Running head: COUNTERACTING LONELINESS

**Counteracting Loneliness: On the Restorative Function of Nostalgia**

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Abstract

Four studies tested whether nostalgia can counteract reductions in perceived social support caused by loneliness. Loneliness reduced perceptions of social support but increased nostalgia. Nostalgia, in turn, increased perceptions of social support. In all, loneliness affected perceived social support in two distinct ways. Whereas the direct effect of loneliness was to reduce perceived social support, the indirect effect of loneliness was to increase perceived social support via nostalgia. This restorative function of nostalgia was particularly apparent among resilient persons. Nostalgia is a psychological resource that protects and fosters mental health.

Loneliness is a psychological state characterized by a set of discomforting emotions and cognitions, such as unhappiness, pessimism, self-blame, and depression (Anderson, Miller, Riger, Dill, & Sedikides, 1994; Cacioppo & Hawkley, 2005). Loneliness is associated with perceived lack of social support (Cacioppo et al., 2006), and with having fewer and less satisfying relationships than desired (Archibald, Bartholomew, & Marx, 1995). Loneliness is a universal experience, as revealed by studies with diverse cultural samples including Chinese Canadians (Goodwin, Cook, & Yung, 2001), Turks and Argentines (Rokach & Bacanli, 2001), Americans and Canadians (Rokach & Neto, 2000), Portuguese (Neto & Barrios, 2001), and British Asians (Shams, 2001). Loneliness is alleviated by seeking support from social networks (Asher & Paquette, 2003; Bell, 1991), but frequently the solicitation of social support is impeded by individual (e.g., shyness, social unskillfulness) and situational (e.g., relocation, immigration) factors. We propose that an alternative strategy for coping with loneliness is to augment subjective perceptions of social support by drawing on nostalgic memories.

Nostalgia, a sentimental longing for the past, is a self-relevant and social emotion: The self almost invariably figures as the protagonist in nostalgic narratives and is almost always surrounded by close others. Along with close others (family members, friends, partners), the most common objects of nostalgic reverie are momentous events (birthdays, vacations) and settings (sunsets, lakes) (Wildschut, Sedikides, Arndt, & Routledge, 2006, Studies 1-2). Although nostalgia reflects some ambivalence, it is a predominantly positive emotion. On the one hand, the simultaneous expression of happiness and sadness is more commonly found in recollections of nostalgic than ordinary events, and the coactivation of happiness and sadness occurs more frequently as a result of reflection about nostalgic than ordinary or positive events (Wildschut, Stephan, Sedikides, Routledge, & Arndt, 2008). On the other hand, recollections of nostalgic events include more frequent expressions of happiness, and induce higher levels of happiness, than of sadness (Wildschut et al., 2006, 2008). Moreover, positive and negative elements are often juxtaposed in the

form of redemption, a narrative pattern that progresses from a dismal to a triumphant life scene (McAdams, 2001).

Wildschut et al. (2006, Studies 5-7) tested the idea that nostalgic reverie can reignite meaningful relational bonds and re-establish a symbolic connection with significant others (Sedikides, Wildschut, Arndt, & Routledge, 2006; Sedikides, Wildschut, & Baden, 2004). Participants brought to mind either a nostalgic or ordinary event, and then wrote about it. Nostalgic participants scored higher on measures of social bonding, evinced a more secure attachment style, and reported greater interpersonal competence. Nostalgia, then, may increase the accessibility of past relationships (Kumashiro & Sedikides, 2005; Sedikides & Skowronski, 1991) and thus counteract loneliness by magnifying perceived social support.

But does loneliness trigger nostalgia? Wildschut et al. (2006, Study 4) addressed this question. In a laboratory experiment, they induced high versus low loneliness and then measured nostalgia. High-loneliness participants reported being more nostalgic than low-loneliness participants. Thus, there is preliminary support for the idea that loneliness instigates nostalgia.

