LONELINESS, SOCIAL CONNECTEDNESS, AND FAMILY INCOME AMONG UNDERGRADUATE FEMALES AND MALES IN TAIWAN

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This study investigated loneliness and its relationships with social connectedness and family income among female and male college students in Taiwan. The Revised UCLA, Loneliness Scale (R-UCLA; Russell, Peplau, & Cutrona, 1980); translated into Chinese and adapted by Wang, 1989, for measuring global, intimate, and social loneliness, and the Social Connectedness Scale (Lee, Draper, & Lee, 2001), were administered to undergraduates. Analysis of the statistical data utilized Pearson's, product-moment correlations and multiple regression techniques. The findings reveal that college males experienced more loneliness than females in global and social loneliness. Furthermore, social connectedness significantly predicted global, intimate, and social loneliness in both females and males. Family income significantly predicted global and social loneliness in college men only. Implications for future research are discussed.

Keywords: global loneliness, intimate loneliness, social loneliness, social connectedness, family income, college females, college males.

Loneliness, a common psychological problem among humans, can be linked to anxiety, reduced social competence, and suicide risk (Birtchnell & Alarcon, 1971; Blai, 1989; Crick & Ladd, 1993; Heinrich & Gullone, 2005; Mijuskovic, 1986). A considerable number of undergraduate students reported having experienced

loneliness during late adolescence (McWhirter, 1990b; Schultz & Moore, 1986). McWhirter reported that in the US, approximately 30% of college students sensed loneliness and at least 6% considered it a major problem. In Taiwan, although sufficient data is lacking, a survey of business freshmen showed that as many as 69% of Taiwanese students experienced loneliness while transitioning to college (Wu, 1986). A study of loneliness among college women and men, particularly in Taiwan, is of significance as it can offer practical information regarding the development of coping strategies for loneliness, and may provide knowledge for additional understanding of student personality traits in Asian cultures.

Loneliness is multidimensional and has various types and degrees (Rook, 1984; Weiss, 1973, 1987). Based on the typology developed by Weiss (1987), loneliness can be divided into intimate (or emotional) loneliness and social loneliness. Intimate loneliness arises when one lacks close contact with persons with whom one can share life, typically leading to feelings of emptiness and anxiety. Social loneliness, however, occurs when one lacks a supportive social network, and generally gives rise to feelings of marginality and alienation (Russell, Cutrona, Rose, & Yurko, 1984). Russell et al. further indicated that people who suffer from social loneliness may be more inclined toward passivity than those who suffer from emotional loneliness. Recently, Hawkley, Browne, and Cacioppo (2005) indicated that the UCLA scale is characterized with three facets corresponding to social connectedness at the individual, relational, and collective levels, and that this mental representation can be generalized across gender.

The factors in the development and maintenance of loneliness may include cognitive discrepancy approaches, poor social skills, a lack of a social network, and an interactionist approach (Conoley & Garber, 1985; Heinrich & Gullone, 2005; Jones, Hobbs, & Hockenbury, 1982; McWhirter, 1990b; Stokes, 1985). Before constructing educational and psychological interventions, one must investigate the interrelationship between loneliness and predicting factors, in which the relationship between social connectedness and loneliness deserves special attention (Bellingham, Cohen, Jones, & Spaniol, 1989; Lee & Robbins, 2000; McWhirter, 1990b; Townsend & McWhirter, 2005). Lee and Robbins defined social connectedness as "an enduring and ubiquitous sense of the self in relation with the world, as compared with social support, adult attachment, and peer affiliation, which represent more discrete, current relationships" (p. 484). However, until now, few studies have elucidated this relationship. Bellingham et al. (1989) found that the lack or loss of connectedness can generate loneliness. Lee and Robbins observed that social connectedness was strongly related to loneliness in females, whereas connectedness was related only moderately to loneliness for males. No studies have examined the relationship between social connectedness and different loneliness types, especially among college females and males.

