Literature Review – Michele Giunti – October 31st, 2022

**Social Isolation vs. Loneliness**

The difficulty of quantifying loneliness within a country stems from the subjective interpretation that this condition may entail, considering how it bases its roots on the specific conditions of the individual, as well as its perception of what it means to feels alone. For instance, DiJulio, Hamel, Muñana, and Brodie (2018) found that people with debilitating conditions, low income, single, or divorced, were more likely to report feeling lonely, to rates almost equal to those with an objective low number of friends within their social group. This type of loneliness could be interpreted as a perceived lack of social support and a loss of cohesion and trust for both established institutions and the community at large, much in the vein of Putnam’s definition of a social capital (Putnam, 2000). Literature based on this initial definition distinguishes social loneliness with emotional loneliness, the former being what was just described, while the latter being a factor of intimacy and depth of relationships that is more difficult to quantify (Prohaska et al., 2020).

This study specifically addresses emotional loneliness, which varies depending on the individual’s cognitive Comparison Level (CL) of friendship needs (Thibaut & Kelley, 1959); in other words, the number and depth of intimate relationships required for the fulfillment of a satisfying level of connectedness. Russel, Cutrona, McRae and Gomez (2012) further elaborate on a non-liner relationship between the number of friends one possesses and his cognitively desirable CL, as social groups extended past this limit may result in decreases in satisfaction equal to a lack of intimate relationships. It should be noted that consideration of one aspect of loneliness does not preclude another: development conditions may lead people to have differential ideals of social network depth, and other conditions, such as cultural differences (DiJulio, Hamel, Muñana, & Brodie, 2018), residential location (Van Beek & Patulny, 2021), and dramatic life events (i.e. COVID-19; Luchetti et al., 2020) may temper these expectations due to exogenous limitations.

As such, there should be a clear distinction between loneliness, which is caused by a lack of meaningful connections, as an accumulation of what Putnam defines as bridging social capital as opposed to bonding social capital[[1]](#footnote-1), and social isolation, which is a loss of connections paired with a restriction in establishing new ones (Holt-Lunstad & Steptoe, 2022). Although there are overlapping features between both, measurement of each tends to undermine measurement of the other, with functions of loneliness/social isolation scales varying depending on the concentration of feeling versus network extension subscales (Cramer & Barry, 1999). Of these, the UCLA Loneliness Scale (Russel, 1996) is the most widely used, with the Social and Emotional Loneliness Scale for Adults (SELSA; DiTommaso & Spinner, 1993) and de Jong-Gierveld Loneliness Scale (Jong-Gierveld, 1987) standing in close seconds. It’s important to notice how most of these scales measure loneliness (Figure 1); this should not only be attributed to the inherent difficulty of measuring loneliness, but also to the contextual inability to truly be socially disconnected from others in an age of digital information (Marlow, Bartley, & Collins, 2017).

**Lonely Connections**

The continuous rise of connectivity rates across the U.S. might have been the reason why social isolation scales have progressively become outdated, as the 93% of Americans who claim to have used the internet in 2021 vastly outsource their 2000 counterparts (52%) in communication freedom and tools availability (Pew Research Center, 2021). This entails a higher level of social support distribution across all members of society, though preexisting inequalities can persist through proxy factors of socioeconomic and racial inequalities, such as internet broadband access, technological education, and choice of primary tech use (Le-Phuong, Lams, & De Cock, 2022). Regardless, gaps in age, race, and gender have been closing up when considering modern internet use[[2]](#footnote-2), and the pandemic has exacerbated this trend due to the physical restrictions of social isolation. In particular among young adults, internet participation has become more essential than ever (from 62% in 2020 to 72% in 2021; McClain, Vogels, Perrin, Sechopoulos & Rainie, 2021), due to its function as an information sharing platform, distant communication method, research, and emotional sharing tool (Wong, Ho, Olusanya, Antonini & Lyness, 2021).