To summarize, evidence suggests that (a) loneliness, when induced by hypnotic suggestion, leads to reduced perceptions of social support (Cacioppo et al., 2006); (b) loneliness increases nostalgia (Wildschut et al., 2006, Study 4); and (c) nostalgia fosters social connectedness (Wildschut et al., 2006, Studies 5-7), thus likely magnifying perceived social support. These findings raise the interesting possibility that loneliness affects perceived social support in two distinct ways. The direct effect of loneliness is to reduce perceived social support: The lonelier one feels, the less social support one perceives. However, the indirect effect of loneliness is to increase perceived social support via nostalgia: The lonelier one feels, the more nostalgic one becomes, and the more social support one consequently perceives. This pattern of relationships would give rise to a statistical suppression situation. Such situations can be described in terms of an implicit causal model involving an initial predictor (e.g., loneliness), an intervening variable (e.g., nostalgia), and an outcome (e.g., perceived

social support). Suppression occurs when the direct effect of the initial predictor is directionally opposite to its indirect effect via the intervening variable: When the intervening variable is controlled, the direct effect of the initial predictor is strengthened (Mackinnon, Krull, & Lockwood, 2000; Paulhus, Robins, Trzesniewski, & Tracy, 2004).

We examined the possibility that nostalgia counteracts reductions in perceived social support caused by loneliness, in four methodologically diverse studies. We drew from varied participant populations in an Asian (i.e., Chinese) culture. In addition, we examined, in Study 4, whether the hypothesized link between loneliness and nostalgia is moderated by a variable that has received ample empirical attention as of late: resilience (Bonanno, 2004).

In Mandarin Chinese, the word for "nostalgia" is "huaijiu." It is a compound word, consisting of "huai" ("sentimental longing for") and "jiu" ("the past"). Its meaning is well-entrenched in the cultural lexicon. Still, for internal validity purposes, we always provided participants with a somewhat longer definition of the construct before measuring or inducing nostalgia. We administered Chinese and validated (and/or back-translated) versions of all scales we used. Also, we examined but did not find any gender differences. Finally, we debriefed participants at the end of each testing session.

## Study 1

Study 1, a preliminary correlational investigation, explored whether loneliness directly decreases perceived social support, whereas it indirectly increases perceived social support via nostalgia.

### *Method*

*Participants and Procedure*

Participants were 758 migrant children (428 females, 318 males, 12 of undeclared gender), aged between 9-15 ($M_{age}$ = 11.45, $SD$ = 1.05). They were recruited from an elementary school for migrant children in the city of Guangzhou, China. The children had migrated to this city with their parents from rural areas. They

had lived in Guangzhou for an average of 4 years ($SD_{months}$ = 33.71). Participants were seated at separate desks in their classroom and completed the materials anonymously and at their own pace.

We conducted a pilot study involving 43 elementary school children aged 8-10. All children indicated that they understood the meaning of "huaijiu" and that nostalgic experiences were common and familiar to them. In addition, the school teacher confirmed that "huaijiu" was part of the students' vocabulary. Finally, children showed good comprehension of the 5-item Southampton Nostalgia Scale (SNS; Routledge, Arndt, Sedikides, & Wildschut, 2008) used in the main study. They rated their comprehension of the SNS items on a 7-point scale (1 = *poor comprehension*, 7 = *excellent comprehension*). Each item received an average rating greater than 5.

*Materials*

We assessed loneliness with the 10-item UCLA Loneliness Scale (Russell, 1996). A sample item is: "How often do you feel completely alone?" Items were rated on a 4-point scale (1 = *never*, 4 = *always*); α = .86.

We assessed nostalgia proneness with the SNS. A sample item is: "How often do you experience nostalgia?" Items were rated on a 7-point scale (1 = *very rarely*, 7 = *very frequently*); α = .70.

We assessed social support with the 12-item Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988). A sample item is: "I can count on my friends when things go wrong." Items were rated on a 7-point scale (1 = *very strongly disagree*, 7 = *very strongly agree*); α = .93.

*Results and Discussion*

Results are presented in the top panel of Figure 1. Zero-order correlations revealed that (a) loneliness was negatively associated with perceived social support; (b) loneliness was positively associated with nostalgia; and (c) nostalgia was positively associated with perceived social support. The results are consistent with the possibility that loneliness is related to perceived social support in two distinct ways. Whereas the direct effect of loneliness is to decrease perceived social support, the

indirect effect of loneliness is to increase perceived social support via nostalgia. This implies that loneliness should more strongly predict reductions in perceived social support after nostalgia has been controlled (Paulhus et al., 2004). Indeed, when we regressed perceived social support onto both loneliness and nostalgia, we found a unique negative association between loneliness and perceived social support, and a unique positive association between nostalgia and perceived social support (Figure 1). A *z*-prime test[1] revealed that the negative association between loneliness and perceived social support became significantly more negative after nostalgia was controlled (-.22 vs. -.17), $z' = 3.40$, $p < .001$. An alternative interpretation of this result is that the positive indirect effect of loneliness on perceived social support via nostalgia was significant. In sum, lonely people, although they perceive little social support, are inclined to nostalgic engagement. Such nostalgic engagement, in turn, increases their perceptions of social support.