The relationship between low income and loneliness among college students in Taiwan should deserve special attention, because of the growing income discrepancy between poor and wealthy families. Currently the contribution of income level to health inequalities is a controversial issue. Sturm and Gresenz (2002) observed insufficient evidence supporting the hypothesis that income inequality is a major risk factor for common physical or mental health disorders. However, some studies have argued that family income influences college students' subjective well-being (Tong, 2003; Yan, Zheng, & Qiu, 2002) and that increased family income can improve positive social behavior among low-income children (Morris & Gennetian, 2003). Few studies have examined the relationship between income and loneliness. Polansky (1985) showed that very low-income mothers were lonelier than high income mothers. Moreover, Mullins, Sheppard, and Andersson (1991) indicated that individuals aged 16-65 with health problems and inadequate income had high levels of loneliness; but there was no evidence that gender exerted a significant influence. Steverink, Westerhof, Bode, and Dittmann-Kohli (2001) showed a weak correlation between loneliness and income for a sample of 4034 Germans aged 40-85 years old.

The main purpose of this study was to examine loneliness and the relationships between loneliness subtypes and social connectedness, and family income among female and male college students in Taiwan. Specifically, this study investigates gender differences in the experience of individual loneliness types, as well as the relations among loneliness, family income, and social connectedness. Studies on gender differences in self-construal and self-other experience can be found extensively in western society, but remain limited in Asian society. McWhirter (1997b) reported different levels of global, intimate and social loneliness between college aged males and females. Cross and Madson (1997) argued that females focused on constructing interdependent self-construal, while males favored constructing independent self-construal. Shumaker and Hill (1991) claimed that females assessed loneliness degree using levels of intimacy, but males assessed loneliness using network density. Lee and Robbins (2000) indicated that female college students appreciated social connections by focusing on intimacy and interdependency. Meanwhile male college students appreciated social connectedness by emphasizing power, status, and social comparison. Additionally, Stokes and Levin (1986) demonstrated that unlike men, women were likely to prefer a dyadic relationship in place of the community and group affiliations emphasized by men. Based on the literature regarding the theories of loneliness and the findings for females and males in western settings, this study hypothesized the following: (a) Women and men differ in their experience of global, intimate, and social loneliness; (b) higher levels of social connectedness predict lower levels of global, intimate, and social loneliness in both women and men; (c) higher levels of family income predict lower levels of global, intimate,

and social loneliness in both women and men; and (d) women and men differ in the association between social connectedness and global, intimate, and social loneliness and in the association between family income and global, intimate, and social loneliness.

METHOD

PARTICIPANTS

Four hundred undergraduates from five universities in northern Taiwan participated in this study. Of the 400 questionnaires distributed, 319 were completed, giving an effective return rate of 79.75%. Mean age of participants was 21 years (range, 17-30 years). Among these 319 participants, 160 were male and 159 were female. Eighty-eight participants majored in engineering, 67 in business, 103 in liberal arts, and 61 in science; 169 respondents were enrolled in public colleges and 150 in private colleges.

MEASURES

The questionnaire package included demographic questions, a social connectedness scale (SCS), and the Revised University of California – Los Angeles Loneliness Scale (R-UCLA). The demographic information section had questions pertaining to the respondents' annual family income (in Taiwan dollars (TW$) TW$ 1 is approximately US$ 0.3). There are five levels of household income (1-5), and each level is defined according to the following criteria: 1) ≤*500,000*; 2) *510,000-700,000*; 3) *710,000-900,000*; 4) *910,000-1,100,000*; and, 5) ≥*1,100,000*.

Social Connectedness Scale (SCS) The degree to which an individual senses their closeness with the social world was measured by using the SCS developed by Lee, Draper, and Lee (2001). The SCS, originally written in English, was translated into Chinese and revised for Taiwanese students by the authors. The revised scale has 20 items that are answered using a 6-point Likert-type scale ranging from 1 *strongly agree* to 6 *strongly disagree*. A high score indicates a strong sense of closeness with the social world. The Chinese SCS had good reliability with high internal consistency of 0.91 and test-retest reliability over a 2-week interval of 0.87.

Revised UCLA Loneliness Scale (R-UCLA) The reported loneliness an individual feels was measured by using the R-UCLA, originally drafted in English (Russell, Peplau, & Cutrona, 1980; Russell, Peplau, & Ferguson, 1978). The scale was translated into Chinese and adapted by Wang (1989) for Taiwanese students. The scale consists of 20 items that are answered on a 4-point Likert-type scale, ranging from 1 *never* to 4 *often*. A high score indicates a strong feeling of loneliness. The scale in Chinese R-UCLA has good reliability and high internal

consistency of 0.87 and test-retest reliability over a 2-week interval of 0.85. The R-UCLA has two subscales, UCLA Intimate Loneliness (first factor) and UCLA Social Loneliness (second factor). The UCLA Intimate Loneliness subscale has 10 items that assess the degree to which participants experienced loneliness with respect to a lack of intimate relationships. The UCLA Social Loneliness subscale has 10 items that assess the degree to which participants experienced loneliness with respect to a lack of social affiliations (Austin, 1983; Hojat, 1982; McWhirter, 1990a; McWhirter, 1997a).

