficulty because 31 of the 36 participants put their capital letters at the beginning and numbers at the end of their constructed passwords. In the lowercase letter and number condition, nearly half of the participants put the number somewhere else in the password than the end of the password. The difference in the placement of the numbers or capital letters could explain why participants did not have greater difficulty when recalling the password containing three symbol types.

The time variable was not significant in the realistic long-term memory test, and the level of recall was very high. For the realistic simulation, I tested the passwords that each participant created three times during the lab session. It is possible that participants’ success in remembering the passwords was due to this relatively large amount of practice. Although password lengths were based on pilot work and a concern for possible floor effects with difficult stimuli, in retrospect it might have been better to have used longer passwords to follow computer scientists’ recommendations on minimum length.

Although I did not find significant memory differences among different password compositions, I believe that the effect of adding numbers and capitals to lowercase characters needs additional study. I did, however, find that word passwords were much more easily recalled than random ones. Passwords that maintained both the pairwise transition probabilities and letter frequencies of English were not much more difficult to recall than words and they provide more security than words because they can withstand a dictionary attack. My findings suggest that human memory should be considered along with security in password construction.

References

We investigated the effects of crime type (rape, murder, theft) and perpetrator proximity to the victim (stranger, date, family member) on crime severity ratings and perpetrator and victim blame attributions through a 3 x 3 (Latin Square) mixed design. There were 2 significant main effects and 2 significant interaction effects. The 180 participants rated murder and rape as equally serious crimes and more serious crimes than theft. Participants blamed perpetrators more — and therefore victims less — in rapes and murders than they did in thefts. In addition, and unexpectedly, participants increasingly blamed victims when the perpetrator proximity decreased (from family member, to date, to stranger).

Rape is a reality for countless women and men every year. However, the harsh reality of this crime is further exacerbated by the attribution of blame to victims of rape. According to the Just World theory, people blame victims for their victimization in order to reconcile their own beliefs in a just and fair world (Lerner & Simmons, 1966). For example, people may devalue and reject, as well as blame, a victim for her rape because others need to maintain the belief that the victim deserved to be victimized. According to the Just World belief, people believe that only people who are deserving of victimization are victimized. Thus, people blame victims instead of sympathizing with them, which often leads rape victims not to report the crime. Rape needs to be further investigated in terms of blame attribution so that victim blame attribution can cease. If victim blame attribution were rectified, more victims would likely be willing to seek help and report crimes.

Past research has centered mostly on the variables responsible for victim blame attribution. Specifically, it has focused on (a) research participant characteristics (e.g., sex, age, ethnicity, educational level, beliefs/attitudes), (b) perpetrator characteristics (e.g., sex, ethnicity, socioeconomic status), and (c) victim characteristics (e.g., sex, ethnicity, sexual reputation). Past research, however, has not examined the actual crime characteristics (e.g., the type of crime and the perceived severity of the crime). It has also not expanded research on perpetrator characteristics to include the identity of the perpetrator (i.e., how close the perpetrator is to the victim).

Research conducted on victim blame attribution has shown that research participant variables such as sex, age, ethnicity, educational level, similarity to the victim, and beliefs affect how participants perceive rape victims. Research on participants’ sex and age has shown that men attributed more blame to female and male victims than women did (Grubb & Harrower, 2009; Jimenez & Abreu, 2003; Mitchell, Angelone, Kohlberger, & Hirschman, 2009; Sheldon-Keller, Lloyd-McGarvey, West, & Canterbury, 1994; Smith & Frieze, 2003; White & Robinson-Kurpius, 1999). Women, however, gave harsher sentences to perpetrators than men did (George & Martínez, 2002). Older adults (aged 60 to 84) also blamed the victim more in various instances of crime (a fire, a car accident, theft, being hit by a car), regardless of the outcome of the crime (either mild or severe) or the degree of responsibility attributed to the victim (either very irresponsible or not very irresponsible) than did 18-34 year old younger adults and 35-59 year old middle-aged adults (Adams-Price, Dalton, & Sumrall, 2004).

Past research on participants’ ethnicity has found that Caucasian participants assigned less blame to rape victims than Latino participants did, especially when the victims were also Caucasian (Jimenez & Abreu, 2003). More Asian than Caucasian participants also believed

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*Faculty mentor
that women are responsible for preventing rape and that victims provoke their own rape (Lee, Pomeroy, Yoo, & Rheinboldt, 2005).

White and Robinson-Kurpius (1999) examined the educational level of participants and its impact on victim blame and found that male undergraduate students held the most negative views of rape victims and female graduate students held the most favorable views of rape victims. Overall, men held the least favorable views of rape victims across all educational levels.

Other research has examined the role of participant similarity to the victim. When participants identified themselves as similar to the victim in terms of personal characteristics, such as age and physical fitness as well as how likely they were to find themselves in similar situations, they attributed less blame to the victim (Feldman, Ullman, & Dunkel-Schetter, 1998; Grubb & Harrower, 2009).