Nevertheless, the presumption that offline and online communication and relationship building are fundamentally different remains valid. While platforms like social media allow us to remain, at least in part, connected with our family, friends, colleagues and acquaintances, their relational outputs allow for a relative perception of connectedness without necessarily reducing social isolation (Steafnone, Huang, & Lackaff, 2011). Even if we don’t take into account the negative aspects of online communication[[3]](#footnote-3), online interaction remains inferior to face-to-face interactions in its ability to provide strong and intimate relationship without the need of offline support (Ahn & Shin, 2013). In fact, both Bekalu (2021) and Kim (2019) only report the positive effect of social media engagement on social cohesion and efficacy within neighborhoods whose social network system was embedded with local infrastructure (e.g. Integrated Community Storytelling Networks); yet, this still places online communications systems as an internet supported integration of offline relationships (Scott, Stuart, & Barber, 2021).

Now, the role that online communication has in reducing or advancing face-to-face interactions is still ambiguous, as some papers discuss the case wherein public use of internet access can enable greater chances for the enhancement of offline interactions (Lee & Lee, 2010; Yu, Mccammon, Ellison, & Langa, 2016), and redirect attention to the positive effect of connective areas of interaction within neighborhoods (Fong, Cruwys, Robinson, Haslam, Haslam, Mance & Fisher, 2021; Bergefurt, Kemperman, van den Berg, Borgers, van der Waerden, Oosterhuis & Hommel, 2019). Further, online tools provide opportunities for diversification of private clusters of communication within one’s close-tie network (Hampton, Livio, & Goulet, 2021), and an avenue for introduction of community norms and identity for otherwise disconnected individuals or groups (van Eldik, Kneer, Jansz, 2019). Others however, like Kearns and Whitley (2019), or Fawcett and Karastoyanova (2022), while they recognize the internet’s “reconnecting” potential, especially for vulnerable groups like seniors during pandemic times, continue to point at the fundamental differences between patterns of online and offline communication, which bring differential benefits within similar contexts of interaction.

**The Unicity of Online Talk**

Quite simply, as a support tool for offline communication, online interaction and its consequently formed relationships represent a static copy of the former, with a distorted reproduction of the cognitive consistencies needed for an effective relationship. For example, Biester’s (2020; 2021) groups of research found that, even across different online communities, real-life aggregative events like COVID-19’s social isolation measures modified topic and word choice towards similar clusters of reference, such as redirecting mental health support search towards symptoms common to the pandemic: anxiety, fear of the new normal, depression etc.; a change that can be verified even at a linguistic level (Low, Rumker, Talkar, Torous, Cecchi, & Gosh, 2020). This phenomenon points at a connection between the personal self and the online self, and a similar synthesis of reciprocity groups that form across individual commonalities within the network (Cover, 2019)[[4]](#footnote-4). In other words, it allows for a simple transfer of social network benefits between online and offline relationships, meaning that increasing one’s social capital online is equal to doing so offline (Holmberg, 2014).

However, this implies a duality of identity that does not seem sustainable in the long run, and its benefits can only be enjoyed through continued commitment of both, more so of one’s online counterpart (Zhang & Sung, 2021). Neglecting the latter leads to the observed prevalence of weak ties across online interactions, and the preference of topic-based communities over reciprocity groups (Gil de Zúñiga & Valenzuela, 2011)[[5]](#footnote-5), which creates a problem in correctly quantifying the profitability of engaging in online communities versus physical ones. In fact, having already cited the limitations of face-to-face interaction, in particular regarding its requirement of geographical proximity, the unrestrained access of online communication exacerbates issues[[6]](#footnote-6) of causality and personal judgement of well-being in a community context (Atkinson, Bagnall, Corcoran, South, & Curtis, 2020). Contradictions are then formed among those who benefit from prioritizing either their online counterpart (Chopik, 2016) or their offline identity (Shakya & Christakis, 2017), and those that misinterpret their need for offline connectedness, often due to high loneliness, as a drive for online network expansion (Kim, 2017; Witz, Tucker, Briggs, & Schoemann, 2021; Pittman, 2018)

The reason cycles back to the unperceived inferiority of online over offline communication; that is, the prevalence of online bridging, weak, ties of relationship which are easier to form, maintain, and reconstruct. Considering the concurrent presence of outlier bonding, strong, ties deriving from either offline transposition or weakening of the benefits of offline identities (Filiposka, Gajduk, Dimitrova, & Kocarev, 2017), online engagement negatively impacts an individual’s happiness and increases marginalization due to age, race, relationship status, or income (Forthman, Colaizzi, Yeh, Kuplicki, & Paulus, 2021). In fact, while weak ties can benefit individuals by increasing perceived connectedness, as already discussed, the lack of a real output of social capital (i.e. trustworthy social nets, emotional support, physical aid etc.; Lee & Lee, 2010; Vacchiano & Bolano, 2021) creates a sense of disengagement that is not rationalized as a consequence of online presence, but as a deficiency of the latter (Kim, 2017; Pittman, 2018). In other words, the more lonely, unhealthy, or unwell a person feels while using social media, or other online communication apps, to reduce their discomfort, the less they will attribute this discomfort to this use.