## Study 2

Suppression situations have been viewed with skepticism, partly because of their alleged elusiveness (Wiggins, 1983). The first objective of Study 2 was to replicate the suppression situation documented in Study 1. The correlational design of Study 1 did not allow for a causal ordering of loneliness, nostalgia, and perceived social support. The second objective of Study 2 was to test experimentally the causal effect of loneliness on nostalgia (the postulated intervening variable) and perceived social support (the postulated outcome). The third objective of Study 2 was to examine the generality of Study 1 findings by testing a sample of university students.

### *Method*

*Participants*

Participants were 84 undergraduate students from Fudan University, Shanghai, China (46 females, 38 males), aged between 18-23 ($M_{age} = 20.93$, $SD = 0.79$). They were randomly assigned to the loneliness conditions (high vs. low).

*Materials and Procedure*

Participants were tested individually. We induced loneliness with a manipulation introduced by Wildschut et al. (2006, Study 4). Participants completed the ostensibly valid and reliable "Southampton Loneliness Scale." The scale consisted of 10 items drawn from the UCLA Loneliness scale (Russell, Peplau, & Cutrona, 1980). In the high-loneliness condition, items were phrased so as to elicit agreement (e.g., "I sometimes feel alone"). In the low-loneliness condition, items were phrased so as to elicit disagreement (e.g., "I always feel alone"). As intended, participants in the high-loneliness condition ($M = 6.20$) agreed with more items than participants in the low-loneliness condition ($M = 2.00$), $F(1, 82) = 149.26$, $p < .001$, $r = .80$. Subsequently, participants received bogus feedback. Those in the high-loneliness condition learned that their scores were in the 67th percentile of the loneliness distribution and that they were "well above average on loneliness" compared with other Fudan University undergraduates. Those in the low-loneliness condition learned that they were in the 12th percentile and "very low on loneliness" compared with fellow undergraduates. To strengthen the manipulation, participants were instructed to list reasons for their loneliness score. Next, participants completed a 2-item manipulation check ("I am feeling lonely right now," "At this moment, I feel quite lonely"; 1 = *strongly disagree*, 7 = *strongly agree*). We combined responses to the two items ($r = .68$, $p < .001$) to form a single index. Participants reported feeling lonelier in the high-loneliness ($M = 5.77$) than low-loneliness ($M = 4.90$) condition, $F(1, 82) = 13.31$, $p < .001$, $r = .37$.

Next, participants completed measures of nostalgia (SNS; $\alpha = .71$) and perceived social support (MSPSS; $\alpha = .87$). Each scale item was prefaced with the stem "Right now" in order to assess state nostalgia and perceived social support.

*Results and Discussion*

Results are presented in the bottom panel of Figure 1. In a cross-cultural replication of the Wildschut et al. (2006, Study 4) findings, loneliness increased nostalgia. Participants in the high-loneliness condition ($M = 4.86$) felt more nostalgic than those in the low-loneliness condition ($M = 4.16$), $F(1, 82) = 4.76$, $p < .05$, $r = .23$.

Also, in a conceptual replication of Study 1 findings, loneliness decreased perceived social support. Participants in the high-loneliness condition ($M = 4.63$) reported lower social support than those in the low-loneliness condition ($M = 5.34$), $F(1, 82) = 5.31$, $p < .02$, $r = -.25$. Finally, as in Study 1, there was a significant positive zero-order correlation between nostalgia and perceived social support (Figure 1).

