



# Loneliness in the Aging Population with Visual Disabilities

Hyung Nam Kim  
North Carolina A&T State University  
[hncim@ncat.edu](mailto:hncim@ncat.edu)

## Abstract

Loneliness is likely to be affected by the level of subjective satisfaction with an individual's interpersonal relationships such that everyone could feel lonely regardless of visual ability/disability. However, little is known about the degree to which people with visual disabilities develop loneliness especially among older populations and how they manage their emotions. To address the knowledge gap, this study invited 18 older adults with visual disabilities to interviews. The participants completed the instruments of the UCLA Loneliness Scale and the Trait Meta-Mood Scale (TMMS) to measure the loneliness levels and the emotional intelligence abilities (i.e., emotional attention, clarity, and repair abilities) respectively. This study provided evidence that older adults with visual disabilities experienced a range of loneliness from low to severe and showed individual differences in emotional intelligence abilities by degree of loneliness, dimensions of emotions (i.e., valence and arousal), and a sociodemographic background (i.e., living alone and with others). The results of this study will be beneficial to many researchers and professionals in developing interventions to reduce loneliness in older adults with visual disabilities, for example, by improving their emotional attention, clarity, and repair abilities.

## Keywords

Emotional Intelligence, Gerontology, Emotional Well-Being, Visual Impairment, Individual Differences, Emotional Ergonomics

## Introduction

Loneliness is not synonymous with social isolation (i.e., lack of social contact) and is more likely associated with a subjective experience (Hawkley and Cacioppo 218). Loneliness is caused by a perceived difference between “interpersonal relationships that an individual currently” has and “those that the individual wishes to” have (Perlman and Peplau 123).

Loneliness is considered as a common emotional distress syndrome with a high risk factor for early mortality and a variety of physical health and psychiatric problems (Cacioppo et al. 238). Loneliness is more dangerous than obesity and as damaging to health as smoking 15 cigarettes every day (Health Resources & Services Administration), strongly related to suicidal ideation (Stravynski and Boyer 32), Alzheimer’s disease (Sundström et al. 919), and likely to affect the immune and cardiovascular system (Hawkley and Cacioppo S98).

Loneliness affects both people with and without visual disabilities. It is well documented that poor visual acuity is related with loneliness (Alma et al. 843). Evans (603), for example, conducted a survey using the UCLA Loneliness Scale (Russell et al. 290) with 84 American veterans who became blind. The survey found that 20% of the respondents experienced loneliness after determination of blindness. Increased loneliness in people with visual disabilities is associated with decreased economic well-being, mental health issues, dissatisfaction with activities of daily living, and low quality of life (La Grow et al. 487).

Despite evidence that people with visual disabilities are vulnerable to loneliness, little is known about how older adults with visual disabilities deal with the feeling of loneliness in terms of appraisal, expression, and regulation of emotions. Emotional intelligence is a type of social intelligence referring to the degree to which an individual can monitor one’s own and other’s emotions, discriminate among them, and use the information to guide one’s thinking and actions

(Mayer and Salovey 433). Emotional intelligence perceived by those with visual disabilities could, thus, help us to obtain a deep understanding of their ability to manage emotions including loneliness. This study aims to offer an in-depth understanding of the emotional intelligence capabilities of older adults with visual disabilities at risk of experiencing loneliness.

## Methods

### *Participants*

This study invited a convenience sample of 18 older adults with visual disabilities who should speak English, be 65 years old or older, and have visual disabilities (i.e., visual acuity level worse than 20/70, (World Health Organization)). Table 1 shows the participants' sociodemographic characteristics.

Table 1. Characteristics of the Participants (n=18).