**Social Media, Health and Feeling Alone**

The self-fulfilling cycle of problematic internet use is a worrying determinant of the country’s health, as already negative aspects of both social isolation and perceived loneliness are worsened by the individuals’ engagement in dysfunctional communication patterns. The risks of continued loneliness and social isolation does not only affect the realm of mental health, but also behavioral and psychosomatic determinants of wellbeing such as Strokes, Suicidal Thoughts, Depression, Anxiety, Chronic Health Conditions, and Dysfunctional Health Behaviors (Park et at., 2020; Figure 2)[[7]](#footnote-7). In fact, in their 2018 Kaiser Foundation report, DiJulio et al. (2018) found that people in the U.S. considered declines in mental and physical health to be the worst consequences of prolonged loneliness (58% and 55%, compared to the 49% of declines in personal relationship quality), while meta-analyses by Holt-Lunstad and his research groups (2015, 2022) confirmed the causal mortality of social isolation, loneliness, and living alone (increases of 29%, 26%, and 32% respectively). Other literature goes deeper into the specific effects per each condition:

*Cardiovascular Diseases.* Individuals at the higher spectrum of loneliness can experience increases of up to 14.4 mmHg of systolic blood pressure, leading to sever hypertension, and higher chances of atherosclerosis (Xia & Li, 2018). In addition, their incidence of coronary heart diseases and stroke was 1.29 times higher than people in the lower part of the spectrum (Paul, Bu, & Fancourt, 2021). Rates remain the same across age and gender, but older adults are reported to feel these effects more from real rather than perceived social isolation (National Academy of Sciences, Engineering, and Medicine; NASEM, 2020).

*Cognition and Self-Reported Health.* The worst outcomes are found across seniors and people with underlying mental conditions, such as schizophrenia, obsessive compulsive disorders, bipolar disorder etc., finding an increased rate of impairment and longer times for remissions (Wang, Mann, Lloyd-Evans, Ma, & Johnson, 2018; NASEM, 2020). People over 65, in particular, tend to find most troublesome consequences, with 30% of the senior sample in Hämmig’s (2019) study of loneliness’s generational health effects reporting a general decline in self-rated health; a finding confirmed by increasing rates of Alzheimer’s dementia across abandoned elderly (Luanaigh & Lawlor, 2008)

*Depression and Anxiety.* The association between loneliness, social isolation, and mental health comes both from a biomedical explanation of hormonal and organic dysfunction, such as cortical accumulation and HPA axis inflammation, and a maladaptive social cognition framework, which can be addressed with therapy or pharmaceuticals (Park et al., 2020). In fact, emotional, rather than social loneliness, is associated with higher incidence of major depressive disorders and generalized anxiety disorders (Hyland et al., 2019). The combined effect of previous mental conditions further reports an increase of suicidal ideation and suicide attempts when combined with both real and perceived isolation (30.44 and 4.37 Odds-Ratio respectively; Stickley & Koyanagi, 2016)

*Chronic Health Conditions and Health Behaviors*. The cognitive disassociation of social isolation and loneliness creates higher risk for worsening of pre-existing conditions and engagement in dysfunctional activities such as smoking, drinking, drug use, unhealthy diets, and physical inactivity, with prevalence rates increasing by 15% to 20% between higher and lower loneliness distributions (Hammig, 2019). The isolation forced by the pandemic did not aid those who were trying to improve their coping strategies, as opportunities for change were limited during quarantine and stay-at-home orders (Brewer et al., 2022); an even more worrying fact for elders, whose interruption therapeutic activities could result in greater losses in functional mobility and independency (NASEM, 2020).

