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Affection deprivation is more aversive than excessive affection: A test of affection exchange theory

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Abstract

Affection exchange theory predicts that both excessive affection and affection deprivation are associated with poorer health, compared with receiving the level of affectionate communication that one desires. A similar yet-untested prediction is that affection deprivation is more aversive than excessive affection. This preregistered study tested both hypotheses on a battery of mental and physical health outcomes, including depression, loneliness, stress, physical pain, frequency of nightmares, and sleep quality, using a Census-matched sample of U.S. American adults ($N = 827$). As hypothesized, receiving the right amount of affection was associated with more health-supportive scores on all outcomes than either excessive or deficient affection. Similarly, excessive affection was associated with lower depression, loneliness, stress, and pain, and higher sleep quality, than affection deprivation.

KEYWORDS
affection deprivation, affectionate communication, excessive affection, health

Statement of Relevance: The current study combines the literature on affection deprivation and excessive affection to test whether deprivation is more aversive. This study thus helps both researchers (in knowing what to highlight in research and theory) and practitioners (in knowing where stress is more likely to occur) in understanding individuals coping with receiving levels of affectionate communication beyond their healthy thresholds.

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A robust empirical literature documents the physical and mental health benefits of affectionate communication from a wide variety of personal relationships (for a systematic review, see Floyd, 2019). According to Floyd's (2006) affection exchange theory (AET), however, the association between affectionate behavior and health is not linear. Rather, it is a curvilinear relationship in which health is supported only when affectionate communication occurs within one's range of tolerance. Receiving less affection than one desires (*affection deprivation*) or more affection than one desires (*excessive affection*) is aversive, according to AET.

Whereas previous investigations have identified health detriments associated with both affection deprivation (Floyd, 2014, 2016) and excessive affection (Hesse et al., 2018; Hesse & Mikkelson, 2021), a question that remains unaddressed is which state—deprivation or excess—is more aversive. Such a question is important from the standpoint of intervention and prevention. Although both states are aversive, discovering whether one state is more aversive than the other would justify a greater allocation of resources directed at preventing or treating that state (in the same way that aversive states such as loneliness are treated; see Masi et al., 2011). This study engages that question by deriving the predictions from AET that (1) affectionate communication in the range of tolerance is more health-supportive than affection deprivation or excess, and (2) affection deprivation is less health-supportive than excessive affection. As described below, we examine these hypotheses using a selection of physical and mental well-being indices with a Census-matched probability sample of U.S. American adults who reported on the discrepancy between their received and desired levels of affectionate communication across their relationships. This review first introduces affectionate communication within the context of affection exchange theory. We then discuss the states of deficient and excessive affection, and then we derive specific hypotheses from AET.

1 | AFFECTIONATE COMMUNICATION AND AET

Floyd and Morman (1998) defined affectionate communication as an "individual's intentional and overt enactment or expression of feelings of closeness, care, and fondness for another" (p. 145). In the same article, Floyd and Morman categorized acts of affectionate communication into three distinct categories: verbal affection (e.g., saying "I love you"), nonverbal affection (e.g., giving hugs or holding hands), and indirect/supportive affection (e.g., helping someone move or giving someone a ride to the airport). This tripartite conceptualization was recently supported in a study that used a representative national sample to find how Americans tended to engage in affectionate communication (Floyd et al., 2021). In the study, participants reported acts of affectionate communication that represented all three areas of the original tripartite model. The study found that three types of affectionate communication (verbal expressions of love and care, hugging, and kissing) represented a quarter of the entire responses, with every other form represented in fewer than ten percent of reported affectionate acts (Floyd et al., 2021). The authors argued that the general conceptualization of the tripartite model was still sound, because all three categories were well represented within the participant responses, and that no coded behavior fell outside the boundaries of the model. From an operationalization standpoint, however, the authors stated that the differences in the frequency of behaviors such as verbal affection should be considered when measuring general levels of affectionate communication.

In the field of communication studies, AET (Floyd, 2006) is the principal theory used to understand the role that affectionate communication plays in human wellness. The theory posits that the need to both give and receive affectionate communication is innate, apparent

across social and cultural boundaries. This innate need reflects the adaptive nature of affectionate communication, as the theory argues that affectionate communication allows an individual to better serve the superordinate evolutionary goals of survival (through greater access to both tangible and intangible resources) and reproduction (through a better perception of the individual as a potential partner and/or parent). AET refines this prediction through the postulate that these benefits occur when the acts of affectionate communication are within the range of optimal tolerance for an individual. Overall, then, the theory posits a beneficial relationship between affectionate communication and biopsychosocial wellness when communicated within the range of optimal tolerance (see Floyd, 2019).

