Passionate Love and Anxiety in Young Adolescents[1]

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Two studies tested the hypothesis that young adolescents who experience a great deal of anxiety will be more likely to experience passionate love as well. In the first study, 24 boys and 17 girls, ranging in age from 12 to 14, were given the Child Anxiety Scale (which measures trait anxiety) and the Juvenile Love Scale (JLS). In the second study, 32 adolescent girls and 32 adolescent boys, ranging in age from 13 to 16, were given the State-Trait Anxiety Inventory for Children (which measures both trait and state anxiety) and the JLS. The studies found significant correlations between anxiety (both state and trait) and JLS scores in these young adolescents.

Hatfield and Walster (1978) define passionate love as "A state of intense longing for union with another. Reciprocated love (union with the other) is associated with fulfillment and ecstacy. Unrequited love (separation) with emptiness; with anxiety or despair. It is a state of profound physiological arousal" (p. 9). The Juvenile Love Scale (JLS) and the Passionate Love Scale (PLS) are designed to tap the cognitive, physiological, and behavioral indicants of "longing for union" in children and adults.

The Genesis of Passionate Love

We assume that the ability to love passionately is "prewired" into humans as part of their evolutionary heritage. Bowlby (1969, 1973, 1990)

contends that human infants are genetically predisposed to form deep, passionate bonds with their mothers. Ainsworth, Bleher, Waters, and Wall (1978) observe that different patterns of parent–child interaction seem to produce very different attachment styles in children — securely attached, anxious/ambivalent, or avoidant styles of intimacy. Recently, Hazan and Shaver (1987) have proposed that romantic love should be conceived of as an attachment process and that people's early patterns of attachment should influence their adult attachments. For example, a securely attached child would become a secure adult who experiences love as pleasurable, trusting, and enduring; an anxious/ambivalent child would become an anxious/ambivalent adult who falls in love easily and fleetingly, but who experiences love as an "almost painfully exciting struggle to merge with another person" (p. 513); and the avoidant child would become an avoidant adult who lacks trust and fears intimacy.

How early do people begin to experience passionate love? What factors increase the susceptibility of infants, children, and adolescents to passionate love? (Are some *types of people* more prone to love than others? Are people *in some situations* especially susceptible to passionate love?) Regarding the first question, psychologists have accumulated considerable evidence that even very young children are capable of passionate love (Bell, 1902; Hatfield, Schmitz, Cornelius, & Rapson, 1988). Regarding the second, the theorists we have reviewed — Bowlby (1969, 1973, 1990), Ainsworth et al. (1978), Hatfield (1965, 1971a and 1971b) and Hazan and Shaver (1987) — have proposed one variable that should increase children's, adolescents', and adults' susceptibility to love — *anxiety.*

Traditional social psychologists would also expect fear or anxiety to be associated with the desire for affiliation with others. Schachter (1959) proposed that fearful people might desire to affiliate with others (in situations similar to their own) for a variety of reasons: (1) *escape* (perhaps the others will be able to figure out how to escape from their unappealing situation); (1) *cognitive clarity* (perhaps the others will help the person understand an otherwise incomprehensible event); (3) *direct anxiety reduction* (perhaps others will provide comfort and reassurance); (4) *indirect anxiety reduction* (perhaps others will take one's mind off one's troubles); (5) *self-evaluation* (perhaps others will help one evaluate the reasonableness of one's own emotions and feelings). On the basis of the preceding logic, in Study 1 we proposed that young adolescents who habitually experience a great deal of anxiety (or who are placed in an anxiety-provoking situation) should be more likely to fall passionately in love than should their peers.

STUDY 1

Method

Subjects

Subjects were 24 boys and 17 girls, ranging in age from 12 to 14. Their average age was 12.4 years (boys $\bar{M} = 12.5$; girls $\bar{M} = 12.3$). Children were randomly selected from the seventh grade of Our Redeemer, a Lutheran elementary school in Honolulu, Hawaii. Thirteen children were Caucasian, 6 were Chinese, 14 of Japanese, 1 of Korean, and 7 of mixed ancestry. Such a distribution is typical of Hawaii's multiethnic setting.

Procedure

Materials

The Child Anxiety Scale (CAS) was developed to measure the stable personality pattern (or trait) of anxiety in young children. The CAS is designed to be easy to administer, brief (it takes a child about 15 min to complete it), and easy to score. The test includes questions such as "Are you a good or a bad child?" "Are you happy or sad?"