Characteristic	Number
<b>Visual Acuity</b>	
Between 20/70 and 20/200	2
Between 20/200 and 20/400	10
Between 20/400 and 20/1200	1
Less than 20/1200, but has light perception	1
No light perception at all	4
<b>Duration of Visual Disabilities (years)</b>	28.11±24.21
<b>Onset of Visual Disabilities (years) <sup>a</sup></b>	
Early onset (n=4)	7.00±5.89
Late onset (n=14)	56.29±15.00
<b>Age (years)</b>	73.39±8.17
<b>Gender</b>	
Male	3
Female	15
<b>Race/Ethnicity</b>	
African American	7
European American	11

Characteristic	Number
<b>Marital Status</b>	
Married	5
Not Married	4
Widow/Widower	4
Divorced	5
<b>Education</b>	
High school or equivalent	7
Bachelors	6
Masters	4
Doctorate	1
<b>Occupation</b>	
Full time	1
Unemployed	6
Retired	11
<b>Household Income</b>	
< \$25,999	8
\$26,000 – \$51,999	6
\$52,000 – \$74,999	2
≥ \$75,000	1
Declined to say	1
<b>Head of Household</b>	
Living alone	10
With family, relatives, friends, or combination of them	8
<b>Diagnosed with Health Conditions</b>	10
<b>Participation in Physical Exercise</b>	10

<sup>a</sup> Participants with early-onset visual disabilities had lost their sight before they reached 11 years of age (Voss et al. 1737).

### *Materials*

Emotional intelligence abilities were measured with the Trait Meta-Mood Scale (TMMS). The TMMS is a 30-item self-report measure with a 5-point Likert scale designed to assess the attention to the feelings (13 items, Cronbach's  $\alpha = .86$ ), the clarity of the emotional experiences (11 items,  $\alpha = .88$ ), and the repair of the negative emotions (6 items,  $\alpha = .82$ )

(Salovey et al. 125). Loneliness was measured with the University of California Los Angeles (UCLA) Loneliness Scale version 3 ( $\alpha$  ranging from .89 to .94) that is a 20-items self-report measure with a 4-point Likert type scale (Russell et al. 472). A score  $< 35$  indicates a low degree, a score  $\geq 35$  indicates a moderate degree, a score  $\geq 50$  indicates a moderately high degree, and a score  $\geq 65$  indicates a severe high degree of loneliness. (Perry 293).

### *Procedures*

Participants were recruited with supports from community organizations that provide services for people with visual disabilities (e.g., a community center and a library for the blind). This study was approved by the Institutional Review Board (IRB). Each participant was invited to an interview (less than 60 minutes) and completed the questionnaires of TMMS and UCLA Loneliness Scale. The interviewer read out loud for participants.

## **Results**

### *Loneliness*

The UCLA loneliness scale showed adequate internal consistency (Cronbach's  $\alpha=0.93$ ), and the overall loneliness score was  $38.89 \pm 13.78$ . Eight participants indicated a low degree of loneliness ( $26.75 \pm 3.62$ ), five indicated a moderate degree ( $39.40 \pm 3.29$ ), four indicated a moderately high degree ( $55.75 \pm 3.77$ ), and one indicated a severe high degree as the loneliness score was 66. For the data analysis purpose, the participant with a severe high degree of loneliness ( $n = 1$ ) was integrated in the group who had a moderately high degree of loneliness. The Kruskal-Wallis test confirmed that the three groups had significantly different loneliness scores,  $H(2) = 13.82, p = .001$ . The ad-hoc Mann-Whitney U tests with Bonferroni correction were performed to follow up on the significant finding. All the three groups had significantly different loneliness scores: low vs. moderate loneliness ( $U = 0, z = -2.94, p = .003, r = -.81$ );

moderate vs. moderately high loneliness ( $U = 0, z = -2.47, p = .014, r = -.82$ ); low vs. moderately high loneliness ( $U = 0, z = -2.73, p = .006, r = -.79$ ). Sociodemographic factors were also examined. The loneliness levels between those living alone ( $41.20 \pm 15.50$ ) and those living with others ( $36.00 \pm 11.63$ ) were not significantly different ( $U = 32.50, z = -.67, p = .50, r = -.16$ ).