PROCEDURE

Prior to the study, questionnaires were mailed to teachers who agreed to administer the survey. At each college, the questionnaires were administered after procedural guidelines were presented to participating students. Questionnaire data were subjected to the following analyses: (a) In order to identify the simple relationship among variables, Pearson product-moment correlations were computed, and (b) Forward Multiple Regression Analysis (FMRA) was utilized to examine the significance of predictor variables in predicting loneliness (Stevens, 2002). This analysis was performed using family income, social connectedness, and gender as independent variables, whereas each type of loneliness was identified as a dependent variable.

RESULTS

Before calculating scores of loneliness and making cross gender comparisons, a Multivariate Analysis of Variance (MANOVA) was performed to investigate the gender differences in selected variables. The MANOVA analysis treated gender as an independent variable, while family income, social connectedness, global loneliness, intimate loneliness, and social loneliness were dependent variables. The analytical results indicated that significant differences occurred between women and men [$F(4, 314)$, $p = .00$]. Thus, for comparison, means and standard deviations of scores for loneliness as well as other variables for women and men were computed separately and displayed in Table 1. Men reported that they were lonelier than women in global loneliness ($F[1, 318]$, $p < .01$) and in social loneliness ($F[1,318]$, $p = .00$), which was consistent with the hypothesis. However, no significant gender differences were found for intimate loneliness, contradicting the hypothesis. Family income did not differ significantly between females and males. Additionally, both genders sought similar levels of social connectedness.

TABLE 1
MEAN AND STANDARD DEVIATIONS FOR VARIABLES

Variable	Women (n = 159)		Men (n = 160)	
	M	SD	M	SD
Global Loneliness	39.97	8.58	42.77	9.42
Intimate Loneliness	22.16	5.17	22.84	5.33
Social Loneliness	17.81	4.72	19.93	4.90
Social Connectedness	74.29	11.84	74.12	13.89
Family Income (level)	2.26	1.15	1.88	1.08

Note: The annual family income (in Taiwan dollars, TW$, 1 TW$ is approximately 0.3US$) is classified into 5 levels (*1-5*): 1 ≤ 500,000; 2 = 510,000-700,000; 3 = 710,000-900,000; 4 = 910,000-1100,000; and 5 ≥ 1100,000.

TABLE 2
CORRELATION COEFFICIENTS FOR VARIABLES

Variable	1	2	3	4	5
Women (n = 159)					
1 Global Loneliness	1.00	.88**	.86**	-.76**	.02
2 Intimate Loneliness		1.00	.51**	-.71**	.08
3 Social Loneliness			1.00	-.61**	-.05
4 Social Connectedness				1.00	-.04
5 Family Income					1.00
Men (n = 160)					
1 Global Loneliness	1.00	.93**	.91**	-.80**	-.21**
2 Intimate Loneliness		1.00	.69**	-.78**	-.17*
3 Social Loneliness			1.00	-.69**	-.22**
4 Social Connectedness				1.00	.10
5 Family Income					1.00

Note: $^*p \leq .05$; $^{**}p \leq .01$; (2-tailed).

Next, Pearson product-moment correlations for variables for females and males were calculated and are displayed in Table 2. For women, global, intimate, and social loneliness were negatively correlated with social connectedness; between global loneliness and social connectedness ($r = -.76$, $p < .01$), intimate loneliness and social connectedness ($r = -.71$, $p < .01$), and social loneliness and social connectedness ($r = -.61$, $p < .01$). No correlation between family income and loneliness was found. Compared with women, men had similarly inverse correlations for each loneliness type with social connectedness; between global loneliness and social connectedness ($r = -.80$, $p < .01$), intimate loneliness and social connectedness ($r = -.78$, $p < .01$), and social loneliness and social connectedness ($r = -.69$, $p < .01$). The negative correlation of family income with loneliness for men was significant; between global loneliness and family income ($r = -.21$, $p < .01$), between intimate loneliness and family income ($r = -.17$,

$p < .05$), and between social loneliness and family income ($r = -.22$, $p < .01$). These results indicate that high levels of social connectedness were correlated with low levels of each loneliness type in both women and men. But, high levels of family income were correlated with low levels of each subtype of loneliness in men only.