Gillis (1980) and Gillis and Cattell (1979) provide information on the development, reliability, and validity of this scale. There is some evidence that the CAS is a reliable measure. For example, in one study of children in grades 1 through 3, Gillis (1980) found Pearson product moment reliability coefficients ranging from .82 to .92 in immediate test–retests on the CAS. In a study of 343 students in grades K through 5, a Kuder–Richardson 20 coefficient of .73 was found. Correlations of each item with the total scale score (after correcting for inclusion of item variance in the total score), ranged form .14 to .45 (Guilford, 1965, p. 350).

Gillis (1980) also provides evidence that the CAS possesses both construct and predictive validity. For example, Krug, Scheier, and Cattell's (1976) IPAT Anxiety Scale is a standard measure of anxiety. (The IPAT Anxiety Scale was devised by utilizing the responses of 10,000 subjects in 14 factor-analytic studies). In one study, researchers secured congruence coefficients between the Krug et al. (1976) factor patterns and the CAS factor patterns of .81; in a second sample, congruence coefficients were .74. Other authors have found that children who score high on the CAS tend to suffer more when parents divorce or move from one community to another (Gillis, 1980).

Table I. The Juvenile Love Scale

1. I feel like things would always be sad and gloomy if I had to live without
   _____ forever.
2. Did you ever keep thinking about _____ when you wanted to stop and
   couldn't.
3. I feel happy when I am doing something to make _____ happy.
4. I would rather be with _____ than anybody else.
5. I'd feel bad if I thought _____ liked somebody else better than me.
6. I want to know all I can about _____ .
7. I'd like _____ to belong to me in every way.
8. I'd like it a lot if _____ played with me all the time.
9. If I could, when I grow up I'd like to marry (live with) _____ .
10. When _____ hugs me my body feels warm all over.
11. I am always thinking about _____ .
12. I want _____ to know me, what I am thinking, what scares me, what I
    am wishing for.
13. I look at _____ a lot to see if he (she) likes me.
14. When _____ is around I really want to touch him (her) and be touched.
15. When I think _____ might be mad at me, I feel really sad.

Possible answers range from:

1	2	3	4	5	6	7	8	9
Agree very little								Agree very much

The Juvenile Love Scale (like the Passionate Love Scale on which it is based) is designed to tap the cognitive, physiological, and behavioral indicants of "longing for union" in children and young adults. The 15 JLS questions are reproduced in Table I.

Greenwell (1983) provides statistical evidence that both the PLS (for adults) and the JLS (for children) are unidimensional and reliable and produce comparable results when taken by children or adults. She argues that the JLS and PLS measure a single entity — passionate love. A pricipal-components factor analysis revealed that one major factor accounts for most of the variance in JLS and PLS scores. In various samples, the first factor accounted for between 38% and 53% of the variance (see Greenwell, 1983, for tables of eigenvalues). Greenwell also contends that both scales are internally consistent and reliable. In various samples, coefficient alphas were found to range from .94 to .98. Children (under 13) and adolescents receive virtually identical scores on the two scales. (In various populations, JLS and PLS scores were found to correlate .88 for children and .87 for adults.) These correlations are not surprising since the scales were designed to be identical, differing only in the difficulty of their language. Greenwell also provides evidence that both scales reflect a real world experience called "being in love." For example, she asked children and adolescents to

describe their feelings for a person whom they currently loved, had loved in the past, or (if they had never been in love), who was as close as they had come to being in love. She found that children who had experienced passion scored significantly higher on both the JLS and the PLS than did those who had never been in love.