In the past twenty years, a large body of research has documented the biopsychosocial benefits of affectionate communication. In terms of physical health, levels of affectionate communication have been inversely correlated with resting HR (Floyd et al., 2014), diurnal cortisol (Floyd & Riforgiate, 2008), and glycated hemoglobin (HbA$_{1c}$; Floyd et al., 2007). From a mental health standpoint, affectionate communication in multiple studies is inversely correlated with stress and depression (e.g., Aloia & Brecht, 2017), although also being inversely correlated with loneliness (e.g., Floyd, 2014) and alexithymia (Hesse & Floyd, 2008). The social benefits of affectionate communication, on the other hand, have included key relational outcome variables of satisfaction, closeness, and commitment in multiple studies (e.g., Hesse et al., 2014; Hesse & Floyd, 2011), with other studies showing a positive correlation with the overall number of self-reported close relationships (Hesse & Floyd, 2011). Recent findings have extended to more specific realms, including a heightened likelihood of grandchildren caring for their grandparents (Mansson, 2022), higher perceived positive affect during daily life (Debrot et al., 2017), higher patient adherence when affectionate communication was received from a health care provider (Hesse & Rauscher, 2019), and even assisting individuals higher in attachment avoidance in general behavioral receptiveness to messages (Schrage et al., 2020). The benefits of affectionate communication have also been largely supported through a recently published meta-analysis of the literature on affectionate communication and health (Hesse, Floyd, et al., 2021). Specifically, the study found a moderate weighted effect ($r = .23$) between affection and physical and mental health outcomes, including an effect of $r = .40$ for cardiovascular health and $r = .19$ for mental health. Overall, the literature seems to support the theoretic claim of AET of the health-supportive nature of affectionate communication.

2 | AFFECTION DEPRIVATION AND EXCESSIVE AFFECTION

As stated earlier, however, AET also argues that the health-supportive nature of affectionate communication occurs within the realm of optimal tolerance for an individual. Based on that postulate, two separate lines of research have been developed examining the effects of an individual experiencing either not enough affectionate communication (referred to as affection deprivation) or too much affectionate communication (referred to as excessive affection; for example, Floyd, 2014; Hesse et al., 2018).

Floyd et al. (2014) initially conceived of affection deprivation within the context of touch, examining relationships with a host of biopsychosocial correlates, including depression, stress, loneliness, and mental health disorders. Floyd (2016) then reconceptualized affection deprivation as a general deficit in the receipt of affectionate behavior. Utilizing this general perception of affection deprivation, subsequent studies replicated the positive relationship between

loneliness and affection deprivation (Floyd & Hesse, 2017), although also finding a positive relationship between deprivation and physical pain, sleep disorders, and reasons for pornography consumption (Floyd, 2016; Hesse & Floyd, 2019). Within the context of romantic relationships, affection deprivation was negatively correlated with relational satisfaction and closeness (Hesse & Mikkelson, 2017). A study of marital dyads found consistent negative partner effects from affectionate communication to deprivation for both husbands and wives, meaning that the more an individual reported communicating affection to a spouse, the less likely the spouse was to feel deprived of affection (Hesse & Tian, 2020). Finally, a recent panel study conducted during the initial months of the COVID-19 pandemic found that, over the span of four weeks, affection deprivation at the beginning of the study predicted stress, loneliness, and depression at the end of the study (Hesse, Mikkelson, & Tian, 2021). In general, the literature on affection deprivation tends to support the theoretic premise of AET that a deficit in experiencing affectionate communication will be aversive in terms of the overall health and wellness of an individual.

On the other end of the continuum, excessive affection is the perception that an individual is experiencing greater levels of affectionate communication than desired. The literature on this concept is somewhat sparse, with an initial study finding a positive correlation between parent–child excessive affection (according to the perception of the child) and helicopter parenting, with corresponding negative correlations with self-esteem and life satisfaction (Hesse et al., 2018). A second study examined both the general perception of excessive affection and the perception based in a specific romantic relationship. Surprisingly, the study discovered few significant correlations between a general perception of excessive affection and several outcome measures related to physical and mental health (such as general health and self-esteem). However, the specific perception of excessive affection within the context of a romantic relationship was positively related to stress, loneliness, and both anxious and avoidant attachment, although being negatively related to self-esteem, relational satisfaction, and relational commitment (Hesse & Mikkelson, 2021). The authors argued that it is possible that a more specific than general perception of excessive affection might matter in terms of the premises of AET, though they caution that more needs to be examined regarding excessive affection before making strong claims. That argument was supported in another recently published study on "unwanted affection." In that study, researchers used retrospective reports of unwanted affection to discover correlates with stress and anxiety, with cognitive anxiety and stress being highest for individuals that experienced unwanted affection in a romantic relationship (as opposed to a stranger; van Raalte et al., 2021).

3 | SYNTHESIS/HYPOTHESES

The current study extends the literature on both affection deprivation and excessive affection in two ways. First, AET claims that (a) affectionate communication is adaptive, although (b) these adaptive benefits occur within a range of optimal tolerance for an individual. The overviewed literature on both affection deprivation and excessive affection tend to support those claims, with both variables positively correlated with physical and mental health deficits and inversely correlated with markers of relational health (e.g., Floyd, 2014; Hesse & Mikkelson, 2021). However, no study has simultaneously assessed affection deprivation and excessive affection, looking at the theoretic argument within the same group of individuals. We would argue that, based on the theoretic claims of AET, in any participant population,

one would be more likely to find negative effects of affection deprivation and excessive affection as compared to individuals who perceive experiencing an adequate amount of affectionate communication.