TABLE 3

MULTIPLE REGRESSION ANALYSES FOR INDEPENDENT VARIABLES OF FAMILY INCOME, SOCIAL CONNECTEDNESS, AND GENDER PREDICTING GLOBAL, INTIMATE, AND SOCIAL LONELINESS

Independent Variable	F	F_{change}	df	B	$SE\ B$	β
All sample ($N = 319$)						
		Global Loneliness				
SC	472.87***	472.87***	(1,317)	-.55	.03	-.77***
Gender	258.71***	18.48***	(2,316)	-2.71	.63	-.15***
FI	175.28***	3.81	(3,315)	-.55	.28	-.07
Gender × SC	131.11***	0.10	(4,314)	-.02	.05	-.07
Gender × FI	133.26***	3.33	(4,314)	1.03	.56	.24
		Intimate Loneliness				
SC	390.26***	390.03***	(1,317)	-.30	.02	-.74***
Gender	197.19***	2.50	(2,316)	-.62	.39	-.06
FI	131.20***	.20	(3,315)	-.01	.18	-.02
Gender × SC	131.11***	.14	(4,314)	-.02	.05	-.07
Gender × FI	100.02***	3.44	(4,314)	.66	.35	.27
		Social Loneliness				
SC	218.94***	218.94***	(1,317)	-.24	.02	-.64***
Gender	131.32***	26.04***	(2,316)	-2.09	.41	-.21***
FI	91.21***	6.67**	(3,315)	-.47	.18	-.11**
Gender × SC	68.20***	.01	(4,314)	-.00	.03	-.03
Gender × FI	68.68***	1.04	(4,314)	.37	.37	1.02

Note: FI = Family Income; SC = Social Connectedness; $^*p \leqq .05$; $^{**}p \leqq .01$; $^{***}p \leqq .001$; (2-tailed)

Furthermore, using the FMRA technique, the prediction results of loneliness by the independent variables, including social connectedness, gender, and family income, are listed in Table 3. For the sample of both female and male students, social connectedness appeared to significantly predict global ($\beta = -.77$), intimate ($\beta = -.74$), and social loneliness ($\beta = -.64$) at a significance level of $p < .001$. Family income was a significant predictor of social loneliness ($\beta = -.11$, $p < .01$). Moreover, gender also contributed to the prediction of global ($\beta = -.15$, $p < .001$) and social loneliness ($\beta = -.11$, $p < .001$). To further examine gender differences in the associations between loneliness and social connectedness and between loneliness and family income, an examination of interaction effect was conducted. The terms of gender by social connectedness and gender by

family income were thus entered separately into the earlier regression equations. The analytical results reveal no gender differences in the associations between loneliness and social connectedness and between loneliness and family income. Gender thus did not appear to mediate the effects of social connectedness and family income on loneliness. Notably, gender differences in the relationships of family income to global and social loneliness existed at a significance level of $p < .10$ (not shown in the Table), encouraging further examination of regression equation coefficients for both genders.

TABLE 4

GLOBAL, INTIMATE, AND SOCIAL LONELINESS PREDICTED BY INDEPENDENT VARIABLES OF SOCIAL CONNECTEDNESS AND FAMILY INCOME FOR WOMEN AND MEN

Independent Variable	F	F_{change}	df	B	$SE\ B$	β
Global Loneliness						
Women ($n = 159$)						
SC	215.02***	215.02***	(1,157)	-.55	.04	-.76***
FI	106.87***	.03	(2,156)	-.01	.39	-.01
Men ($n = 160$)						
SC	280.25***	280.25***	(1,158)	-.54	.03	-.8***
FI	149.33***	7.28**	(2,157)	-1.10	.41	-.13**
Intimate loneliness						
Women ($n = 159$)						
SC	157.97***	157.97***	(1,157)	-.31	.03	-.71***
FI	79.27***	.79	(2,156)	.23	.25	.05
Men ($n = 160$)						
SC	239.00***	239.00***	(1,158)	-.30	.02	-.78***
FI	122.66***	3.11	(2,157)	-.44	.25	-.09
Social Loneliness						
Women ($n = 159$)						
SC	92.07***	92.07***	(1,157)	-.24	.03	-.61***
FI	46.77***	1.30	(2,156)	-.30	.26	-.07
Men ($n = 160$)						
SC	145.31***	145.31***	(1,158)	-.24	.02	-.69***
FI	78.72***	6.80**	(2,159)	-.67	.26	-.15**