Several other authors provide additional information as to the reliability and validity of the JLS and PLS. For example, Hatfield and Sprecher (1986) conducted three studies to determine whether the PLS is a reliable and valid measure. They found that the PLS is *unidimensional.* [Subjects' responses to the PLS were subjected to principal factoring with multiple correlations used as communality estimates. After rotation, one major factor explained 70% of the variance (eigenvalue $=$ 12.24).] They also found that the PLS is *reliable.* (Coefficient alpha, a measure of internal consistency, was 0.94). They also found that the PLS is *uncontaminated by a social desirability bias.* [The correlation between the PLS and the Social Desirability Scale was nonsignificant ($r = .09$).] Finally, they found that the PLS *correlated with other indicants of love and intimacy.* (Evidence of its construct validity comes from the finding that the PLS correlated with Rubin's (1970) Love" and "Liking" scales and with measures of commitment, satisfaction with the overall relationship, and satisfaction with the sexual aspect of the relationship. Furthermore, evidence of its discriminant validity comes from the fact that the PLS was more highly correlated with those variables that are most closely related conceptually to the construct of passionate love. For example, it was correlated more highly with a one-item measure of passionate love than with a one-item measure of companionate love levels. It was more correlated with Rubin's "Love" scale than with his "Liking" scale levels. Although actual behaviors were not measured in this study, behavioral intentions or desires were. As would be predicted, respondents high in PLS desired to be with, to be held by, to kiss, and to engage in other intimate behaviors with their partners to a greater extent than did their peers. They were more likely to get sexually excited just thinking about their partners.) (For additional information on the reliability and validity of the JLS and PLS, see Easton, 1985; Fisher, 1980; Hatfield et al., 1988; Sprecher & Metts, 1989; or Sullivan, 1985).

Assessing Anxiety. On day 1, the teacher and an assistant administered the Gillis (1980) CAS during a regular class period. Children used their first names to identify their questionnaires. They were assured their replies would be confidential. This promise was kept. The teacher began the session with a brief introduction. Then she asked the children the 20 questions which comprise the CAS. Children indicated their answers by making an *X* on either a red circle (if they agreed with the first possibility) or a blue circle (if they agreed with the second). Possible raw scores on the CAS

range from 0 to 20. (The higher the score, the more anxious a child is said to be.)

Assessing Passionate Love. The next step was to assess children's susceptibility to passionate love. Thus 2 days after the CAS was administered, nine interviewers interviewed the children individually in small private rooms. They began by chatting with the children for 5 min to establish rapport. Then they asked them to complete a questionnaire, which included some questions about their backgrounds and the JLS.

Background Information. Subjects were asked to indicate their first name, age, gender, grade in school, and ethnicity.

The Juvenile Love Scale. The JLS began with an explanation:

> We are interested in what you can tell us about two kinds of love — passionate love and companionate love. Sometimes, teenagers say things like "I *love* you, but I don't *like* you" or "I love you, but I'm not in love with you." What they are really talking about is the difference between passionate love and companionate love Passionate love is a powerful emotion: some common terms for this feeling are infatuation, love-sickness, obsessive love, having a "crush" on someone, or being "crazy" about someone. Companionate love is a more low-key feeling. It involves feelings of deep attachment and friendship. Let's talk first about passionate love.

Subjects were then asked if they could have anyone in the world as a boyfriend or girlfriend, whom they would pick. (All of the children chose someone of the opposite sex as the person they cared most about.) Then they were asked to complete the JLS. Students indicated their answers on a scale ranging from 1 (agree very little) to 9 (agree very much). Items were summed to form a total score. Possible JLS scores range from 0 to 135.

Results

We hypothesized that the more anxious children were (as assessed by the CAS) the higher their JLS scores would be. Of course, other factors — such as the subjects' age and gender — might be related to JLS scores as well.

Thus, in order to construct the best multivariate model for predicting passionate love, a multiple-regression analysis was used to explore the relationships between anxiety, gender, and age, and JLS scores. When the raw scores of these predictor variables are considered simultaneously, the multiple R is .27, $F(3, 37) = 4.57$, $p < .01$. As shown in Table II, anxiety (CAS) scores were significantly related to the JLS score ($F(1, 37) = 10.41$, $p < .01$). Neither gender nor age were related to JLS scores.

Table II. Multiple-Regression Analysis of Passionate Love (JLS) on Predictor Variables Related to Pasisonate Love and Pearson Correlations Between JLS and Predictor Variables

Predictor variables	Multiple Regression				
	B	Beta	SEB	F	p
Anxiety (CAS)	3.07	.460	.142	10.41	.003
Age	5.97	.152	.144	1.10	.301 n.s.
Gender	−6.18	−.143	.143	1.00	.324 n.s.

Multiple $R = .270$, $F (3, 37) = 4.57$, $p < .01$**

Predictor variables	Pearson correlation	
	r	p
Anxiety (CAS)	.49	.001
Age	.19.	.232 n.s.
Gender	−.13	.417 n.s.