For this specific study, we have selected several variables that have been previously linked to either affection deprivation or excessive affection. These include the mental health variables of depression, loneliness, and stress (used in studies such as Floyd & Hesse, 2017) and the physical health variables of chronic pain and sleep quality (used in Floyd, 2016). To this list, we added the frequency of nightmares as an additional measure of sleep quality, because previous literature has linked nightmares to aspects of mental health such as anxiety and depression (Klůzová Kráčmarová & Plháková, 2015). AET would argue that these variables would all be impacted by inadequate levels of affectionate communication, and indeed this postulate has been previously supported with these specific variables, with the exception of nightmare frequency (e.g., Floyd, 2016). We would expect these findings to be replicated in the current study in the context of comparing the group of individuals who perceive that they receive adequate levels of affectionate communication to those who perceive that they receive either a deficit or an excessive amount of affectionate communication. This leads us to our first hypothesis:

> **H1.** Those receiving adequate affection score higher on sleep quality and lower on depression, loneliness, chronic pain, nightmares, and stress than those reporting excessive affection or affection deprivation.

The second extension of the current study lies in the comparison between affection deprivation and excessive affection. Whereas AET (Floyd, 2006, 2019) would argue that both states are aversive (partially leading to our first hypothesis), the theory would not necessarily argue that both are equally aversive. Indeed, if affectionate communication is adaptive due to the influx of both tangible and intangible resources, one would posit that the lack of possessing those resources (affection deprivation) would by definition be more aversive than possessing an excessive amount of those resources (excessive affection). This idea is also potentially supported by previous research that, although consistently finding negative effects associated with the general perception of affection deprivation (e.g., Floyd, 2014), has not found those consistent effects associated with the general perception of excessive affection (e.g., Hesse & Mikkelson, 2021). Thus, we would argue that individuals experiencing affection deprivation would exhibit a worse state of mental and physical health than those experiencing excessive affection. This leads to our second hypothesis:

> **H2.** Those reporting excessive affection score higher on sleep quality and lower on depression, loneliness, chronic pain, nightmares, and stress than those reporting affection deprivation.

4 | METHOD

4.1 | Participants

Participants ($N = 827$) were adults living in the United States. With respect to gender, most identified as either female (421, 51.2%) or male (397, 48.2%), whereas four participants (0.5%)

identified as non-binary and the remainder chose not to answer. The participants ranged in age from 18 to 81 years ($M = 44.63$ years, $SD = 16.07$). With respect to racial identity, 75.1% identified as white, 14.3% as Black/African American, 7.6% as Asian, 5.8% as Latino/a, 2.1% as Native American or Aleut, 0.8% as Middle Eastern/North African, and 1.1% reported another racial identity.[1] Most (93.1%) reported a non-Hispanic ethnicity, whereas 6.9% identified as Hispanic.

An a priori power analysis (Faul et al., 2007) indicated that a sample size greater than 158 would provide 95% power to detect a small (10) effect size, assuming $\alpha = .05$.

4.2 | Procedure

Participants were recruited on the online participant recruitment portal Prolific. Prospective participants were eligible if they were at least 18 years old, lived in the United States, and could read and write in English. Participants completed and submitted an online questionnaire in exchange for $2.10US, which equated to an average per-hour rate of $14.56US. The sample was Census-matched to the United States adult population with respect to gender, age, ethnicity, and racial categories.

Participants completed questionnaire hosted on Qualtrics and submitted their responses electronically. Preliminary questions confirmed that participants met inclusion criteria before they were allowed to proceed. The study's method and hypotheses were preregistered with Open Science Framework on February 9, 2022.[2] The study was approved by the IRB at an institution in the Southwest United States. The data itself were collected between February 25 to March 4, 2022.

4.3 | Measures

Affection category was measured with a single question asking, "In general, individuals may perceive that they get too MUCH affection in their lives, too LITTLE affection, or just the right amount. In which category would you put yourself?" [capitalizations in original]. The trichotomous response options were "I get less affection than I want," "I get the amount of affection that I desire," and "I get more affection than I want." To check the effectiveness of this categorization strategy, we asked two further questions: "How much affectionate communication do you WANT to be receiving in your life?" and "How much affectionate communication ARE you receiving in your life?" [capitalizations in original]. For both questions, participants were asked to indicate their answer by sliding an icon along a ruler anchored at 0 (*none at all*) and 100 (*a great deal*).

Depression was measured with the Center for Epidemiologic Studies Depression Scale (Radloff, 1977). The 20-item Likert-type scale asks participants about how they have felt over the past week, on a 7-point scale anchored at 1 (*rarely or none of the time*) and 7 (*most or all of the time*). Sample items are "I was bothered by things that usually don't bother me" and "I had trouble keeping my mind on what I was doing" (McDonald's ω = .95).

Loneliness was measured with the 3-item UCLA Loneliness Scale Short Form (Steptoe et al., 2013). Participants are asked how often they experience various feelings on a 7-point scale anchored at 1 (*hardly ever*) and 7 (*often*). Sample questions are "How often do you feel that you lack companionship?" and "How often do you feel left out?" (ω = .91).