Note: FI = Family Income; SC = Social Connectedness; *$p \leq .05$; **$p \leq .01$; ***$p \leq .001$; (2-tailed)

The slope coefficients for dependent variables (global, intimate, and social loneliness) against independent variables (family income, and social connectedness) for women and men thus were analyzed again using FMRA and the results are shown in Table 4. For college women, social connectedness was negatively related to global ($\beta = -.76$), intimate ($\beta = -.71$), and social loneliness ($\beta = -.61$) at a significance level of $p < .001$. As expected from correlational

analyses, family income did not significantly contribute to the prediction of individual types of loneliness for women. Among college men, social connectedness was also negatively related to global (β = -.8), intimate (β = -.78), and social loneliness (β = -.69) at a significance level of p < .001. However, in men family income became a significant predictor of global (β = -.13) and social loneliness (β = -.15) at the p < .01 level.

DISCUSSION

This work has examined three subtypes of loneliness and their relationships with social connectedness and family income in college women and men in Taiwan. The study results supported the roles of social connectedness in predicting each loneliness type in both women and men. The results were also partially supportive of the role of family income, since it predicted global and social loneliness in men only. Interaction studies indicated that gender did not differ in relationships with social connectedness, family income, and loneliness, which is inconsistent with the hypothesis.

Evidence has demonstrated that college males in Taiwan experienced more global loneliness than females, which is consistent with previous studies of US college students (Medora & Woodward, 1986; Schultz & Moore, 1986; Sundberg, 1988). Furthermore, this study found no gender differences in the association between social connectedness and loneliness. These findings have potential application in developing interventions of loneliness through improving client social skills and enhancing their social networks. Although degree of loneliness differed between women and men, the relationship between social connectedness and loneliness was similar for the two sexes. Consequently, loneliness treatment programs could be similar for both females and males, which is consistent with the previous suggestion by McWhirter (1997b), who examined the relationships among loneliness, learned resourcefulness, and self-esteem in American college students.

To the authors' best knowledge, this investigation is the first to explore the role of family income in predicting different types of loneliness for college students. The findings were important in that they contradict those reported in western culture, in which gender differences were not found in the relationship between income and loneliness (Mullins et al., 1991). Several salient points can be made based on this result. First, college men in Taiwan clearly felt that high family income could alleviate social loneliness, due to the belief that college men from families with high household income possessed more social power and self-esteem, which helped alleviate social loneliness. Although the participants were educated in a Chinese cultural environment, this result supports the findings of previous western studies that men relied more on personal comparison and social

status to reduce loneliness than did women (Ponzetti & Cate, 1988). Second, the failure of family income to predict intimate loneliness for men is puzzling. One probable explanation is that intimate loneliness is characterized by a lack of close relationships, a situation that has little to do with level of family income. Third, family income was found to be unrelated to loneliness in college women in Taiwan, probably because females rely more on friendship, intimacy and interdependency to maintain a sense of self in relation to others, as indicated in numerous western studies (Lee & Robbins, 2000; Ponzetti & Cate, 1988; Stokes & Levin, 1986).

Overall, this study demonstrated increased understanding of loneliness types and the relationship of loneliness to social connectedness and family income among undergraduate females and males in Taiwan. Though social connectedness has been identified as a significant predictor of each loneliness type, the two variables of social connectedness and loneliness are closely related. According to the findings by Hawkley et al. (2005), it may be unnecessary to differentiate loneliness from social connection. However, this study clarified the association between social connectedness and each loneliness subtype by quantitative evidence, demonstrating that this study can contribute to improving our understanding of these complex psychological experiences. Most importantly, family income was found to be significantly related to social loneliness for college males, and might be generalizable across broad male populations. Since participants were recruited from colleges in Taiwan only, the work findings should be interpreted with care. We suggest that subsequent research should be carried out on the mental representation of loneliness among individual, relational, and collective facets for undergraduate females and males in Taiwan. Additionally, to gain a better understanding of gender differences in connection with family income and loneliness, future studies should examine large samples spanning multiple cultures.

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