### *Emotional Intelligence*

The TMMS questionnaire measuring emotional intelligence showed adequate internal consistency (Cronbach's  $\alpha = 0.73$ ). The Kruskal-Wallis test indicated that participants' emotional intelligence scores were significantly different depending on the level of loneliness,  $H(2) = 10.35, p = .006$ . The ad-hoc Mann-Whitney U tests with Bonferroni correction were performed to follow up on the significant findings. The level of emotional intelligence of the participant group with low loneliness ( $4.01 \pm 0.52$ ) was higher than that ( $3.60 \pm 0.62$ ) of their peer group with moderate loneliness, which was marginally significant,  $U = 98.50, z = -2.36, p = .018, r = -.38$ , but also significantly higher than that ( $3.34 \pm 0.73$ ) of the group with moderately high loneliness,  $U = 80, z = -2.88, p = .004, r = -.46$ . The results suggest that a higher level of loneliness is likely to be observed in people with a lower level of the emotional intelligence abilities in overall.

Furthermore, the emotional intelligence scores were broken down into three categories (i.e., attention, clarity, and repair) to be compared by degree of loneliness. The Kruskal-Wallis test showed that the attention, clarity, and repair ability scores were significantly different depending on the loneliness levels,  $H(2) = 11.09, p < .01$ . The ad-hoc Mann-Whitney U tests were performed with Bonferroni correction. The clarity level of the participant group with low loneliness ( $4.17 \pm 0.33$ ) was significantly higher than that ( $3.68 \pm 0.11$ ) of the group with moderate loneliness,  $U = 0, z = -2.97, p = .003, r = -.82$ , but also significantly higher than that ( $3.23 \pm 0.58$ ) of the group with moderately high loneliness,  $U = 3.5, z = -2.45, p = .014, r = -.68$ . The results

suggest that a higher level of loneliness is likely to be observed in people with a lower level of clarity ability.

## **Discussion**

### *Loneliness*

The overall mean of loneliness scores of older adults (age 65 and over) with visual disabilities was  $38.89 \pm 13.78$ , ranging from low to severe high degree of loneliness, and none of them indicated that they were not lonely at all. A study by Russell (20), one of the most widely cited loneliness studies, reported that the overall mean of the loneliness scores of sighted older adults (age 65 and over) was  $31.51 \pm 6.92$ , which is lower than that of older adults with visual disabilities in this study. Thus, it could hypothetically be argued that higher loneliness is likely to be found in older adults with visual disabilities than their sighted peers; however, other sociodemographic factors that were not considered (e.g., other emotional concerns, years of onset, and so on) may lead to different results. For example, Evans et al. (103) measured the loneliness level among older adults (age ranged from 53 to 76 years) with legal blindness (i.e., visual acuity equal to 20/200 or worse) and reported that the mean loneliness score was  $42.2 \pm 8.3$ , which is greater than that of older adults with visual disabilities in this study; yet, Evans et al. (105) included clinically depressed participants. Therefore, it can be argued that older adults with visual disabilities who suffer from depression may feel lonelier than their peers who do not have such emotional challenges. Foxall et al. (86) also measured the loneliness level of individuals with visual disabilities and reported that the overall mean was  $32.56 \pm 10.13$ , which is lower than that of older adults with visual disabilities in this study. Yet, the lower degree of loneliness in Foxall's study may be caused by different characteristics of the participants; for example, both younger and older individuals (ranging from 22 to 94 years) participated in their study but also

individuals who had residual vision were included but those with blindness were excluded from their study. In contrast to previous studies, the present study contributes to advancing knowledge of loneliness in community-dwelling older adults (age 65 and over) with visual disabilities whose visual acuity ranges from 20/70 up to blindness.