Stress was measured with the 10-item Perceived Stress Scale (Cohen et al., 1983), which asks participants how often over the past month they have felt various ways. Responses were on a 7-point scale anchored at 1 (*never*) and 7 (*very often*). Sample items are "Been upset because of something that happened unexpectedly" and "Found that you could not cope with all the things you had to do" ($\omega = .92$).

Physical pain was measured with the 2-item pain subscale of the RAND Corporation Short form Health Survey 36 (Hays et al., 1993). The items are "How much bodily pain have you had during the past 4 weeks?" and "During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and housework)?" Responses were on a 9-point scale anchored at 1 (*none*) and 9 (*very large amounts*) (Cronbach's $\alpha = .91$).[3]

Frequency of nightmares was measured with the 4-item Nightmare Experience Scale (Kelly & Mathe, 2019). Participants are asked their level of agreement with statements about nightmares on a 5-point scale anchored at 1 (*disagree*) and 5 (*agree*). Sample items are "I have nightmares often" and "Intense nightmares are a problem for me" ($\omega = .93$).

Sleep quality was measured with the Pittsburgh Sleep Quality Index (PSQI; Buysse et al., 1989). The instrument comprises 19 items that generate seven component scores: (1) sleep quality; (2) sleep latency; (3) sleep duration; (4) habitual sleep efficiency; (5) sleep disturbances; (6) use of medicinal sleeping aids; and (7) daytime dysfunction. Total possible scores ranged from 0 to 21, with higher scores indicating poorer sleep quality (i.e., more problematic sleep; $\omega = .63$).

4.4 | Data analysis

Hypothesis tests were run using two MANCOVAs, controlling for several descriptive variables (detailed below). The IV in both MANCOVAs was the affection category measure, with the DVs being the hypothesized variables split into the two groups (depression, loneliness, stress, and pain in the first, nightmares and sleep quality in the second). H1 was tested with a set of orthogonal planned contrasts, with coefficients of 1, −2, and 1 for the deprivation, just right, and excessive groups. H2 was also tested with a set of orthogonal planned contrasts, with coefficients of 1, 0, and −1 for the deprivation, just right, and excessive groups.

5 | RESULTS

5.1 | Categorization

Participants were asked to self-categorize with respect to whether their received affectionate communication was deficient, just right, or excessive. Slightly fewer than half the participants (49.3%) reported that they received the amount of affection that they desire, and slightly fewer (45.6%) reported being affection deprived. Only 5.1% reported receiving excessive affection. Chi-squared tests revealed nonsignificant differences in categorization with respect to gender. A oneway ANOVA revealed significant differences between the categories with respect to age; however, $F(2, 823) = 6.84$, $p < .001$, $\eta^2 = .02$. Post-hoc analysis with the moderately conservative Student–Newman–Keuls test revealed that those who report excessive affection are younger, on average ($M = 37.74$ years, $SD = 15.40$) than those who report affection deprivation

($M = 43.62$, $SD = 16.05$) or the right amount of affection ($M = 46.28$, $SD = 15.93$); the latter two groups did not differ from each other.

To check the effectiveness of this categorization strategy, we subtracted scores from the question of how much affection participants want in their lives from their scores on the question of how much they receive. The result of the subtraction was a discrepancy variable in which values were negative if participants wanted more than they received, near zero if participants wanted and received the same amounts, and positive if participants wanted less than they received. Observed scores ranged from -97 to 50, $M = -15.53$, $SD = 25.36$. A oneway ANOVA revealed that mean scores on this discrepancy variable differed significantly between the categories, $F (2, 822) = 353.50$, $p < .001$, $\eta^2 = .46$. Two planned contrasts checked the expected group differences. The first contrast assigned coefficients of -1, 1, and 0 to the deprivation, just right, and excessive groups, respectively, and found that the discrepancy between received and desired affection is significantly lower in the deprived category ($M = -34.09$, $SD = 23.40$) than in the just right category ($M = -1.60$, $SD = 13.36$), $t (820) = 24.38$, $p < .001$. The second contrast assigned coefficients of 0, -1, and 1 to the deprivation, just right, and excessive groups, respectively, and found that the discrepancy between received and desired affection is significantly lower in the just right category ($M = -1.60$, $SD = 13.36$) than in the excessive category ($M = 14.14$, $SD = 13.29$), $t (820) = 5.22$, $p < .001$. These comparisons indicate that participants in the affection deprivation category reported receiving less affection than they desired; those in the just right category reported almost no discrepancy between received and desired affection; those in the excessive affection category reported receiving more affection than they desired; and that these differences were statistically significant. Thus, the results support the trichotomous variable.

5.2 | Descriptive statistics

Descriptive statistics and intercorrelations for all outcome variables appear in Table 1. For exploratory purposes—and also to identify potential control variables for omnibus analyses—we examined the associations between our dependent measures and age, gender, and race/ethnicity. Participant age was inversely associated with depression, $r (824) = -.36$, $p < .001$; loneliness, $r (823) = -.24$, $p < .001$; stress, $r (825) = -.35$, $p < .001$; and frequency of nightmares, $r (827) = -.17$, $p < .001$; correlations with other outcomes were nonsignificant (probability values are two-tailed).