Researchers have also studied participant attitudes and beliefs and how they contribute to victim blame attribution. Male participants with a high Just World (JW) belief blamed rape victims more than male participants with low JW beliefs (Kleinko & Meyer, 1990). Female participants, however, attributed less blame to rape victims when they reported a higher belief in the JW theory, which Lerner and Miller (1978) attributed to the perceived similarity to the rape victim. Brems and Wagner (1994) examined the role of feminist beliefs on victim blame attribution and found that male and female participants with high feminist attitudes attributed less blame to rape victims than male and female participants with more traditional gender role views. Relatedly, African-American men held more traditional gender roles than African-American women and were therefore more likely to blame rape victims than African-American women (Sapp, Farrell, Johnson, & Hitchcock, 1999). Participants with higher rape myth acceptance beliefs also blamed the victim more than participants with lower rape myth acceptance beliefs (Frese, Moya, & Megías, 2004). These research participant variables are important to keep in mind to explain why victims of rape may be blamed for their victimization when they are not perceived as being similar to the person attributing blame to them.

Characteristics of the perpetrator, such as sex, ethnicity, and socioeconomic status, also influence the attribution of blame. Participants blamed male perpetrators who raped male victims less (and thus assigned lower sentences) than male perpetrators who raped female victims (Anderson & Lyons, 2005; Mitchell et al., 2009). Male rape victimizations may be considered less severe than female victimizations because men play a more active role in sexual intercourse and because of the disbelief in the concept of male rape (Anderson & Lyons, 2005). When perpetrators were identified as African-American or of low socioeconomic status, participants also assigned more blame and harsher sentences to the perpetrator (Freeman, 2006; George & Martínez, 2002).

Researchers have also studied victim characteristics, such as sex, ethnicity, and sexual reputation, within the context of blame attribution. Participants blamed male victims more than female victims and homosexual victims more than heterosexual ones, possibly due to men’s perceived ability to fight off attackers and the misconception that homosexual men are more sexually promiscuous and thus invite rape to occur (Davies, Rogers, & Whitelegg, 2009; White & Robinson-Kurpius, 2002). Participants also blamed Latina and African-American victims more than Caucasian victims (George & Martínez, 2002; Jimenez & Abreu, 2003; Maier, 2008). Finally, participants blamed victims who had a “bad” reputation and who did nothing to resist the rape (either physically or verbally) the most, with prior sexual consent or a sexual history with the perpetrator (either a dating partner or spouse) increasing the amount of blame attributed (Cohn, Dupuis, & Brown, 2009; Monson, Langhinrichsen-Rohling, & Binderup, 2000).

Outside of research participant characteristics, perpetrator characteristics, and victim characteristics, few studies have examined type of crime and type of rape. Brems and Wagner (1994) examined the effect of crime type in rape versus theft cases and found that participants attributed less blame to the rape victim than to the theft victim. Adams-Price et al. (2004) also found greater victim blame the less severe the crime. Participants also blame victims of rapes differently depending on the perpetrator. Bell, Kuriloff, and Lottes (1994) found participants blamed victims of date rapes more than victims of stranger rapes. Frese et al. (2004) found participants blamed acquaintance rape victims the most, followed by marital rape and then stranger rape victims. Grubb and Harrower (2009) also found participants blamed seduction rape victims the most, followed by date, and then stranger rape victims. Finally, Sheldon-Keller et al. (1994) compared date rapes to friend rapes and found that participants blamed date rape victims less. Overall, these research studies seem to indicate that participants blame stranger rape victims the least. The type of crime and type of rape can therefore influence the amount of blame people attribute to the victim.

In summary, past research has studied how the attribution of victim blame is influenced by research participant characteristics, perpetrator characteristics, and victim characteristics, but almost no research has focused on blame attribution across different types of
crime and how the perceived severity of the crime alters the amount of blame attributed to both the victim and the perpetrator. The limited research on crime type has found that participants blame victims in less severe crimes more (Adams-Price et al., 2004; Brems & Wagner, 1994), but the only crime considered has been theft, a crime of property, not of person (like rape).

We investigated participant perceptions of crime severity as well as quantifiable attributions of blame to both perpetrator and victim by manipulating the type of crime presented (i.e., rape, murder, theft) and how close the perpetrator was to the victim of the crime (i.e., stranger, date, family member). We tested the following four hypotheses: (a) participants exposed to a crime of theft would rate this type of crime as being less serious than participants exposed to rape or murder crimes, (b) participants would blame perpetrators of more severe crimes more than perpetrators of less severe crimes, (c) participants would blame victims of less severe crimes more than they would blame victims of more severe crimes, and (d) as the degree of proximity of the perpetrator to the victim increased (from stranger to date to family member), participants would blame the victim more.

Method

Participants
The participants consisted of 180 undergraduate students at a small liberal arts college in the mid-Atlantic. There were 21% (n = 37) male and 79% (n = 143) female participants between the ages of 18–49, with a mean and median age of 21 and 20, respectively. The ethnicities of the participants were 81% (n = 145) Caucasian, 10% (n = 18) African-American, 5% (n = 9) Hispanic, and 4% (n = 8) Asian/Pacific Islanders. Almost 61% (n = 109) of the participants were residential students. Over 51% (n = 92) were single, 38% (n = 68) were in a relationship, 6% (n = 11) were engaged, 3% (n = 6) were married, 1% (n = 2) were cohabitating, and almost 1% (n = 1) were divorced. Only two participants (1%) had been convicted of a crime, and 26% (n = 46) of the participants had been the victim of a crime.