The participants in this study consisted of a combination of those living alone and those living with others, and we found that their loneliness levels were not significantly different. The result suggests that the onset of loneliness is less likely be influenced by the condition of living *with* or *without* someone in the home. Such living conditions and the perceived loneliness have also been discussed in other loneliness studies. For instance, Foxall et al. (10) found no significant difference in loneliness levels between older adults with residual vision living alone and those living with family members. In addition, other loneliness studies that were conducted with sighted people provide comparative insights. For example, Yeh et al. (135) revealed that among older participants ( $72.6 \pm 5.5$  years old) without visual disabilities living with someone, 60.8% felt lonely a little bit, 35% felt lonely somewhat, and 4.2% felt lonely strongly. Another aging study (Lim and Kua 4) found that a significantly higher frequency of social contacts was observed in sighted older adults (mean age 66 years) living alone than their peers living with others. Based on the results of those previous studies, it can be argued that older adults with visual disabilities – regardless of living alone or with someone – would still feel lonely while being influenced by both quantity and quality of their social and emotional relationships with people. Cacioppo et al. (977) also contended that people feel lonely even if they are in the crowd. Loneliness is believed to be a complex emotional construct (Yanguas et al. 302). Hyland et al. (1089) introduced multi-dimensions of loneliness, i.e., “*low*”, “*social*”, “*emotional*”, and



“social and emotional” loneliness. Our future research will further examine in detail the perceived loneliness of older adults with visual disabilities by referring to the four dimensions.

### *Emotional Intelligence Abilities*

This study also examined the emotional intelligence abilities of older adults with visual disabilities, e.g., how much they can pay attention to the inner emotional states, how much they can understand and discriminate among different emotions, and how much they can regulate emotions and repair negative emotional experiences. As there have been a few published articles that investigated the emotional intelligence of people with visual disabilities, the findings of this study contribute to advancing knowledge of it, especially among those in old age. For instance, Kumar et al. (4) investigated the emotional intelligence in young age groups and reported that students with visual disabilities in senior secondary schools tended to show a lower level of emotional intelligence abilities as compared to sighted peer students. Salovey et al. (611) examined in detail the three subscales (i.e., attention, clarity, and repair abilities) among sighted students and reported that the mean of clarity levels was  $3.27 \pm 0.90$  and the mean of repair levels was  $3.59 \pm 0.90$ , which are lower than the clarity ( $3.57 \pm 1.09$ ) and repair ( $4.16 \pm 0.87$ ) levels of the older adults with visual disabilities in this study. Therefore, it can be argued that older adults with visual disabilities are likely to show an elevated level of perceived emotional intelligence as they get older. Other studies in gerontology (Anwar 295; Fariselli et al. 2) also suggest that aging contributes to improvement of one’s emotional intelligence. There are more evidence, for example, age does not significantly interfere with emotion management (Cabello et al. 1); the ability of regulating emotions remains intact in older adults (LaMonica et al. 1; Ochsner et al. 1); and old age is related with more stable and satisfying emotional well-being (Carstensen and Mikels 117; Carstensen et al. 21).

Furthermore, various theories of emotions offer valuable insights into understanding of the experience of emotions in older adults. Socioemotional Selectivity Theory (Carstensen et al. 103) posits that when people perceive time as finite (e.g., end-of-life), they are likely to give priority to finding emotional meaning and satisfaction from life in the moment rather than maximizing future rewards. As a result, older adults tend to focus on mood-enhancement goals (e.g., reducing the willingness of accepting negative experiences) instead of focusing on other goals such as gathering more information, experiencing novelty, and expanding breadth of knowledge for future (Carstensen 103). The Life-Span Theory of Control (Heckhausen and Schulz 284) poses that aging causes people to decrease the capacity to control their environment and achieve their developmental goals; therefore, older adults are more likely to rely on secondary control strategies such as emotional regulation to change *themselves* to adjust to a given situation instead of primary control strategies that change the *situation*. Cacioppo et al. (12) also explained the elevated emotional well-being via social neuroscience, that is, the lower activation in amygdala (*located close to the hippocampus in the frontal portion of the temporal lobe, essential to the ability to feel certain emotions* (Pessoa 3416)) could selectively hinder the processing of negative stimuli, leading to protections against threats to well-being. As the present study did not include younger people with visual disabilities, our future research will further investigate the aging effect on the emotional intelligence abilities between younger and older people with visual disabilities.