A severe limitation common to all studies of health and loneliness associations is the focus and misinterpretation that occurs between determining what constitutes loneliness and what constitutes social isolation (Holt-Lunstad, Smith, Baker, Harris & Stephenson, 2015, Luanaigh & Lawlor, 2008), usually addressing one or the other without considering the connection between the two. The expansion of support groups online, and the change in ratios of bonding and bridging groups not only across platforms but also across time (Norris, 2002)[[8]](#footnote-8), renders determining “isolation” even more difficult, thus guiding research towards subjective determinants of loneliness. A noteworthy facilitator of this approach is the rise of social media, with specific attention given to the increase in use within the older age bracket, and inglobation of smaller site-based groups within larger platform-based communities (Mander, Buckle, & Moran, 2020). It’s clear then that “feeling alone” is not quite the same as “being alone” anymore, and happiness and health factors come to be mediated by quality, rather than expansiveness of social connections (Pittman, 2018).

**Social Engagement as a Mediator between Health and Social Isolation**

Since personal evaluations of loneliness are untrustworthy and objective analysis of social isolation become misleading due to the connectedness of a social media centered society, it becomes urgent to find a measure of effective social cognition and identification that may bridge the differences between online and physical communication. To this point, a successful analysis of the connection between social isolation/loneliness and individual health and relational outcomes can come from the inclusion of social belonging and identity setting within communities of interest (van Eldik, Kneer, & Jansz, 2019); in other words, the degree to which an individual’s commitment and trust to a community, real or online, leads to his direct participation, and the consequences that the latter brings back to the individual. Of course, what drives civic engagement and member health is the combined perception that the community is functional, and the degree to which it effectually coexists (Bjornstrom, Ralston & Kuhl, 2013), meaning that high levels of shared social capital will only improve general well-being, and positive community participation, if it is composed of strong relationship ties, and viceversa (Collins, Neal, & Neal, 2014; Procentese, De Carlo, & Gatti, 2019).

The literature provides an ample library of civic engagement measures, which do not depend on subjective, and thus variable, opinions on social cohesion and social capital, such as volunteering, charitable giving, political donation, contact of political representatives, voting, citizenship, political expression etc. (Atknison, Bagnall, Corcoran, South & Curtis, 2020). In addition, the causal research surrounding civic engagement also details potential confounding effects from sources outside of preferred mode of communication and network quality, with the most prevalent being religion (Whitehead & Stroope, 2015), cultural and national context (Crocetti, Jahromi, & Buchanan, 2012), temporal engagement[[9]](#footnote-9) (Wray-Lake, DeHaan, Shubert, & Ryan (2020), political ideology (Ferrucci, Hopp, & Vargo, 2019), and group heterogeneity (Costa & Khan, 2003). Accordingly, the latter two unite the areas of civic engagement, online communication, and well-being, since the openness of online communities tends to render them heterogeneous, and thus, as discussed in concurrent research, prone to less community involvement (Johnson, Zhang, & Bichard, 2010).

As established, social effectiveness and well-being is directly correlated with the perceived intimacy and strength of a person’s close relationship net (Lee, Chung, & Park, 2018), and the internet and social media allow for some form of connection that engages in the reinforcement of offline relationships while diversifying it according to the person’s interests (Wellman, Boase, Chen, 2002; McCully, Lampe, Sarkar, Velasquez, & Sreevinasan, 2011). However, social cohesion serves as a mediator towards the effect of perceived community disorder and self-rated health only if it is perceived at an individual level (Bjornstrom, Ralston, & Kuhl, 2013), or, in other words, if we just count the individual feeling of connectedness to the community rather than his real level of connectedness; the former being more prevalent within homogenous group types (Subramanian, Kubzansky, Berkman, Fay & Kawachi, 2006). Quite, in an online context where heterogeneity is common and weak relationships prevail, the absence of meaningful offline support may hinder community participation, even if real cohesion remains high, and while online communication finds prevalent use in information sharing and peer communication, the activity itself does directly increase a person’s involvement in the community, rather the quality of the relationship does (Moy, Manosevitch, Stamm, & Dunsmore, 2005)

**Is all Engagement Created Equal**

We can see then how contradictory the area of online communication study can be, and how the position of loneliness and social isolation within the effect of increasing or decreasing wellbeing, health, and civic engagement can change depending on definition, existing networks, and belonging. A further driver of study being the assumed roadway of influence that each type of relationship has on another. In fact, Kaufman, Rodriguez, Walsh, Shafranske and Harrell (2022) found that the influence of intimate relationship on wellbeing may potentially mask the beneficial effect of weaker peer relationships, as they become only significant with higher detachments from partners and family (Figure 3). An explanation for this is the change in the interpretative importance of the relationship itself, as the satisfaction of personal needs of connection and effectiveness (Demir, Şimşek, & Procsal, 2013; Demir & Davidson, 2013)[[10]](#footnote-10) occurs at all levels of intimacy, yet changes relevance depending on context (Demir, 2009).