We recruited a convenience sample of participants from the communal areas or from classes on the college campus. Participants had to be at least 18 years of age and had to be undergraduate students of the college. They did not receive any reimbursement for their participation in the study.

Measures and Procedures
We handed out IRB-approved informed consent forms to all participants and instructed them to read and sign it before they could participate in the study. We then randomly assigned each participant to one of three experimental groups receiving packets with half-page vignettes to read describing three rapes, three murders, or three thefts. We distributed the packets in a double-blind manner and used a 3 x 3 Latin Square counter-balanced mixed factorial design. The vignettes were adopted, with permission, from Grubb and Harrower (2009). The three vignettes described a young woman who was raped, murdered, or stolen from by a stranger, her date, or her cousin in her college dormitory study lounge; all other details were kept constant. The young woman died by stabbing in the murder vignettes, and it was her purse that was stolen in the theft vignettes. In all three vignettes the young woman said “stop” when faced with the crime. After reading the three vignettes, participants answered three questions for each vignette in which they rated the seriousness of the crime, what type of sentence they would hand down to the perpetrator, and how well they believed the victim had prevented the crime from occurring in each of the three vignettes. They answered each question by marking an X along a 100mm graphic rating scale, ranging from “not at all” to “very” for the question about crime severity, “light” to “heavy” for the question about perpetrator sentencing, and “poorly” to “very well” for the question about victim crime prevention.

We also instructed participants to fill out a demographic questionnaire. When they returned the completed packet to us, we gave them a debriefing form and addressed any questions or concerns participants had.

Results

We used a metric ruler to determine where along the 100mm graphic rating scale participants had rated their questions and recorded that raw number (out of 100). We coded each of the nine survey questions in this manner. We reverse coded the victim crime prevention question in order to be consistent with the perpetrator blame attribution question (i.e., a score of 100 on each of the two questions would illustrate high perpetrator blame and high victim blame attribution).

We calculated three 3 x 3 mixed-design ANOVAs to examine the effects of the type of crime (rape, murder, theft) and the proximity of the perpetrator to the victim (stranger, date, family member) on severity of crime (Question 1), perpetrator blame (Question 2), and victim blame (Question 3). Main effects for crime type were significant across all three questions: crime severity, F(2, 177) = 131.67, p < 0.001, f = 1.22; perpetrator blame, F(2, 177) = 192.69, p < 0.001, f = 1.49; and victim blame, F(2, 177) = 14.73, p < 0.001, f = 0.40. See Table 1 for mean scores and standard deviations.

We used post-hoc LSD analyses to determine the nature of the differences among types of crime by sever-
ity of crime. These analyses revealed that participants rated rape and murder similarly and as significantly more serious (\(M = 94.18, SD = 7.91\); \(M = 93.69, SD = 8.94\), respectively) than theft (\(M = 58.43, SD = 24.35\)), both \(p < 0.001\). Post-hoc LSD analyses also determined the nature of the differences among types of crime by perpetrator blame and revealed that participants attributed similar blame to murderers (\(M = 93.57, SD = 8.71\)) and rapists (\(M = 90.58, SD = 11.14\)) and significantly more blame to murderers and rapists than they did to thieves (\(M = 50.39, SD = 22.59\)), both \(p < 0.001\). A last set of post-hoc LSD analyses determined the nature of the differences among types of crime by victim blame and indicated that participants attributed significantly different amounts of blame to victims of all three crimes, with victims of theft (\(M = 62.79, SD = 23.12\)) being blamed significantly more than victims of murder (\(M = 52.44, SD = 26.32\)), and victims of rape being blamed the least (\(M = 38.58, SD = 29.45\)): rape versus murder, \(p = 0.002\), rape versus theft, \(p < 0.001\), and murder versus theft, \(p = 0.022\).

Main effects for proximity of perpetrator to victim were also significant across all three questions: crime severity, \(F(2, 354) = 15.12, p < 0.001, f = 0.29\); perpetrator blame, \(F(2, 354) = 12.37, p < 0.001, f = 0.27\); victim blame, \(F(2, 354) = 15.38, p < 0.001, f = 0.28\). Nine corrected paired-sample \(t\) tests were calculated to compare the mean crime severity, perpetrator blame, and victim blame scores across perpetrator proximity. Statistically significant differences in mean crime severity ratings were found between stranger versus family member and date versus family member perpetrator: \(t(179) = 4.06, p < 0.001, \eta^2 = 0.08\), and \(t(179) = 3.54, p < 0.001, \eta^2 = 0.07\), respectively. Statistically significant differences in mean perpetrator blame attributions were also found between stranger versus family member and date versus family member perpetrator: \(t(179) = 3.84, p < 0.001, \eta^2 = 0.08\), and \(t(179) = 3.24, p < 0.001, \eta^2 = 0.06\), respectively. Finally, statistically significant differences in mean victim blame attributions were found as well between stranger versus family member and date versus family member perpetrator: \(t(179) = 4.91, p < 0.001, \eta^2 = 0.12\), and \(t(179) = 3.73, p < 0.001, \eta^2 = 0.07\), respectively. None of the stranger versus date comparisons was statistically significant across mean crime severity, perpetrator blame, or victim blame scores.