Importantly, we replicated the suppression situation documented in Study 1. Whereas the direct effect of loneliness was to reduce social support, its indirect effect was to increase social support via nostalgia. When we regressed perceived social support onto both the loneliness manipulation (contrast coded) and nostalgia, we found a unique negative effect of the loneliness manipulation on perceived social support, and a unique positive association between nostalgia and perceived social support (Figure 1). A $z$-prime test revealed that the effect of the loneliness manipulation on perceived social support became significantly more negative when nostalgia was controlled (-.31 vs. -.25), $z' = 1.70$, $p < .05$. In sum, lonely participants perceived little social support, but they also felt nostalgic. In turn, nostalgic reverie augmented their perceptions of social support.

<div align="center">Study 3</div>

Study 2 provided compelling evidence for directionally opposite causal effects of loneliness on nostalgia and perceived social support. It is still unclear, however, whether nostalgia exerts a causal effect on perceived social support. The key objective of Study 3 was to clarify whether nostalgia increases perceived social support.

<div align="center">*Method*</div>

*Participants*

Participants were 66 Fudan University undergraduates (36 males, 30 females), aged between 18-24 ($M_{age} = 21.02$, $SD = 1.27$). They were randomly assigned to conditions (nostalgia vs. control).

*Materials and Procedures*

We induced nostalgia using a manipulation introduced by Wildschut et al. (2006, Study 5). Participants in the nostalgia condition were instructed to "… bring to mind a

nostalgic event in your life. Specifically, try to think of a past event that makes you feel most nostalgic." Participants in the control condition brought to mind "an ordinary event." Participants then listed four event-relevant keywords and reflected briefly about the event and how it made them feel. Next, they completed a 2-item manipulation check: "Right now, I am feeling quite nostalgic" and "Right now, I am having nostalgic feelings" (1 = *strongly disagree*, 7 = *strongly agree*). We combined responses to the items ($r = .74$, $p < .001$) to form a single index. As intended, participants in the nostalgia condition ($M = 4.89$) reported feeling more nostalgic than those in the control condition ($M = 4.22$), $F(1, 64) = 4.52$, $p = .037$, $r = .26$.

Subsequently, participants completed two measures of perceived social support. One was the MSPSS ($\alpha = .86$). The other involved the estimation of the number of friends who would volunteer in an experiment to help participants receive additional credit.

### *Results and Discussion*

Nostalgia increased perceived social support. Participants in the nostalgic condition perceived more social support ($M = 5.39$) than those in the control condition ($M = 4.87$), $F(1, 64) = 8.04$, $p = .006$, $r = .33$. Furthermore, participants in the nostalgia condition ($M = 8.94$) listed a greater number of friends than those in the control condition ($M = 7.58$), $F(1, 64) = 2.86$, $p = .096$, $r = .21$. The two perceived social support measures were positively correlated, $r = .55$, $p < .001$. These results confirm that nostalgia causes increases in perceptions of social support.

### Study 4

We have established, through correlational and experimental methods, and in samples of children and undergraduate students, the restorative function of nostalgia in relation to loneliness. In particular, Studies 1-3 revealed that (a) loneliness decreases perceptions of social support; (b) loneliness increases nostalgia; and (c) nostalgia, in turn, increases perceptions of social support. We have shown that this pattern of relationships is tantamount to a statistical suppression situation: Whereas

loneliness directly decreases perceived social support, it indirectly increases perceived social support via nostalgia. The objective of Study 4 was to test the generality of these findings. Are these findings replicated in a community-drawn adult sample and with a more comprehensive assessment of nostalgia? More importantly, are these findings moderated by personality variables? We focused, in particular, on resilience.

Resilience is defined as the ability to recover from (or to resist being affected by) shock, insult, or disturbance (Garmezy, 1991). Resilient individuals exposed to traumatic events or unfavorable life circumstances (ranging from a terrorist attack and divorce to death of a spouse and poverty) are characterized, after an initial period of distress, by a "stable trajectory of healthy functioning across time" (Bonanno, 2005, p. 136). Such individuals are able to carry out effectively their personal and social responsibilities, to experience positive emotions, and to engage in creative activities (Bonanno, 2004). Resilient individuals capitalize on available personal and social resources to self-regulate effectively.

Study 4 assessed loneliness, resilience, nostalgia, and perceived social support in a sample of factory workers. We expected to replicate previous findings: The association between loneliness and perceived social support should become significantly more negative when nostalgia is controlled. Importantly, we expected for resilience to moderate this suppression pattern. Given their resourcefulness, resilient individuals should be particularly apt to recruit nostalgia in response to loneliness.