Pearson product-moment correlations were used to analyze the significance of the relationship between the predictor variables (anxiety, age, and gender) and the criterion variable JLS. As predicted, only anxiety had a significant positive relationship with passionate love $(r = .49, p < .001)$. (Again, see Table II.) Further analyses revealed that neither the correlation between age and anxiety nor the correlation between gender and anxiety was significant $(r = .14, p < .36$ and $r = −.03, p < .84$, respectively).

As can be seen in Table III, analysis of variance (ANOVA) procedures were used to determine whether gender, age, and anxiety scores were related to JLS scores. Results indicate that anxiety did have a significant main effect on JLS scores $(F (2, 35) = 6.07, p < .001)$. However, the main effect for gender was not significant $(F (1, 35) = .82, p < .37)$, and there was no significant interaction effect between anxiety and gender $(F (2, 35) = .35, p < .71)$. The main effect for age was not significant $(F (2, 34) = .97, p < .39$, and there was no significant interaction effect between age and anxiety $(F (2, 34) = 1.16, p < .33)$. None of the other interaction effects even approached significance.

Because we were primarily interested in exploring the link between anxiety and passionate love, each subject was assigned to one of three groups on the basis of his or her CAS score. Those scoring from 0 to 6 were classified as low in anxiety; those scoring from 7 to 12 as medium in anxiety; and those scoring from 13 to 20 as high in anxiety. The means and standard deviations for the CAS and JLS scores by gender and level of anxiety are also presented in Table III.

Table III. Means for Anxiety (CAS) and Passionate Love (JLS) by Gender and Level of Anxiety

	N	CAS Mean	SD	JLS Mean	SD
		Girls			
Anxiety level		(Range 3–14)		(Range 68–133)	
High	1	11.00	—	113.00	—
Medium	13	9.62	1.45	103.38	20.95
Low	3	4.00	1.73	82.00	17.35
All Girls	17	8.88	2.91	99.53	20.90
		Boys			
Anxiety level		(Range 1–15)		(Range 45–125)	
High	3	14.00	1.00	111.00	16.64
Medium	15	9.53	1.30	96.93	15.94
Low	6	3.83	1.72	76.83	30.11
All boys	24	8.67	3.47	93.92	22.08
Total	41	8 .76	3.22	96.24	21.51

ANOVA Summary Effect	df	F	p
Anxiety	2	6.07	.001
Gender	1	.82	.370 n.s.
Anxiety × Gender	2	.35	.710 n.s.
Overall F	(5, 35)	2.73	.03

Separate analyses of variance procedures were conducted to examine the effect of gender on JLS scores by level of anxiety (high, medium, low). Results (Table III) indicate that gender was not significantly related to JLS scores when compared by level of anxiety: high anxiety $(F (1, 2) = .22, p < .69$, medium anxiety $(F (1, 28) = .13, p < .72)$, and low anxiety $(F (1, 5) = 1.00, p < .67)$. Thus, there were no significant differences between mean PLS scores for boys and girls reporting similar levels of anxiety.

The data from Study 1, then, provide some correlational evidence that our hypothesis may be correct: that *habitually* anxious adolescents may also secure unusually high JLS scores. Of course, these data are correlational. Since, correlation tells us nothing about causation, a critic could argue that our results do not indicate that anxious adolescents are especially susceptible to falling in love; rather, they may demonstrate that when people are passionately in love, they are more prone to be

anxious. (It is also true that the data involve only self reports and that, therefore, they may simply reflect difference between the groups in willingness to admit to feeling anxiety or to being in love.) This interpretation of our correlational data is, of course possible, but it did not seem to be compelling.

So far, we have focused on the relationship between children's and adolescents' trait anxiety and passionate love. What relationship would one expect between state anxiety and passionate love? In part, that might depend on how long children are in a stressful situation. If children experience a momentary increase in state anxiety, they might not have the time it takes to select a boyfriend or girlfriend, to begin to fantasize about a passionate encounter, to feel passionate arousal, or to behave passionately. With a bit of time, however, the link between state anxiety and PLS scores could become clearer. Thus, we predicted that both trait and state anxiety might be correlated with subjects' JLS scores. Which should be most powerfully related to passionate love — trait or state anxiety? That, of course, should depend on the context. In a situation such as ours, in which children's personalities were free to vary but the situation was held more or less constant (children were interviewed in a relaxed, low-anxiety setting), trait anxiety may well appear to be relatively more important. If the same interviews occurred in an experimental setting in which anxiety systematically varied (from extremely high to extremely low), state anxiety should appear to be relatively more important.