Significant Crime Type x Perpetrator Proximity interactions were present for the first two questions but a nonsignificant interaction was present for the third question: crime severity, \(F(4, 354) = 14.59, p < 0.001, f = 0.40\); perpetrator blame, \(F(4, 354) = 13.21, p < 0.001, f = 0.39\); and victim blame, \(F(4, 354) = 0.31, p = 0.87\).

### TABLE 1

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<th>Question</th>
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<td>8.03</td>
<td>93.37</td>
<td>9.79</td>
</tr>
<tr>
<td>Total</td>
<td>180</td>
<td>94.18</td>
<td>7.91</td>
<td>93.69</td>
<td>8.94</td>
</tr>
</tbody>
</table>

### Crime

|          |           |      | Rape \(M\) | Murder \(M\) | Theft \(M\) | Total \(M\) | Strangers | Total \(SD\) | Strangers | Total \(SD\) | Strangers | Total \(SD\) | Strangers | Total \(SD\) |
| Stranger | 60        | 90.23 | 10.47     | 93.80         | 7.83         | 56.18       | 22.43      | 80.07      | 22.61      | 54.63      | 28.79      | 51.65      | 27.64      |
| Date     | 60        | 90.48 | 11.95     | 93.62         | 7.83         | 52.93       | 21.39      | 79.01      | 23.70      | 51.65      | 27.64      | 47.53      | 27.98      |
| Family   | 60        | 91.03 | 11.01     | 93.28         | 10.48        | 42.05       | 23.95      | 75.46      | 28.76      | 75.46      | 28.76      | 75.46      | 28.76      |
| Total    | 180       | 90.58 | 11.14     | 93.57         | 8.71         | 50.39       | 22.59      | 78.18      | 25.02      | 78.18      | 25.02      | 78.18      | 25.02      |

### Perpetrator Blame

|          |           |      | Rape \(M\) | Murder \(M\) | Theft \(M\) | Total \(M\) | Strangers | Total \(SD\) | Strangers | Total \(SD\) | Strangers | Total \(SD\) | Strangers | Total \(SD\) |
| Stranger | 60        | 41.18 | 30.02     | 56.37         | 27.55        | 66.33       | 23.00      | 54.63      | 28.79      | 54.63      | 28.79      | 54.63      | 28.79      |
| Date     | 60        | 39.80 | 31.31     | 52.82         | 24.81        | 62.33       | 21.49      | 51.65      | 27.64      | 51.65      | 27.64      | 51.65      | 27.64      |
| Family   | 60        | 34.75 | 27.02     | 48.13         | 26.61        | 59.72       | 24.88      | 47.53      | 27.98      | 47.53      | 27.98      | 47.53      | 27.98      |
| Total    | 180       | 38.58 | 29.45     | 52.44         | 26.32        | 62.79       | 23.12      | 51.27      | 28.14      | 51.27      | 28.14      | 51.27      | 28.14      |
Although significant interactions typically qualify main effects, the two significant interactions in this study did not change the interpretation of the effects of crime type on crime severity ratings (see Figure 1) or on perpetrator blame ratings (see Figure 2).

**Discussion**

The purpose of this study was to investigate the effects of type of crime and perpetrator proximity to the victim on perceived crime severity, perpetrator blame, and victim blame attributions. The first hypothesis was that participants exposed to a crime of theft would rate this type of crime as being less serious than participants exposed to rape or murder crimes. This hypothesis was supported (see Figure 1). Participants regarded theft as a less serious crime than murder or rape and regarded murder and rape as being similar in severity. The second hypothesis was that participants would blame perpetrators of more severe crimes more than perpetrators of less severe crimes. This hypothesis was also supported (see Figure 2). Participants attributed similar blame to murderers and rapists and significantly more blame to murderers and rapists than they did to thieves. The third hypothesis was that participants would blame victims of less severe crimes more than they would blame victims of more severe crimes. The data also supported this hypothesis (see Table 1). Participants blamed victims of theft the most, followed by victims of murder, and then victims of rape, whom participants blamed the least. The fourth hypothesis was that as the degree of proximity of the perpetrator to the victim increased (from stranger to date to family member), participants would blame the victim more. This trend was not evident in any of the crime scenarios. Participants blamed victims less as the proximity to the perpetrator increased. They blamed the victim the most when the perpetrator was a stranger, followed by when the perpetrator was a date, and blamed the victim the least when the perpetrator was a family member. Overall, both the type of crime and degree of perpetrator proximity significantly affected crime severity, perpetrator blame, and victim blame attributions.

**FIGURE 1**

Results of a 3 x 3 mixed ANOVA interaction effect between type of crime and perpetrator proximity on crime severity rating.

**FIGURE 2**

Results of a 3 x 3 mixed ANOVA interaction effect between type of crime and perpetrator proximity on perpetrator blame rating.
Past research has mainly focused on crimes of rape and has not investigated other crimes, such as murder or theft, in depth. Brems and Wagner (1994) found that perpetrators were blamed more (and victims were blamed less) in rape cases than they were in theft crimes; our study confirmed their findings, suggesting that perpetrators receive harsher sentences for crimes that are physically damaging, such as rape, as opposed to crimes of property, such as theft. Greater blame and harsher sentences may be due to the fact that victims of more severe crimes are more likely to suffer worse side effects and elicit more sympathy from participants. Adams-Price et al. (2004), for example, found that older participants blamed victims more the less severe the outcome was. Many people regard murder as much more serious than rape because murder results in death. However, our findings suggest that murder and rape were viewed as similar in severity.