### *Loneliness and Emotional Intelligence Abilities*

This study compared the perceived emotional intelligence abilities by different levels of loneliness. A higher level of loneliness was observed in the participants with a lower level of emotional intelligence in overall. In particular, the participants with a higher level of loneliness

tended to have a lower level of the “clarity” ability. Given the results of this study, it could be hypothetically argued that the clarity ability is likely to contribute to lowering the perceived loneliness. There is evidence that the clarity ability plays an important role in regulating mood; for example, an individual who is clear about his/her emotion is likely to rebound from induced negative mood (Salovey et al. 126). Palmer et al. (1907) also reported that the clarity ability was positively related to life satisfaction. Salovey et al. (129) uncovered that the clarity ability was significantly intercorrelated with another emotional intelligence construct, *the repair ability*.

Given the finding that older adults with visual disabilities are vulnerable to experiencing loneliness, there is a need to develop a training program that aims to enhance the emotional intelligence abilities (especially the clarity ability), as adequate training is found to be effective in improving the emotional intelligence abilities (Grant 257). The findings of this study are expected to contribute to a knowledge foundation to develop an emotional intelligence training program for older adults with visual disabilities.

### *Limitation*

This study included 3 male and 15 female participants. There is evidence that a relationship exists between gender and perceived loneliness (Borys and Perlman 63; Stokes and Levin 1069) as well as between gender and emotional intelligence (Brackett et al. 1387; Fernández-Berrocal et al. 77). This study might result in different outcomes if it included more male participants. Our future research will be conducted by addressing the limitation.

### **Conclusions**

This study found that older adults with visual disabilities were vulnerable to the feeling of loneliness (ranging from low to severe), and those with different degrees of loneliness showed different abilities to pay attention to, clarify and repair emotions. This study provides valuable

insights into the development of interventions to promote emotional well-being in older adults with visual disabilities at risk of experiencing loneliness.

**Acknowledgements**

This material is based upon work supported by the National Science Foundation under Grant No. 1831969.

### Works Cited

- Alma, Manna et al. "Loneliness and Self-Management Abilities in the Visually Impaired Elderly." *Journal of Aging and Health*, vol. 23, no. 5, 2011, pp. 843-61.
- Anwar, Yasmin. "Emotional Intelligence Peaks as We Enter Our 60s, Research Suggests." *Singapore Journal of Scientific Research*, vol. 1, no. 3, 2011, pp. 295-96.
- Borys, Shelley and Daniel Perlman. "Gender Differences in Loneliness." *Personality and Social Psychology Bulletin*, vol. 11, no. 1, 1985, pp. 63-74.
- Brackett, Marc A et al. "Emotional Intelligence and Its Relation to Everyday Behaviour." *Personality and Individual Differences*, vol. 36, no. 6, 2004, pp. 1387-402.
- Cabello, Rosario et al. "Ability of University-Level Education to Prevent Age-Related Decline in Emotional Intelligence." *Frontiers in Aging Neuroscience*, vol. 6, no. 37, 2014, pp. 1-7.
- Cacioppo, John et al. "Alone in the Crowd: The Structure and Spread of Loneliness in a Large Social Network." *Journal of Personality and Social Psychology*, vol. 97, no. 6, 2009, pp. 977-91.
- Cacioppo, John T et al. "Could an Aging Brain Contribute to Subjective Well-Being? The Value Added by a Social Neuroscience Perspective." *Social neuroscience: Toward understanding the underpinnings of the social mind*, 2011, pp. 249-62.
- Cacioppo, Stephanie et al. "Loneliness Clinical Import and Interventions." *Perspectives on Psychological Science*, vol. 10, no. 2, 2015, pp. 238-49.
- Carstensen, Laura L. "The Influence of a Sense of Time on Human Development." *Science*, vol. 312, no. 5782, 2006, pp. 1913-15.
- Carstensen, Laura L et al. "Socioemotional Selectivity Theory and the Regulation of Emotion in the Second Half of Life." *Motivation and emotion*, vol. 27, no. 2, 2003, pp. 103-23.