Study 2 was designed to replicate Study 1, with a different population and a different measure of anxiety. In addition, it attempted to determine if both trait and state anxiety seemed to have a positive relationship to passionate love.

STUDY 2

In Study 2, we attempted to determine the relationship of trait and state anxiety [as assessed by The State and Trait Anxiety Inventory for Children (Spielberger, Gorsuch, & Lushene, 1970)] to passionate love (as measured by the JLS).

Method

Subjects were 32 girls and 32 boys, ranging in age from 13 to 16 (the average age of both boys and girls was 14.5). They were selected from 10

intermediate and high schools in Honolulu, Hawaii. One was American Indian, 3 were Black, 17 were Caucasian, 7 were Chinese, 1 was East Indian, 2 were Hawaiian, 13 were Japanese, 4 were Korean, 1 was Mexican, 2 were Portuguese, 1 was Thai, and 10 were of mixed ancestry. Subjects were interviewed individually and assured of confidentiality. Again, this promise was kept.

Measuring Anxiety

This time, the State–Trait Anxiety Inventory for Children (STAIC) was used to measure anxiety. Spielberger (1972) defines anxiety as an unpleasant emotional state characterized by "feelings of tension, apprehension, and heightened autonomic nervous system responses such as sweating, heart palpitation, restlessness, and respiratory disturbance (p. 3). Presumably, people experience two kinds of anxiety — state anxiety (a transitory emotional state) and trait anxiety (a relatively enduring emotion).

Although the STAIC is generally used to measure anxiety in 9 to 12-year-old children, it was selected to measure anxiety in our subjects, since pretesting indicated it was more appropriate for our Hawaiian sample (which varies in language ability) than the adult version. The STAIC is similar in conception and structure to the State–Trait Anxiety Inventory (STAI) which measures anxiety in adults (Spielberger et al., 1970). For information on the reliability and validity of the STAIC, see Spielberger et al. (1970).

Subjects' responses on the 20-item STAIC state and trait subscales were summed to form indices of state and trait anxiety. (Possible total scores on both indices range from 20 to 60 points.) In this study, subjects' scores on the index of state anxiety ranged from 22 to 43 (M = 30.94, SD = 4.35), while scores on the index of trait anxiety ranged from 21 to 52 (M = 35.72 and SD = 7.22).

Measuring Passionate Love

As in Study 1, subjects were asked to complete the JLS. Their responses were summed to form a total index of passionate love. Subjects' JLS scores ranged from 15 to 126, with a mean of 87.83 and an SD of 23.64. (Again, possible scores may range from 15 to 135.)

Table IV. Multiiple-Regression Analysis of Passionate Love (JLS Scores) on Predictor Variables Related to Passionate Love

Predictor variables	Multiple Regression				
	B	Beta	SEB	F	p
Trait anxiety	1.83	.56	.41	19.80	.001
State anxiety	0.23	.04	.12	.11	.74 n.s.
Gender	−10.08	−.21	.10	4.32	.04
Age	−2.39	−.05	.05	1.20	.28 n.s.

Multiple $R = .383$, $F(4, 59) = 9.17$, $p < .001$

Predictor variables	Pearson correlation	
	r	p
Trait anxiety	.57	.001
State anxiety	.38	.001
Gender	.57	.01
Age	−.07	n.s.

Correlation between JLS scores and trait anxiety, state anxiety by gender and age

1. Correlation between JLS scores and trait and state anxiety		
Trait Anxiety	.57	$p < .001$
Girls	.50	$p < .01$
Boys	.64	$p < .001$
State anxiety	.38	$p < .01$
Girls	−.16	p n.s.
Boys	.55	$p < .001$

2. Correlation between state and trait anxiety		
Overall	.56	$p < .001$

3. Correlation between trait and state anxiety by gender		
Boys	.58	$p < .001$
Girls	.54	$p < .001$

4. Correlation between trait and state anxiety by age		
Age: 13	.70	$p < .003$
14	.73	$p < .002$
15	.30	$p < .262$
16	.58	$p < .023$

Results and Discussion

This study explored the relationship of state and trait anxiety to passionate love. As in Study 1, in order to construct the best multivariate model for predicting passionate love, a multiple-regression analysis was used to explore the relationships between trait anxiety, state anxiety, gender, and age to JLS scores.