*Method*

*Participants and Procedure*

Participants were 193 factory workers (121 females, 53 males, 19 of undeclared gender) in a luggage factory in the city of Dongguan, China ($M_{age}$ = 25.44; *SD* = 6.84).

*Measures*

We measured loneliness with the UCLA Loneliness Scale; $\alpha$ = .74. We measured resilience with the 15-item form of the Resilience Scale (RS; Wagnild &

Young, 1993). A sample item is: "When I'm in a difficult situation, I can usually find my way out of it" (1 = *strongly disagree*; 7 = *strongly agree*); α = .81.

We measured nostalgia with two scales. The first scale was Batcho's (1995) Nostalgia Inventory (NI), where participants rate (1 = *not at all*, 7 = *very much*) the extent to which they miss 20 aspects of their past (e.g., my family, places, my friends, my childhood toys); α = .80. The NI has been used successfully by Wildschut et al. (2006, Study 3). The second scale was the SNS (Routledge et al., 2008); α = 74. We standardized (*z*-scores) and then averaged the two nostalgia scales (*r* = .41, *p* < .001) to form a composite measure. The relatively low correlation between the two scales is not surprising, given that the NI assesses longing for concrete objects, whereas the SNS assesses abstract facets of nostalgic such as frequency and personal relevance. Yet, the two scales produced identical results when considered alone. Finally, we measured perceived social support with the MSPSS; α = .77.

*Results and Discussion*

First, we examined whether prior findings were replicated (Figure 2). We again found evidence that, whereas the direct effect of loneliness is to reduce perceived social support, its indirect effect is to increase perceived social support via nostalgia. As in Studies 1-2, the association between loneliness and perceived social support became significantly more negative when nostalgia was controlled (-.26 vs. -.15), *z'* = 2.60, *p* < .01. Alternatively, the positive indirect effect of loneliness on perceived social support via nostalgia was significant.

Next, we turned to the role of resilience. Following guidelines for testing moderation in the context of intervening variable models (Muller, Judd, & Yzerbyt, 2005; Preacher, Rucker, & Hayes, 2007), we took the preliminary step of testing whether resilience moderated the association between loneliness and perceived social support. A non-significant Loneliness X Resilience interaction, β = .07, *t* = 0.87, *p* < .39, indicated that resilience did not moderate this association. We then tested whether resilience moderated the association between loneliness and nostalgia. We regressed nostalgia onto loneliness, resilience, and the Loneliness X Resilience

interaction. A significant Loneliness X Resilience interaction, $\beta = .20$, $t = 2.20$, $p$
< .05, indicated that resilience moderated this association (Figure 3). The simple
loneliness slope at high resilience (+1 *SD*) was strong and positive, $\beta = 0.47$, $t = 3.89$,
$p < .01$, whereas the simple loneliness slope at low resilience (-1 *SD*) was
non-significant and approximately zero, $\beta = 0.09$, $t = 0.63$, $p = .53$. Loneliness was
associated with nostalgia among individuals high (but not low) in resilience. These
results suggest that it is the high resilience individuals who are most likely to recruit
nostalgia in response to loneliness.

Finally, we examined whether resilience moderated the association between
nostalgia and perceived social support. We regressed perceived social support onto
loneliness, nostalgia, resilience, the Loneliness X Resilience interaction, and the
Nostalgia X Resilience interaction (Muller et al., 2005; Preacher et al., 2007). The
Nostalgia X Resilience interaction was not significant, $\beta = -.01$, $t = -.1.14$, $p < .26$,
indicating that resilience did not moderate the association between nostalgia and
perceived social support. In all, the data are consistent with the idea that both resilient
and non-resilient people derive perceived social support from nostalgia, but highly
resilient people are more likely to recruit nostalgia when lonely. Resilient people have
incorporated nostalgia in their arsenal of coping mechanisms.