Additionally, these findings contradict literature regarding victim blame as a function of the identity of the perpetrator. Research about the type of rape on victim blame has shown that victims of stranger rape are blamed the least in comparison with victims of date or acquaintance rape (Bell et al., 1994; Frese et al., 2004; Grubb & Harrower, 2009; Sheldon-Keller et al., 1994). We were unable to confirm this finding. In the present study, participants blamed victims of rape, murder, and theft significantly more in stranger scenarios compared to date or family scenarios, suggesting that participants expect individuals to be more cautious when they are around strangers. The significant interaction effects, however, show that participants rated family rapes as most severe, most worthy of participant blame, and least worthy of victim blame. Past research has not focused much on crimes committed by family members, and individuals victimized by family members may be blamed less because one may not think it necessary to take precautions against family members as opposed to strangers. Date crimes are also a relatively new phenomenon that has not been researched extensively, especially in terms of crimes other than rape. Individuals with regular dating partners may also not think they need to protect themselves from dates (after all, they trust them enough to date them), so victims of date crimes may be blamed more for being perceived as trusting the perpetrator too much.

Our data do not seem to confirm or disconfirm Lerner and Simmons’s (1966) Just World theory in that there was a tendency for victim blame to increase when perpetrator blame was not very high. Rather than approach blame attribution from the perspective of crime severity, perhaps one should approach it from the perspective of a “calculus effect” in which victim blame increases when perpetrator blame is not high enough to “balance out.” When perpetrator blame is low or moderate, the “remaining” blame may still need to be attributed and the victim becomes the logical target. Future studies could try to assess this calculus effect by asking participants about the rationale behind their blame attributions of both perpetrators and victims.

The limitations of this study may have also contributed to the study’s findings. Two limitations, in particular, deserve mention here: a homogenous sample and a design that did not allow for a sensitive enough contrast effect. Past research has included participants of greater demographic diversity. The present study consisted mostly of traditional-age, female, Caucasian undergraduate students, whom the literature has found tend to attribute the least amount of blame to victims (Adams-Price et al., 2004; Grubb & Harrower, 2009; Jimenez & Abreu, 2003; Lee et al., 2005; Mitchell et al., 2009; Sheldon-Keller et al., 1994; Smith & Frieze, 2003; White & Robinson-Kurpius, 1999). In addition, although the Latin Square counterbalancing addressed order effects in the design, the great similarity among the three vignettes (altered only by crime type and perpetrator proximity) may have explained the similar ratings for rape and murder. It is unclear whether participants truly viewed rape and murder in the same light or whether their responses reflect a ceiling effect. One way to address this concern would be to replicate the study as a 3 x 3 between-subjects factorial design so that no participant reads more than one vignette. Bell et al. (1994), Grubb and Harrower (2009), and Sheldon-Keller et al. (1994) all used this design, which may also help explain why they all found that participants blamed stranger rape victims the least whereas we found the opposite.

The findings of this study have added to knowledge of how type of crime and perpetrator proximity affect crime severity, perpetrator blame, and victim blame attributions. Because participants rated rape and murder as equally serious, rape education and prevention need to be utilized more, and stricter laws need to be developed to reflect this seriousness. The findings of this study also raise many questions for future research. For instance, research focused on victim characteristics could investigate whether participants attribute more or less blame to individuals who have been a victim of numerous crimes, as well as whether they blame children, adults, or elderly in a similar manner, depending on whether participants view them as being more helpless or unaware of potentially dangerous situations. When looking at perpetrator characteristics, research could address why participants attribute less blame to victims of family perpetrators compared to victims of stranger perpetrators, and why rapes by family members are viewed as more severe and perpetrator blameworthy.
than are other crimes or than are rapes by strangers or dates. Additionally, future research needs to expand the role that different crime types (e.g., assault, carjacking, arson) play in blame attribution, as well as the role that different types of perpetrators, such as friends, college roommates, first dates versus long-term dating partners, and especially spouses, play in blame attribution, given its potential impact on public policy regarding domestic abuse.