Considering the raw scores of these predictor variables simultaneously, the multiple $R = .38$, $F(4, 59) = 9.17$, $p < .001$. These results are reported in Table IV.

The results of this analysis (reported in the right-hand column of Table IV) show that, as in Study 1, anxiety was significantly related to the JLS score. Trait anxiety scores on the STAIC accounted for more than 20% of the total JLS variance ($F(1, 59) = 19.80$, $p < .001$). State anxiety scores were not significantly related ($F(1, 59) = .11$, n.s.) to JLS scores. Age did not have a relationship to JLS score ($F(1, 59) = 1.20$, n.s.). However, gender accounted for a significant portion of the variance ($F(1, 59) = 4.32$, $p < .04$). The girls (JLS $\bar{M} = 92.63$, $SD = 20.71$) reported experiencing passionate love somewhat more intensely than did the boys (JLS $\bar{M} = 87.83$, $SD = 23.64$). (In Study 1, it will be recalled, there was a non-significant difference between the genders in the same direction.)

Pearson product-moment correlations were used to examine the significance of the relationships between the criterion variable JLS and the predictor variables state and trait anxiety. We predicted that state anxiety scores should have a modest positive relationship with JLS. (After all, in this study, all students were tested in a setting that was designed to be relaxed and low key. State anxiety should show the most powerful effect if various subjects are tested in various states — varying from intensely anxious to intensely calm.) In fact state anxiety turned out to have a stronger relationship with JLS scores than we might have expected ($r = .38$, $p < .01$). As expected, trait anxiety scores also had a significant positive relationship with JLS scores ($r = 57$, $p < .001$). (The difference between these correlations is not statistically significant.) The correlation between state anxiety and trait anxiety was highly significant ($r = .56$, $p = .001$). Although both state and trait anxiety are significantly correlated with JLS, in this situation when we partial out the variance due to trait anxiety, state anxiety is not significantly correlated with JLS scores ($F(1, 59) = .11$, $p < .74$). However, when we partial out the variance due to state anxiety, trait anxiety is still significantly correlated with JLS scores ($F(1, 62) = .3.27$, $p < .01$). It should be noted, though, that the correlation between JLS score and state anxiety might be spuriously low in this study because of the restricted range of state anxiety scores obtained.

Significant gender differences were also discovered. For girls the relationship between trait anxiety and JLS scores was significant ($r = .50$, $p < .01$), while the relationship between state anxiety and JLS scores was not significant ($r = .16$). However, for the boys both trait anxiety scores ($r = .64$), $p < .001$) and state anxiety scores ($r = .55$, $p < .001$) were significantly correlated with JLS scores. It is not evident why there should be a different relationship between state–trait anxiety and JLS scores for girls vs. boys. The correlation between age and JLS scores was not significant ($r = -.07$).

Analysis of variance (ANOVA) procedures were used to examine whether differences in the means of JLS scores were related to gender, age, and anxiety (trait and state), and their interactions (see Table V). Results indicate that trait anxiety was significantly related to JLS scores (main effect $F (2, 57) = 9.59, p < .001$). State anxiety was also significantly related to JLS scores (main effect $F (1, 57) = 4.23, p < .04$). However, the main effects for gender ($F (1, 57) = 3.56, p < .06$) was only marginally significant, and the interaction effect between trait anxiety and gender ($F (2, 57) = 1.14$, n.s.), and the interaction effect between state anxiety and gender were not significant ($F (2, 57) = .82$, n.s.). None of the other interaction effects approached significance at the .05 level.