To examine gender differences, we temporarily suppressed responses other than "male" and "female" due to small cell sizes. Using Welch's t-tests, we found that women and men differed significantly on every outcome variable. Compared to women, men scored significantly lower on depression, loneliness, stress, physical pain, and frequency of nightmares, and reported higher quality sleep. Means, standard deviations, and t-test results appear in Table 2.

Hispanic-identifying participants did not differ significantly from non-Hispanic-identifying participants on any of the outcome measures, per two-tailed Welch's t-tests. Only two significant differences emerged as a function of race. Because participants could identify with as many racial categories as they chose, each test compared those who did and did not select each racial category. Specifically, Asian participants reported higher sleep quality (as evidenced by lower PSQI scores; $M = 7.75$, $SD = 2.37$) than did non-Asian participants ($M = 8.53$, $SD = 3.05$), $t (79.96) = 2.48$, $p = .015$, $d = .26$. Moreover, Black/African American participants reported lower physical pain ($M = 2.80$, $SD = 1.86$) than did participants who did not identify as Black/

TABLE 1 Descriptive statistics and intercorrelations for study variables

Variable	Min	Max	*M*	*SD*	1	2	3	4	5
1. Depression	1.00	6.56	2.72	1.29	--				
2. Loneliness	1.00	7.00	3.09	1.86	.70*	--			
3. Stress	1.00	7.00	3.33	1.36	.87*	.61*	--		
4. Physical pain	1.00	9.00	3.13	2.10	.42*	.31*	.38*	--	
5. Nightmares	1.00	5.00	1.67	1.03	.42*	.27*	.36*	.34*	--
6. Sleep quality	2.00	20.00	8.47	3.01	.53*	.40*	.47*	.50*	.36*

Note: *p < .01 (two-tailed).

TABLE 2 Gender differences in outcome variables (*N* = 818)

Variable	Male *M/SD*	Female *M/SD*	*t*	*Df*	*p*	*d*
Depression	2.57/1.27	2.87/1.29	−3.39	813.07	<.001	.24
Loneliness	2.93/1.79	3.24/1.91	−2.37	814.99	.018	.17
Stress	3.14/1.36	3.51/1.33	−3.94	811.14	<.001	.28
Physical pain	2.91/2.04	3.32/2.14	−2.84	815.90	.005	.20
Nightmares	1.58/0.98	1.74/1.07	−2.22	815.08	.027	.15
Sleep quality	8.07/2.98	8.84/3.00	−3.71	813.80	<.001	.26

Note: These analyses compared only those participants identifying as either male or female, due to small cell sizes or missing data for other options. Results are based on Welch's *t*-test. Probability values are two-tailed. *d* = Cohen's *d*.

African American (*M* = 3.19, *SD* = 2.13), *t* (172.71) = 2.07, *p* = .04, *d* = .19. Both probability values are two-tailed, and remaining comparisons were nonsignificant.

5.3 | Hypotheses

The first hypothesis predicted that those who receive their desired amount of affection (just right category) report lower depression, loneliness, stress, and pain, fewer nightmares, and higher sleep quality than those in the deprived or excessive categories. The second hypothesis predicted that those in the excessive category report lower depression, loneliness, stress, and pain, fewer nightmares, and higher sleep quality than those in the deprived category.

> **H1.** To obtain omnibus effect sizes, we compared the three categories in two MANCOVAs (health related outcomes and sleep quality). The first MANCOVA analyzed depression, loneliness, stress, and pain (average *r* = .55, Bartlett's test of sphericity χ^2 = 1862.98, *df* = 9, *p* < .001) together, with age as the covariate and gender and Black/African American race as additional fixed factors.[4] Significant multivariate effects emerged for the main effects of age, Wilks' Λ = .83, *F* (4, 798) = 40.09, *p* < .001, partial η^2 = .17, and affection category, Λ = .83, *F* (8, 1598) = 19.01, *p* < .001, partial η^2 = .09. The multivariate main effects of gender and Black/African American race were nonsignificant, as were all interaction effects.

The second MANCOVA analyzed nightmares and sleep quality ($r = .36$, Bartlett's test of sphericity $\chi^2 = 843.51$, $df = 2$, $p < .001$) together, with age as the covariate and gender and Asian race as additional fixed factors. Significant multivariate effects emerged for the main effects of age, Wilks' $\Lambda = .97$, $F(2, 803) = 12.75$, $p < .001$, partial $\eta^2 = .03$, and affection category, $\Lambda = .98$, $F(4, 1606) = 5.14$, $p < .001$, partial $\eta^2 = .01$. The multivariate main effects of gender and Asian race were nonsignificant, as were all interaction effects.