- Carstensen, Laura L and Joseph A Mikels. "At the Intersection of Emotion and Cognition: Aging and the Positivity Effect." *Current Directions in Psychological Science*, vol. 14, no. 3, 2005, pp. 117-21.
- Carstensen, Laura L et al. "Emotional Experience Improves with Age: Evidence Based on over 10 Years of Experience Sampling." *Psychology and aging*, vol. 26, no. 1, 2011, pp. 21-33.
- Evans, Ron L et al. "Treatment of Social Isolation and Loneliness in a Sample of Visually Impaired Elderly Persons." *Psychological reports*, vol. 51, no. 1, 1982, pp. 103-08.
- Evans, Ron L. "Loneliness, Depression, and Social Activity after Determination of Legal Blindness." *Psychological reports*, vol. 52, no. 2, 1983, pp. 603-08.
- Fariselli, Lorenzo et al. "Age and Emotional Intelligence." *Six Seconds: The Emotional Intelligence Network*, 2008, pp. 1-10.
- Fernández-Berrocal, Pablo et al. "Gender Differences in Emotional Intelligence: The Mediating Effect of Age." *Behavioral Psychology*, vol. 20, no. 1, 2012, pp. 77-89.
- Foxall, Martha J et al. "Predictors of Loneliness in Low Vision Adults." *Western journal of nursing research*, vol. 14, no. 1, 1992, pp. 86-99.
- Foxall, Martha J et al. "Low-Vision Elders: Living Arrangements, Loneliness, and Social Support." *Journal of gerontological nursing*, vol. 20, no. 8, 1994, pp. 6-14.
- Grant, Anthony M. "Enhancing Coaching Skills and Emotional Intelligence through Training." *Industrial and Commercial Training*, vol. 39, no. 5, 2007, pp. 257-66.
- Hawkey, Louise and John Cacioppo. "Loneliness and Pathways to Disease." *Brain Behav Immun*, vol. 17 Suppl 1, 2003, pp. S98-105.

- . "Loneliness Matters: A Theoretical and Empirical Review of Consequences and Mechanisms." *Annals of Behavioral Medicine*, vol. 40, no. 2, 2010, pp. 218-27.
- Health Resources & Services Administration. "The Loneliness Epidemic."  
<https://www.hrsa.gov/enews/past-issues/2019/january-17/loneliness-epidemic>. Accessed February 4 2020.
- Heckhausen, Jutta and Richard Schulz. "A Life-Span Theory of Control." *Psychological Review*, vol. 102, no. 2, 1995, pp. 284-304.
- Hyland, Philip et al. "Quality Not Quantity: Loneliness Subtypes, Psychological Trauma, and Mental Health in the Us Adult Population." *Social psychiatry and psychiatric epidemiology*, vol. 54, no. 9, 2019, pp. 1089-99.
- Jennifer Yeh, Shu-Chuan and Sing Kai Lo. "Living Alone, Social Support, and Feeling Lonely among the Elderly." *Social Behavior and Personality: an international journal*, vol. 32, no. 2, 2004, pp. 129-38.
- Kumar, Sushil and Jagat Singh. "Emotional Intelligence and Adjustment among Visually Impaired and Sighted School Students." *Asian Journal of Multidimensional Research (AJMR)*, vol. 2, no. 8, 2013, pp. 1-8.
- La Grow, Steven J. et al. "The Relationship between Loneliness and Perceived Quality of Life among Older Persons with Visual Impairments." *Journal of Visual Impairment & Blindness*, vol. 109, no. 6, 2015, pp. 487-99.
- LaMonica, Haley M et al. "Differential Effects of Emotional Information on Interference Task Performance across the Life Span." *Frontiers in Aging Neuroscience*, vol. 2, no. 141, 2010, pp. 1-5.