The results of Study 2 indicated that boys of all ages were more anxious as measured on the trait anxiety index (T $\bar{M} = 35.91$) than were girls (T $\bar{M} = 35.53$), although this difference was not significant ($F (1, 62) = .08$, n.s.). On the state anxiety index, girls scored higher (S $\bar{M} = 31.38$) than boys (S $\bar{M} = 30.50$). This difference was also only marginally significant ($F (1, 62) = 3.67, p < .06$). It should be noted that none of the subjects reported being highly anxious (as measured by state anxiety scores) at the time of the interview. This is not surprising since our setting was, by design, one that was designed to put our subjects at ease. (Subsequent research might explore the relationships of trait and state anxiety to JLS in more emotionally varied settings.) Girls reported experiencing love significantly ($F (1, 62) = 3.67, p < .04$) more passionately (JLS $\bar{M} = 92.63$) than boys JLS $\bar{M} = 83.03$).

As in Study 1, in order to examine the relationship of love scores to level of anxiety, each subject was assigned to one of three anxiety levels on the basis of his or her state and trait anxiety scores (low anxiety = 20–29, medium anxiety = 30–45, high anxiety = 46–60). Means and standard deviations for state anxiety, trait anxiety, and JLS scores by gender and level of anxiety are reported in Table V.

Separate analysis of variance procedures were conducted which indicated that there were no significant differences in the JLS scores of boys and girls reporting similar levels of trait anxiety: low ($F (1, 7) = 1.50$, n.s.),

Table 5. Means for State Anxiety, Trait Anxiety, and Passionate Love (JLS) by Gender and Level of Anxiety

		State anxiety		Trait anxiety			JLS	
		Mean	SD	Mean	SD		Mean	SD
		Girls (N = 32)						
Anxiety level	N	(Range 23–43)		(Range 21–52)		N	(Range 54–126)	
High	0	—	—	50.67	2.08	3	116.00	6.56
Medium	20	33.45	4.87	35.54	6.89	24	92.92	19.86
Low	12	27.92	4.31	26.40	5.18	5	77.20	18.13
All girls	32	31.38	4.39	35.53	6.94	32	92.63	20.71
		Boys (N = 32)						
Anxiety level	N	(Range 22–40)		(Range 21–52)		N	(Range 15–126)	
High	0	—	—	49.80	1.29	5	111.40	10.21
Medium	20	32.85	4.96	34.74	7.70	23	80.96	22.75
Low	12	26.58	3.46	25.25	4.13	4	59.00	27.65
All boys	32	30.50	4.33	35.91	7.59	32	83.03	25.68
Total	64	30.93	4.35	35.72	7.22		87.83	23.64

ANOVA summary

Effect	df	F	p
Trait anxiety	2	9.90	.000
State anxiety	1	4.23	.005
Gender	1	3.67	.061, n.s.
Age	3	.65	.588, n.s.
Overall F	(7, 55)	4.23	.000
Trait anxiety	2	9.59	.001
Gender	1	3.56	.064, n.s.
Trait × Gender	2	1.14	.327, n.s.
Overall F	(5, 57)	5.00	.007
State anxiety	1	4.23	.045
Gender	1	2.87	.100, n.s.
State × Gender	2	.82	.371, n.s.
Overall F	(4, 57)	3.30	.079, n.s.

(continued)

Table 5. *(continued)*

Effect	df	F	p
Trait anxiety	2	8.57	.000
Age	3	.56	.643, n.s.
Trait × Age	6	.58	.743, n.s.
Overall F	(11, 51)	2.03	.044
State anxiety	1	3.30	.047
Age	3	.51	.681, n.s.
State × Age	3	.36	.784, n.s.
Overall F	(7, 54)	1.14	.063, n.s.

1. Gender differences in JLS scores by level of trait anxiety		
Low trait anxiety	$F(1, 7) = 1.50$	p = n.s.
Medium trait anxiety	$F(1, 44) = 3.83$	$p < .06$, n.s.
High trait anxiety	$F(1, 6) = .47$	p = n.s.

2. Gender differences in JLS scores by level of state anxiety		
Low state anxiety	$F(1, 31) = .23$	p = n.s.
Medium state anxiety	$F(1, 31) = .49$	p = n.s.
High state anxiety	— —	—

medium ($F(1, 44) = 3.83, p < .06$; of marginal significance), and high ($F(1, 6) = .47$, n.s.). Logically, of course, both gender and anxiety might be related to JLS score. In this research, gender seemed far less important than anxiety level in shaping subjects' responses.

Further analyses revealed that there were also no significant differences in JLS scores for boys and girls reporting similar levels of state anxiety: low ($F(1, 31) = .23$, n.s.), medium ($F((1, 31) = .49, p < .69$). (There were no boys in the high condition.)