To specifically test H1, we used a set of orthogonal planned contrasts, with coefficients of 1, -2, and 1 for the deprivation, just right, and excessive groups. Table 3 reports means and standard deviations for the three categories on all outcome variables. The planned contrasts were significant for depression, $t(823) = 5.49$, $p < .001$; loneliness, $t(821) = 8.81$, $p < .001$; stress, $t(824) = 5.13$, $p < .001$; pain, $t(824) = 1.97$, $p = .025$; nightmares, $t(824) = 1.87$, $p = .03$; and sleep quality, $t(824) = 3.68$, $p < .001$. As Table 3 reports, the pattern of means was in line with the hypothesis for all outcomes. We further explored the possible significant differences through Tukey post-hoc tests, which showed that the deprivation group was significantly different than the desired group on all outcome measures except nightmares. The excessive group was only significantly different than the desired group on loneliness. H1 was partially supported.

H2. To test H2, we also used a set of orthogonal planned contrasts, with coefficients of 1, 0, and -1 for the deprivation, just right, and excessive groups. The planned contrasts were significant for depression, $t(823) = 2.96$, $p = .003$; loneliness, $t(822) = 6.18$, $p < .001$; stress, $t(824) = 2.06$, $p = .02$; pain, $t(824) = 1.72$, $p = .043$; and sleep quality, $t(824) = 3.40$, $p < .001$. The planned contrast for nightmares was nonsignificant. As Table 3 reports, the pattern of means was in line with the hypothesis for all outcomes. An examination of the Tukey post-hoc tests showed identical results as in H1. H2 was supported for depression, loneliness, stress, pain, and sleep quality.

6 | DISCUSSION

The current study examined mental and physical health outcomes associated with three categories of affectionate communication experience: receiving the right amount of affection, being

TABLE 3 Affection category differences in outcome variables ($N = 827$)

Variable	Deprived M/SD	Just right M/SD	Excessive M/SD
Loneliness	4.20/1.80$_{ac}$	1.30/2.64	3.10/1.86$_b$
Stress	3.77/1.34$_{ac}$	2.92/1.25	3.33/1.36
Physical pain	3.50/2.43$_a$	2.82/1.91	3.13/2.10
Nightmares	1.82/1.12$_a$	1.54/0.91	1.67/1.03
Sleep quality	9.45/3.02$_{ac}$	7.64/2.75	8.48/3.01

Note: These statistics included only those participants identifying as either male or female, due to small cell sizes or missing data for other options. a = significant group differences between the deprived and the just right groups. b = significant group differences between the excessive and the just right groups. c = significant group differences between the deprived and the excessive groups.

affection deprived, and receiving excessive affection. In this section, we review findings, discuss their theoretical and practical implications, and consider the limitations and directions for future research.

6.1 | Research summary

Previous research has demonstrated the importance of receiving affectionate communication for mental and physical well-being (see Floyd, 2019; Hesse, Floyd, et al., 2021). Nonetheless, AET argues that the association between affectionate communication and health is curvilinear, such that affectionate communication must occur within the range of tolerance to be beneficial. This claim implies that receiving too little affection or too much affection, relative to what one desires, is aversive. The affection deprivation literature has established that receiving less affectionate communication than desired is negatively related to multiple personal health and relational outcomes (Floyd, 2014, 2016; Floyd & Hesse, 2017; Hesse, Floyd, et al., 2021; Hesse & Tian, 2020). Similarly, research examining excessive affection has demonstrated that receiving more affectionate communication than desired is negatively related to individual and relational outcomes (Hesse et al., 2018; Hesse & Mikkelson, 2021). A question previously unaddressed, however, is which state—affection deprivation or excessive affection—is more aversive.

The first hypothesis predicted that individuals who receive the desired amount of affection (i.e., within the range of tolerance) report lower levels of depression, loneliness, stress, and pain, fewer nightmares, and higher quality sleep than individuals experiencing affection deprivation or excessive affection. This hypothesis was largely supported for affection deprivation, with the Tukey post-hoc tests showing a nonsignificant group difference only for nightmares. However, a significant group difference emerged for the excessive group only on loneliness. In one sense, this set of results actually aligns with previous literature. On the deprivation side, it bolsters AET's prediction (along with previous research) that in most instances, affection deprivation is health aversive. On the excessive side, it aligns with the study by Hesse and Mikkelson (2021), which found significant relationships between excessive affection and psychosocial outcomes only within the context of romantic relationships, but not when examining excessive affection as a general perception. The current study lends support to the idea that, whereas excessive affection might be aversive within the context of romantic relationships, it might be less so from the standpoint of a general construct. To be sure, there are measurement and methodological differences between the studies, but there appears to be some consistency on both sides in terms of the results. Future research is needed to draw more consistent conclusions about the value of examining excessive affection as a general phenomenon.