References


Reviewers for Volume 15

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#Psi Chi Awards and Grants

<table>
<thead>
<tr>
<th>Name of Award or Grant</th>
<th>Submission Deadline</th>
<th>Who Can Apply?</th>
<th>Award/Grant Amount</th>
<th>Brief Description</th>
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<tbody>
<tr>
<td>SuperLab Research Grants</td>
<td>October 1</td>
<td>Graduate, Undergraduate</td>
<td>SuperLab software, Response pad</td>
<td>Two awards for conducting the best computer-based research.</td>
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<tr>
<td>Thelma Hunt Research Grants</td>
<td>October 1</td>
<td>Faculty, Graduate, Undergraduate</td>
<td>Three grants, $3,000 each</td>
<td>Enables members to complete empirical research on a question directly related to Psi Chi.</td>
</tr>
<tr>
<td>Undergraduate Psychology Research Conference Grants</td>
<td>October 1</td>
<td>Sponsor(s) of local and regional conference</td>
<td>Up to $1,000 each (number varies)</td>
<td>Funding to defray cost of sponsoring local/regional undergraduate psychology conferences. Total grant money available is $15,000.</td>
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<tr>
<td>Graduate Research Grants</td>
<td>November 1</td>
<td>Graduate</td>
<td>Up to $1,500 each (number varies)</td>
<td>Funding to defray the cost of conducting a research project. Total grant money available is $20,000.</td>
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<tr>
<td>Undergraduate Research Grants</td>
<td>November 1</td>
<td>Undergraduate</td>
<td>Up to $1,500 each (number varies)</td>
<td>Funding to defray the cost of conducting a research project. Total grant money available is $35,000.</td>
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<tr>
<td>Regional Research Awards</td>
<td>Deadlines Vary, Fall/Winter</td>
<td>Graduate, Undergraduate</td>
<td>$300 each (number varies)</td>
<td>Up to 78 awards presented for the best research papers submitted as Psi Chi posters for the regional conventions.</td>
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<tr>
<td>Denmark Faculty Advisor Award</td>
<td>December 1</td>
<td>Faculty Advisor (chapter nomination)</td>
<td>Travel expense to APA + Plaque</td>
<td>To one outstanding faculty advisor who best achieves Psi Chi’s purpose. Chapter nominates.</td>
</tr>
<tr>
<td>Society Annual Convention Research Awards</td>
<td>December 1</td>
<td>Graduate, Undergraduate</td>
<td>$500 graduate + $300 undergraduate</td>
<td>Up to 16 awards (8 grad, 8 undergrad) presented for the best research papers submitted for APA/APS conventions.</td>
</tr>
<tr>
<td>Regional Chapter Awards</td>
<td>December 1</td>
<td>Chapter</td>
<td>Twelve $500 awards + Plaque</td>
<td>Presented to two chapters in each of six regions that best achieve Psi Chi’s purpose.</td>
</tr>
<tr>
<td>Regional Faculty Advisor Awards</td>
<td>December 1</td>
<td>Faculty Advisor (chapter nomination)</td>
<td>Six $500 awards + Plaque</td>
<td>To six outstanding faculty advisors (one per region) who best achieve Psi Chi’s purpose.</td>
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<tr>
<td>FBI NCAVC Internship Grants</td>
<td>February 1 to June 1</td>
<td>Graduate, Undergraduate</td>
<td>Travel expense to APS + Plaque + 3yr APS Membership</td>
<td>14-week unpaid FBI NCAVC internship to conduct research; grant covers living expenses.</td>
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<td>Bandura Graduate Research Award</td>
<td>February 1</td>
<td>Graduate</td>
<td>Travel expense to APS + Plaque + 3yr APS Membership</td>
<td>Student submitting best overall empirical study. Cosponsored by APS.</td>
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<tr>
<td>Cousins Chapter Award</td>
<td>February 1</td>
<td>Chapter</td>
<td>One $3,500 award + Travel to APA + Plaque</td>
<td>Presented to one chapter that best achieves Psi Chi’s purpose.</td>
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<td>Newman Graduate Research Award</td>
<td>February 1</td>
<td>Graduate</td>
<td>Travel expense to APA + Plaque + 3yr journal subscription</td>
<td>Student submitting best overall empirical study. Cosponsored by APA.</td>
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<tr>
<td>Website Awards</td>
<td>February 1</td>
<td>Chapter</td>
<td>Three $200 awards</td>
<td>Presented to chapters with websites that are innovative, aesthetic, and useful, and that advance Psi Chi’s purpose.</td>
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<td>APS Summer Research Grants</td>
<td>March 1</td>
<td>Undergraduate</td>
<td>Six $5,000 grants ($3,500/student + $1,500/sponsor)</td>
<td>Provides opportunities to conduct research during the summer with sponsors who are APS members.</td>
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<tr>
<td>CUR Summer Research Grants</td>
<td>March 1</td>
<td>Undergraduate</td>
<td>Two $5,000 grants ($3,500/student + $1,500/sponsor)</td>
<td>Provides opportunities to conduct research during the summer with sponsors who are CUR members.</td>
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<tr>
<td>SRCD Summer Research Grants</td>
<td>March 1</td>
<td>Undergraduate</td>
<td>Two $5,000 grants ($3,500/student + $1,500/sponsor)</td>
<td>Provides opportunities to conduct research during the summer with sponsors who are SRCD members.</td>
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<tr>
<td>Summer Research Grants</td>
<td>March 1</td>
<td>Undergraduate</td>
<td>Fourteen $5,000 grants ($3,500/student + $1,500/sponsor)</td>
<td>Provides opportunities to conduct research during the summer at recognized research institutions.</td>
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<tr>
<td>Kay Wilson Leadership Award</td>
<td>April 1</td>
<td>Chapter President (chapter nomination)</td>
<td>One $500 award + Travel to APA + Plaque</td>
<td>Award to one chapter president who demonstrates excellence in the leadership of the local chapter.</td>
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<td>Guilford Undergraduate Research Awards</td>
<td>May 1</td>
<td>Undergraduate</td>
<td>1st place—$1,000, 2nd place—$650, 3rd place—$350</td>
<td>Awards for the best overall empirical study submitted.</td>
</tr>
<tr>
<td>Faculty Advisor Research Grants</td>
<td>June 1</td>
<td>Faculty Advisor</td>
<td>Twelve $2,000 grants</td>
<td>Awards for two faculty advisors per region to conduct empirical research.</td>
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<td>STP Assessment Resource Grant</td>
<td>June 1</td>
<td>Psi Chi Faculty Member</td>
<td>Three $2,000 grants</td>
<td>Supports projects to develop assessment tests, instruments, and processes.</td>
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<tr>
<td>Model Chapter Awards</td>
<td>June 30</td>
<td>Chapters</td>
<td>$100 each chapter</td>
<td>All chapters meeting the five criteria will receive $100.</td>
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</table>