General Discussion

Due to either dispositional (e.g., introversion, shyness) or situational (e.g., new
occupation or residence) factors, individuals often find it difficult to cope with
loneliness directly, that is, by strengthening their social support through the formation
of social networks or expansion of existing ones. We wondered whether nostalgia
constitutes an alternative coping strategy. Might nostalgia restore social
connectedness by increasing subjective perceptions of social support? Is this
restorative function of nostalgia more potent among resilient individuals? We
conducted four studies to find out. Some were correlational, others experimental.
Some tested children, others university students or factory workers. Furthermore,
Studies 2 and 3 replicated in Chinese samples experimental findings initially obtained

in British samples (Wildschut et al., 2006).

Several interesting findings emerged. First, loneliness is associated with, or causes, decreased perceived social support (Studies 1-2, 4). Second, loneliness is associated with, or causes, increased nostalgia (Studies 1-2, 4). Third, nostalgia is associated with, or causes, increased perceived social support (Studies 1-4). This results pattern amounts to a suppression situation: Whereas loneliness directly decreased perceived social support, it indirectly increased perceived social support via nostalgia. Nostalgia magnifies perceptions of social support, and, in so doing, thwarts the effect of loneliness. Nostalgia restores an individual's social connectedness. Fourth and finally, the association between loneliness and nostalgia is pronounced among resilient individuals. It is these individuals who, when lonely, report high levels of nostalgia.

The findings have implications not only for social and personality psychology, but also for clinical, health, and developmental psychology. From a social psychology perspective, what are some additional consequences of heightened perceptions of social support among lonely (and resilient) individuals? Might a consequence be reduced death-thought accessibility (Routledge et al., 2008) and, by implication, lower existential anxiety? Also, might nostalgia be evoked as a coping strategy when faced with social exclusion (Williams, 2001) or acculturative stress (Sedikides, Wildschut, Routledge, Arndt, & Zhou, in press)? From a personality psychology perspective, what are some other relevant individual difference variables worth investigating? We would single out hardiness (Kobasa, Maddi, & Kahn, 1982), positive emotions (Fredrickson & Losada, 2005), and self-compassion (Leary, Tate, Adams, Allen, & Hancock, 2007). We expect that people high on hardiness, positive emotionality, and self-compassion, would experience higher levels of nostalgia, when lonely, with accompanying beneficial consequences. From a clinical psychology perspective, nostalgia may be considered a tool in cognitive therapy (Salmela-Aro & Nurmi, 1996). Individuals could be trained to benefit from the restorative function of nostalgia when actual social support is lacking or is perceived as lacking. From a

health psychology perspective, might nostalgia serve a protective role for physical health, especially in the presence of chronic distress (i.e., loneliness), in the same manner as personal control, sense of meaning, and optimism do (Taylor, Kemeny, Reed, Bower, & Gruenewald, 2000)? Finally, from a developmental psychology perspective, nostalgia may be implemented as a technique to cope with loneliness in children, adolescents, and the elderly.

This research documents nostalgia as psychological resource that protects and fosters mental health. Nostalgia strengthens social connectedness and belongingness, partially ameliorating the harmful repercussions of loneliness. The research constitutes an initial step toward establishing nostalgia as a potent coping mechanism again self-threat and social threat. The past, when appropriately harnessed, can strengthen psychological resistance to the vicissitudes of life.

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Footnotes

[1] The critical value ($\alpha = .05$) for this test is 0.97 (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002).

Figure Caption

*Figure 1*. Associations between loneliness, nostalgia, and perceived social support in Study 1 (top panel; $N = 758$) and Study 2 (bottom panel; $N = 84$). Coefficients in boldface are zero-order correlations. Coefficients in parentheses are standardized regression coefficients. $* p < .05$; $** p < .01$; $*** p < .001$

*Figure 2*. Associations between loneliness, nostalgia, and perceived social support in Study 4 ($N = 193$). Coefficients in boldface are zero-order correlations. Coefficients in parentheses are standardized regression coefficients. $** p < .01$; $*** p < .001$

*Figure 3*. Level of nostalgia as a function of loneliness and resilience. Plotted values are predicted means calculated at 1 *SD* above and below the mean of loneliness, and at 1 *SD* above and below the mean of resilience.

Nostalgia

.14***

.33*** (.37***)

Loneliness

Perceived
Social
Support

-.17*** (-.22***)

Nostalgia

.23*

.21** (.28*)

Manipulated
Loneliness

Perceived
Social
Support

-.25* (-.31**)