- Lim, Lena L and Ee-Heok Kua. "Living Alone, Loneliness, and Psychological Well-Being of Older Persons in Singapore." *Current gerontology and geriatrics research*, vol. 673181, 2011, pp. 1-9.
- Mayer, John D and Peter Salovey. "The Intelligence of Emotional Intelligence." *Intelligence*, vol. 17, 1993, pp. 433-42.
- Ochsner, Kevin N et al. "Functional Imaging Studies of Emotion Regulation: A Synthetic Review and Evolving Model of the Cognitive Control of Emotion." *Annals of the New York Academy of Sciences*, vol. 1251, 2012, pp. E1-E24.
- Palmer, Benjamin et al. "Emotional Intelligence and Life Satisfaction." *Personality and Individual Differences*, vol. 33, no. 7, 2002, pp. 1091-100.
- Perlman, Daniel and Letitia Anne Peplau. "Theoretical Approaches to Loneliness." *Loneliness: A Sourcebook of Current Theory, Research and Therapy*, Wiley-intercience publication, 1982, pp. 123-34.
- Perry, Gloria R. "Loneliness and Coping among Tertiary-Level Adult Cancer Patients in the Home." *Cancer Nursing*, vol. 13, no. 5, 1990, pp. 293-302.
- Pessoa, Luiz. "Emotion and Cognition and the Amygdala: From "What Is It?" To "What's to Be Done?"." *Neuropsychologia*, vol. 48, no. 12, 2010, pp. 3416-29.
- Russell, Dan et al. "The Revised UCLA Loneliness Scale: Concurrent and Discriminant Validity Evidence." *Journal of Personality and Social Psychology*, vol. 39, no. 3, 1980, pp. 472-80.
- Russell, Dan et al. "Developing a Measure of Loneliness." *Journal of personality assessment*, vol. 42, no. 3, 1978, pp. 290-94.



- Russell, Daniel W. "Ucla Loneliness Scale (Version 3): Reliability, Validity, and Factor Structure." *Journal of personality assessment*, vol. 66, no. 1, 1996, pp. 20-40.
- Salovey, Peter et al. "Emotional Attention, Clarity, and Repair: Exploring Emotional Intelligence Using the Trait Meta-Mood Scale." *Emotion, Disclosure, & Health*, edited by W Pennebaker, American Psychological Association, 1995, pp. 125-54.
- Salovey, Peter et al. "Perceived Emotional Intelligence, Stress Reactivity, and Symptom Reports: Further Explorations Using the Trait Meta-Mood Scale." *Psychology and health*, vol. 17, no. 5, 2002, pp. 611-27.
- Stokes, Joseph P and Ira Levin. "Gender Differences in Predicting Loneliness from Social Network Characteristics." *Journal of Personality and Social Psychology*, vol. 51, no. 5, 1986, pp. 1069-74.
- Stravynski, A. and R. Boyer. "Loneliness in Relation to Suicide Ideation and Parasuicide: A Population-Wide Study." *Suicide Life Threat Behav*, vol. 31, no. 1, 2001, pp. 32-40.
- Sundström, Anna et al. "Loneliness Increases the Risk of All-Cause Dementia and Alzheimer's Disease." *The Journals of Gerontology: Series B*, vol. 75, no. 5, 2020, pp. 919-26.
- Voss, Patrice et al. "Early-and Late-Onset Blind Individuals Show Supra-Normal Auditory Abilities in Far-Space." *Current Biology*, vol. 14 no. 19, 2004, pp. 1734-38.
- World Health Organization. "Change the Definition of Blindness." 2008.  
<https://www.who.int/health-topics/blindness-and-vision-loss>.
- Yanguas, Javier et al. "The Complexity of Loneliness." *Acta bio-medica: Atenei Parmensis*, vol. 89, no. 2, 2018, pp. 302-14.