The second hypothesis predicted that individuals who experience excessive affection would report lower depression, loneliness, stress, and pain, fewer nightmares, and higher sleep quality than those who experience affection deprivation. This hypothesis was also supported for all outcomes save for nightmares. AET argues that both affection deprivation and excessive affection are aversive. Given the potency of the human need to belong, we proposed that although both a lack of affectionate behavior, and an abundance, would be aversive, lacking affectionate communication would be more problematic. Because affectionate communication is understood as an important relational resource, lacking that resource (in the form of affection deprivation) should be more aversive than possessing an abundance of that resource (in the form of excessive affection). Indeed, the results indicated that affection deprivation and excessive affection

are not equally aversive. A related explanation for these results comes from expectations surrounding affectionate communication within close relationships. Specifically, some amount of affection is both expected and desired in close relationships (Floyd, 2019); thus, excessive affection might be deemed a less negative deviation from ideal amount of affectionate communication as compared to affection deprivation. Because the current study is the first to compare affection deprivation and excessive affection, additional research will be needed to uncover where affection deprivation and excessive affection might converge and diverge with respect to important individual and relational outcomes.

The mean difference between the deprived and excessive affection groups for nightmare frequency was in the hypothesized direction, but the comparison did not achieve statistical significance. Because the planned contrasts for H2 utilized only 50.7% the sample (by excluding those in the just-right category), statistical power was lower than for the tests of H1. Yet even with half the sample temporarily suppressed, the sample size for tests of H2 was still >400, so it is unlikely that the sample size is to blame. Compared to other dependent measures, however, nightmare frequency had very low variance (see Table 1), which would impede statistical power on its own. Given that the means were in the hypothesized direction, we suspect that the failure of this comparison to achieve significance is attributable to its restricted variance.

6.2 | Implications

A principal implication of the study is that, whereas receiving affectionate communication is generally beneficial for our physical, mental, and relational health (see Floyd, 2019; Hesse, Floyd, et al., 2021), that is not true without exception. According to AET, the benefits of affectionate communication are subject to two threshold effects, wherein receiving either too little affection or too much are not only unhelpful but actually harmful. Although we cannot claim on the basis of the present findings that suboptimal or supraoptimal affectionate communication *causes* depression, loneliness, stress, pain, nightmares, or lower sleep quality, most of these indices of wellness are impeded compared to those who receive a desired amount of affection (significantly so with suboptimal affectionate communication). This observation has important implications in the realm of psychotherapy. The suggestion to increase affectionate behavior is sometimes a component of marital (Brezsnyak & Whisman, 2004) and relational (L'abate, 2008) therapy, and the present findings support the efficacy of such a prescription *so long as a partner's range of tolerance is respected*. AET and empirical research (including the present study) clearly suggest that affectionate communication is beneficial to wellness when it approximates what the recipient desires but becomes detrimental to well-being when it under- or over-delivers. When a recommendation to increase affectionate behavior is made clinically, therefore, it should be offered with a mindful understanding of what the receiving partner wants.

Although both affection deprivation and excessive affection have been studied in their own right, this was the first investigation to study these states in tandem and to explore which state is more aversive. Not only does affection deprivation occur more frequently in the general U.S. American adult population (45.6%) than does excessive affection (5.1%), the outcomes associated with affection deprivation are more negative. We predicted this difference based on the argument that the need for social connection is evolutionarily fundamental, so we anticipated that thwarting this need (as would be signaled by affection deprivation) would be more detrimental than having an excess of affection. Parallels can be drawn here to loneliness, a condition

characterized by a lack of sufficient social connection (Cacioppo & Patrick, 2008). Whereas affection deprivation is both conceptually and empirically distinct from loneliness (Floyd & Hesse, 2017), both represent a thwarting of the need to belong (Baumeister et al., 2007). For a highly social species such as humans, an unmet need to belong can represent a significant threat to physical and mental wellness—and indeed, loneliness (like affection deprivation) is associated with multiple detriments to physical and mental well-being, including both considering (McClelland et al., 2020) and attempting (Stravynski & Boyer, 2001) suicide. The observation that affection deprivation is both nine times as common as excessive affection—and more detrimental to physical and mental health—warrants interventional attempts to reduce it in the U.S. adult population, similar to those recently seen for loneliness (Engaged., 2021).

6.3 | Future research, strengths, and limitations

Given the relative prevalence of affection deprivation and its associated health problems, one valuable direction for future research would be to identify risk factors for affection deprivation. In two studies involving over 3700 U.S. American adults, Floyd and Morman (2021) began this process by examining predictors of affection deprivation. Their investigation found that deprivation is inversely associated with age (i.e., younger people feel more affection deprived), higher for single adults than those who are married or partnered, and higher for adults who identify as bisexual than for those who identify as heterosexual. Neither gender, race, ethnicity, nor education level were significant risk factors, and the distribution of affection deprivation among U.S. states was virtually random, evidencing no apparent geographic pattern. Although this initial investigation was informative, more extensive work is warranted to identify those at greatest risk of experiencing affection deprivation and its associated physical and mental health detriments.

Whereas the current study explored the link between the general perception of affection deprivation/excessive affection and health related outcomes, future research could explore these associations within the context of a close relationship (e.g., romantic relationship, friendship, or family relationship). In the current study, we did not assess relationship status, and it would be useful to see whether these results would be stronger for those within a romantic relationship (echoing the results from previous studies such as van Raalte et al., 2021), or whether there would be a stress-buffering effect. Further, exploring affection deprivation and excessive affection simultaneously within a specific relational context could allow researchers to explore potential moderators like relational satisfaction, closeness, and/or commitment. For example, is receiving the right amount of affection still related to positive health outcomes when an individual is dissatisfied? Further, would experiencing affection deprivation still relate to detrimental health outcomes within a close and satisfying romantic relationship?