Awards and grants are submitted online at the Psi Chi website at [www.psichi.org](http://www.psichi.org)
Chapter and Advisor Awards

Denmark Award | Dec 1
The Psi Chi/Florence L. Denmark Faculty Advisor Award is presented annually to the one Psi Chi faculty advisor who best achieves Psi Chi’s purpose. The award includes (1) travel expenses to attend the APA/Psi Chi Society Annual Convention to receive the award and (2) an engraved plaque. The award is intended to recognize Psi Chi faculty advisors for their outstanding service to the chapter and to Psi Chi.

Regional Chapter Awards | Dec 1
The Psi Chi Regional Chapter Awards provide annual recognition for up to two chapters in each region that best achieve Psi Chi’s purpose. Each winning chapter receives a check for $500 and a plaque to display in the winning chapter’s department. The awards are intended to perpetuate the chapters, to identify chapters as role models for others, and to promote the purposes of Psi Chi.

Regional Faculty Advisor Awards | Dec 1
This award is presented annually to one Psi Chi faculty advisor from each region who best achieves Psi Chi’s purpose. The award is to recognize and reward actively involved chapter advisors. The winning faculty advisor from each region will receive $500 and a plaque.

Cousins Award | Feb 1
The Psi Chi/Ruth Hubbard Cousins Chapter Award is presented annually to the one chapter that best achieves Psi Chi’s purpose. The winning chapter receives: (1) a check for $3,500, (2) travel expenses for one chapter officer to attend the APA/Psi Chi Society Annual Convention to receive the award, and (3) a plaque to display in the winning chapter’s department.

Website Awards | Feb 1
These awards are presented annually to three chapters with websites that are innovative, aesthetic, and useful, and that advance or support Psi Chi’s purpose. Winning chapters will receive awards of $200 each.

Kay Wilson Leadership Award | April 1
The Psi Chi/Kay Wilson Leadership Award for Outstanding Chapter Presidents is presented annually to the one chapter president who demonstrates excellence in leadership of the local chapter. The winning Psi Chi chapter officer receives: (1) a $500 cash award, (2) travel expenses for one chapter president to attend and make a short presentation at the APA/Psi Chi Society Annual Convention to receive the award, and (3) an engraved plaque commemorating the award.

Model Chapter Awards | June 30
Model Chapter Awards of $100 each are presented annually to recognize and reward Psi Chi chapters that consistently maintain outstanding records of membership inductions, chapter correspondence, service projects, and other criteria associated with being an outstanding chapter. All chapters submitting evidence of meeting these criteria are designated as winners.

Research Awards

Regional Research Awards | Deadlines Vary
All Psi Chi members (undergraduate and graduate) are eligible to submit their research for the Regional Research Awards. Cash awards of $300 each are presented to students submitting the best research papers to Psi Chi sessions at regional conventions. The number of awards in each region varies based on the size of the region; a total of 78 awards of $300 each are available for the academic year. Award monies are distributed at the conventions following the presentations. Deadlines for submissions vary according to region and sometimes from year to year; check the Psi Chi website for details.

Society Annual Convention Research Awards | Dec 1
All Psi Chi members (undergraduate and graduate) are eligible to submit their research for the Society Annual Convention Research Awards. Cash awards of $300 for undergraduates and $500 for graduates are presented to students submitting the best research for Psi Chi sessions at the APA and APS national conventions. Up to 16 awards are given: 8 for the APA Convention and 8 for the APS Convention. Award monies are distributed at the conventions following the presentations.

Bandura Award | Feb 1
All psychology graduate students who are Psi Chi members and graduate student affiliates of the Association for Psychological Science (APS) are eligible to submit their research for the Psi Chi/APS Albert Bandura Graduate Research Award. The winner receives the following: (1) travel expenses to attend the APS National Convention to receive the award, (2) a three-year membership in APS, including subscriptions to all APS journals, and (3) two engraved plaques, one for the winner and one for the winner’s psychology department as a permanent honor to the winner. In addition, the abstract of the winning paper, as well as a photograph and brief biography of the winner, are published in Eye on Psi Chi. This award is presented during the APS opening ceremony at the APS National Convention.

Newman Award | Feb 1
All psychology graduate students are eligible to submit their research for the APA/Psi Chi Society Annual Edwin B. Newman Graduate Research Award. The winner receives the following: (1) travel expenses to attend the APA/Psi Chi Society Convention to receive the award, (2) a three-year subscription to an APA journal of the winner’s choice, and (3) two engraved plaques, one for the winner and one for the winner’s psychology department as a permanent honor to the winner. In addition, the abstract of the winning paper, as well as a photograph, and brief biography of the winner, are published in Eye on Psi Chi. This award is presented during the APA/APF Awards ceremony at the annual APA/Psi Chi Society Convention in August.