Summary

Study 2 was designed to determine whether trait and/or state anxiety influence the experience of passionate love. We secured clear evidence that both trait and state anxiety are related to subjects' JLS scores. State anxiety has some correlation with adolescents' JLS scores; trait anxiety proneness has an even stronger correlation, at least in our test situation. This was true regardless of subjects' age. Girls appear to fall in love somewhat more passionately than boys.

CONCLUSION

Anxiety

Numerous theorists beginning with Freud have proposed that a relationship exists between anxiety and the experience of love (Freud, 1953; Hatfield & Rapson, 1987a, 1987b); that negative experiences such as fear and anxiety may facilitate the passionate experience (Brehm, Gatz, Goethals, McCrimmion, & Ward, 1978; Dutton & Aron, 1974; Hatfield, 1965 and 1971b); that passionate love and anxiety are closely related both neuroanatomically and chemically (Kaplan, 1979; Liebowitz, 1983); and that anxious individuals are more prone to seek passionate love relationships (Peele, 1975; Solomon & Corbit, 1974). However, it has been unclear whether these relationships extend to the childhood and adolescent passionate love experience.

In Study 1, we saw that anxiety and passionate love seem to be related in children. Children who were highly anxious were more likely to report experiencing feelings of passionate love than were those who were less anxious. However, since the CAS measures only "habitual anxiety" it was unclear whether children who are momentarily anxious were also especially prone to fall passionately in love. In Study 2, we found that both trait and state anxiety do seem to be related to the passionate love experience. Those adolescents who experience apprehension and tension in a wide range of situations appear to be especially prone to experience passionate love.

Gender

Gender differences in passionate love have been reported for adults (Hatfield & Rapson, 1987a; Peplau, 1983). Usually women are found to experience passionate love both more intensely and more frequently than men. Nonetheless, in many studies no gender differences are found. The results of Study 1 and Study 2 are consistent with the conclusion that girls and women may experience slightly more passionate love than boys and men. Girls do report experiencing passionate love with greater intensity than boys. However, when these differences are compared by levels of anxiety, no significant differences in the intensity of passionate love were found between boys and girls. (A few differences approached significance.) These results suggest that gender differences, if they exist at all, are fairly weak.

Age

Does age influence people's ability to love passionately? Hatfield and her colleagues (1987b), in interviews with children 4 to 18, found no evidence that age and passionate love were correlated. In neither Study 1 nor Study 2 did subjects' ages have a significant correlation with JLS scores. These results suggest that "anxiety proneness" has a relationship to young adolescents' tendency to fall passionately in love that is independent of age.

In sum: two studies were conducted which demonstrate that adolescents who are anxious [regardless of whether anxiety is measured by the CAS (which measures trait anxiety) or by the *STAIC* (which measures both trait and state anxiety)] are also especially likely to have experienced passionate love.

Suggestions for Future Research

In subsequent research, researchers may consider exploring several questions.

1. Emotion has been defined as "a genetic and acquired motivational predisposition to respond experimentally, physiologically, and behaviorally to certain internal and external variables" (Carlson & Hatfield, 1991, p. xx). In our own writings, we have stressed the importance of using multiple measures of any given emotion. Yet, in this experiment our measure of passionate love was a self-report measure. In subsequent research, researchers should make an effort to supplement such self-reports with more objective indicators of passionate love — judges' ratings of subjects' facial expression, posture, how far couples stand from one another, the length of time they gaze at one another, etc. This would make the contention that children, adolescents, and adults experience passionate love in much the same way more compelling.

2. Recently, theorists such as Sternberg (1988) have begun to try to formulate topologies of the various types of love. For example, Sternberg argues that one can classify love relationships (such as "infatuation," "romantic love," "companionate love," and so on) according to whether or not they contain each of three components — passion, intimacy, and commitment. Infatuation, for example, is thought to involve intense passionate arousal but little intimacy or commitment. When one focuses in on that "prewired"

complex called passionate love, however, and tries to dissect its elements, it is hard to calculate exactly *what* elements contribute to the emotion and *how much* they contribute. By adulthood, passionate love's "longing for union" would seem to subsume several elements — feelings of dependency, excitement, and sexual arousal, among others. Subsequent theorists should attempt to determine what elements are indispensable to that complex we label "passionate love."

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