Another valuable direction for future research would be to explore the need (or desire) for affection as a key component to both affection deprivation and excessive affection. Both affection deprivation and excessive affection are understood as a discrepancy, beyond the range of tolerance, between the desired and received amounts of affection. For affection deprivation, these differences could be due to high amounts of desired affection, low amounts of received affection, or a combination of the two. For excessive affection, these differences could occur because of low amounts of desired affection, high amounts of received affection, or a combination of the two. Examining the need for affection (Schutz, 1958) as a key antecedent for both

affection deprivation and excessive affection would be useful in understanding both concepts more completely. For example, how much does a high need for affection generate the necessary conditions for affection deprivation? Or is a deficit in the receipt of affection the primary reason for affection deprivation? Future research should continue to explore the primary source of both affection deprivation and excessive affection. Specifically, interaction adaptation theory (IAT: see Floyd & Burgoon, 1999) could provide a helpful context for understanding the experience of affection deprivation and excessive affection.

A major strength of the current study was its use of a Census-matched representative sample of U.S. American adults, which substantially increases external validity. Unfortunately, research in interpersonal communication is seldom representative of the population and tends to overrepresent the experiences of particular groups although simultaneously underrepresenting the experiences of others (Afifi & Cornejo, 2020). Due to the Census-matched sample, the likelihood that individuals will experience affection deprivation or excessive affection is known and can be generalized to the larger population.

Second, research exploring affection that occurs outside the range of tolerance has focused either on affection deprivation or excessive affection, but not both. The current study is the first to compare these two concepts in tandem. Examining these concepts simultaneously provides important information about their relative frequencies in the U.S. adult population and allows their relative associations with health to be adjudicated.

Of course, the study is limited by its cross-sectional nature, which makes definitively establishing causal relationships impossible. Additional research will be needed to determine if affection deprivation and excessive affection actually cause some of the negative health outcomes described in this study through experimental and/or longitudinal designs. Moreover, although the health outcomes examined here represent both physical and mental wellness, many other health-related indices were unaddressed in this initial investigation comparing excessive and deficient affection.

One specific limitation of the data is the small number of participants selecting the excessive affection category (5.1%). In their study of excessive affection, Hesse and Mikkelson (2021) also found a limited number of individuals experiencing excessive affection as compared to the other two affection outcomes. Although they found that excessive affection was related to outcomes like general health, depression, loneliness, and stress, it was only when individuals experiencing excessive affection were examined independently from the rest of the sample. In the current study, the limited cell size, in addition to the variance among participants experiencing excessive affection, could make replicating the findings for excessive affection challenging. Overall, the excessive affection results should be interpreted with some degree of caution and replication of these results will be needed to expand our confidence in the results of the current study.

Some may also consider the measurement model to be a limitation, insofar as the trichotomous independent variable was validated by comparing discrepancy scores on two items asking participants how much affection they received in their lives and how much they wish they received. We would contend that such an approach has prima facie validity insofar as deprivation is conceptually defined as receiving less affection than one wants and excess is defined as receiving more affection than one wants. The discrepancy between these measures may, therefore, be the most direct way to validate a categorical scheme, and indeed, this approach was nearly identical to that employed by Floyd et al. (2014) when validating the original version of the Affection Deprivation Scale. Nonetheless, as an anonymous reviewer pointed out, we did not provide participants in the current study with an explicit conceptual definition of

affectionate communication, instead leaving it to participants to define the phenomenon in whatever manner reflected their own experiences. It is, therefore, possible that participants defined affectionate communication in a variety of ways. Such variety reflects people's natural experiences of affectionate communication, however (see Floyd et al., 2021), so we do not necessarily believe this limits the conclusions that are warranted from our operational approach.

The current study adds to the growing body of literature exploring the boundaries of beneficial and aversive experiences of affectionate communication. In general, affection deprivation differed from receiving optimal affection with respect to a number of mental and physical health outcomes, such as loneliness, depression, and stress (with excessive affection linked only to loneliness). Importantly, the study demonstrated that, compared to excessive affection, affection deprivation is a more aversive state. Given the health-related deficits for those experiencing affection deprivation and excessive affection, researchers should continue to explore the mechanisms that create aversive experiences of affection and the related physical, mental, and relational health outcomes.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions (colin.hesse@oregonstate.edu).

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ENDNOTES

[1] These percentages sum to >100 because participants could select multiple racial identities.

[2] An anonymized version of the preregistration is viewable at https://osf.io/js4pk/?view_only=6fea91f5f71444678aae740b18291093

[3] Pain was measured with a two-item scale, and at least three items are required to compute McDonald's ω, so Cronbach's α was computed for the measure of pain instead.

[4] Because gender was a control variable in the MANCOVAs, we again temporarily suppressed responses other than "male" and "female" due to small cell sizes.

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