Allyn & Bacon Awards | May 1
The Psi Chi/Allyn & Bacon Psychology Awards, cosponsored by Allyn & Bacon Publishers, are open to all undergraduatePsi Chi members and are awarded to those who submit the best overall empirical research papers. The awards are $1,000 for first place, $650 for second place, and $350 for third place. The abstracts of the winning papers, as well as photographs and brief biographies of the top three winners, are published in Eye on Psi Chi.

Guilford Awards | May 1
All Psi Chi undergraduate members are eligible to submit their research for the Psi Chi/L. P. Guilford Undergraduate Research Awards. Cash awards are $1,000 for first place, $650 for second place, and $350 for third place. The abstracts of the winning papers, as well as photographs and brief biographies of the top three winners, are published in Eye on Psi Chi.
Research Grants

Hunt Research Grants | Oct 1
All Psi Chi student and faculty members are eligible to apply for a Thelma Hunt Research Grant. Up to three grants of up to $3,000 each are presented annually to enable members to complete empirical research that addresses a question directly related to Psi Chi. Unlike other Psi Chi award/grant programs, the Hunt Grants focus on research directly related to the mission of Psi Chi.

SuperLab Research Grants | Oct 1
All undergraduate and graduate Psi Chi members are eligible to apply for these research grants. The purpose of this program is to provide annual grants to aid one undergraduate and one graduate student in conducting computer-based research. Grant winners receive a copy of SuperLab experimental lab software and a response pad from Cedrus®.

Undergraduate Psychology Research Conference Grants | Oct 1
The purpose of this program is to provide funds for local/regional undergraduate psychology research conferences. Funding is intended for conferences that will invite student research presenters from at least three schools in the area and will notify all Psi Chi chapters in the geographic area of the conference. The maximum grant for each conference is $1,000.

Graduate Research Grants | Nov 1 & Feb 1
All graduate Psi Chi members are eligible to apply for these graduate research grants. The purpose of this program is to provide funds for members to defray the cost of conducting a research project. Applicants may request up to $1,500 for each project. A total of $20,000 has been allotted for this student grant program.

Undergraduate Research Grants | Nov 1 & Feb 1
All undergraduate Psi Chi members are eligible to apply for these undergraduate research grants. The purpose of this program is to provide funds for members to defray the cost of conducting a research project. Applicants may request up to $1,500 for each project. A total of $35,000 has been allotted for this student grant program.

FBI NCAVC Internship Grants | Feb 1 & June 1
All undergraduate and graduate Psi Chi members who are accepted as FBI NCAVC interns are eligible to apply for this internship grant. The purpose of this program is to provide annual grants to aid two Psi Chi members in conducting research at the FBI NCAVC. Two grants up to $7,000 will be awarded annually for the 14-week unpaid position.

APS Summer Research Grants | March 1
All undergraduate Psi Chi members are eligible to apply for these grants (research must be conducted while still an undergraduate, not after graduation). The purpose of the program is to allow students to conduct research during the summer with a faculty sponsor who is a member of APS. This allows the student to partner with a faculty mentor who shares the same research interests and may work at a different institution than the student attends. Psi Chi awards six $5,000 grants (a stipend of $3,500 to the student plus $1,500 to the faculty sponsor).

CUR Summer Research Grants | March 1
All undergraduate Psi Chi members are eligible to apply for these grants (research must be conducted while still an undergraduate, not after graduation). The purpose of the program is to allow students to conduct research during the summer with a faculty sponsor who is a member of the Council of Undergraduate Research (CUR). This allows the student to partner with a faculty mentor who shares the same research interests and may work at a different institution than the student attends. Psi Chi awards two $5,000 grants (a stipend of $3,500 to the student plus $1,500 to the faculty sponsor).

SRCD Research Grants | March 1
All undergraduate Psi Chi members are eligible to apply for these grants (research must be conducted while still an undergraduate, not after graduation). The purpose of the program is to allow students to conduct research during the summer with a faculty sponsor who is a member of the Society for Research in Child Development (SRCD). This allows the student to partner with a faculty mentor who shares the same research interests and may work at a different institution than the student attends. Psi Chi awards two $5,000 grants (a stipend of $3,500 to the student plus $1,500 to the faculty sponsor).

Summer Research Grants | March 1
All undergraduate Psi Chi members are eligible to apply for these summer research grants (research must be conducted while still an undergraduate, not after graduation). The purpose of this program is to provide funds for members to conduct summer research at recognized research institutions. Psi Chi will award 14 grants of $5,000 (a stipend of $3,500 to the Psi Chi student plus $1,500 to the sponsoring faculty member at the research institution each year).

Faculty Advisor Research Grants | June 1
All current faculty advisors and coadvisors who have served an active Psi Chi chapter for at least one year are eligible to apply for these faculty advisor research grants. The purpose of this program is to provide funds for advisors to defray the direct costs of conducting a research project (no stipends included). Two grants will be awarded annually within each of Psi Chi's six regions, for a total of 12 grants. The maximum amount of each grant will be $2,000.

STP Assessment Resource Grant | June 1
All Psi Chi faculty members are eligible for these grants which support projects to develop assessment tests, instruments, and processes. Psi Chi will award three $2,000 grants.