A final note is then provided by High and Colleagues (2022), whose meta-analytical work on online communication and well being represents the fundamental basis of this paper. In fact, it is claimed that the main reason behind the contradictory reports on the positive versus negative effects of social media may come from differences in perspective between communication-based and psychology-based research; thus, a difference in focus between devices and users. Meier and Reinecke further elaborate that current research lacks on intercommunicative pattern analysis, with a heavier concentration on message influx count and a significant omission on message content aggregation (2021). For example, studying political ideology extremism within online forums by counting engagement instead of intent could miscategorize those that wish to engage for the sake of discussion and not to instill their support for the ideology itself.

As such, this paper embraces a socio-technical perspective to the effect of social media on well-being and a person’s relationship network quality (Ellison, Pyle, & Vitak, 2022). It values contextual need of the online engagement when considering the current intent of the agent/user, evaluating if this falls within the area of social presentation, social capital or social support. By doing so, we are able to capture the lost nuances of why a person engages in online versus offline communication, while also maintaining the overall count of how he does it, and what they gain or lose from doing so.

**References**

Ahn, D., & Shin, D. H. (2013). Is the social use of media for seeking connectedness or for avoiding social isolation? Mechanisms underlying media use and subjective well-being. *Computers in Human Behavior*, *29*(6), 2453-2462.

Atkinson, S., Bagnall, A. M., Corcoran, R., South, J., & Curtis, S. (2020). Being well together: individual subjective and community wellbeing. *Journal of Happiness Studies*, *21*(5), 1903-1921.

Auxier, B., & Anderson, M. (2021). Social media use in 2021. *Pew Research Center*, *1*, 1-4.

Bekalu, M. A., McCloud, R. F., Minsky, S., & Viswanath, K. (2021). Association of social participation, perception of neighborhood social cohesion, and social media use with happiness: Evidence of trade‐off (JCOP‐20‐277). *Journal of Community Psychology*, *49*(2), 432-446.

Bergefurt, L., Kemperman, A., van den Berg, P., Borgers, A., van der Waerden, P., Oosterhuis, G., & Hommel, M. (2019). Loneliness and life satisfaction explained by public-space use and mobility patterns. *International journal of environmental research and public health*, *16*(21), 4282.

Biester, L., Matton, K., Rajendran, J., Provost, E. M., & Mihalcea, R. (2020). Quantifying the effects of COVID-19 on mental health support forums. *arXiv preprint arXiv:2009.04008*.

Biester, L., Matton, K., Rajendran, J., Provost, E. M., & Mihalcea, R. (2021). Understanding the impact of COVID-19 on online mental health forums. *ACM Transactions on Management Information Systems (TMIS)*, *12*(4), 1-28.

Bjornstrom, E. E., Ralston, M. L., & Kuhl, D. C. (2013). Social cohesion and self-rated health: the moderating effect of neighborhood physical disorder. *American journal of community psychology*, *52*(3), 302-312.

Brewer, G., Centifanti, L., Caicedo, J. C., Huxley, G., Peddie, C., Stratton, K., & Lyons, M. (2022). Experiences of mental distress during COVID-19: Thematic analysis of discussion forum posts for anxiety, depression, and obsessive-compulsive disorder. *Illness, Crisis & Loss*, *30*(4), 795-811.

Chopik, W. J. (2016). The benefits of social technology use among older adults are mediated by reduced loneliness. *Cyberpsychology, Behavior, and Social Networking*, *19*(9), 551-556.

Collins, C. R., Neal, J. W., & Neal, Z. P. (2014). Transforming individual civic engagement into community collective efficacy: The role of bonding social capital. *American journal of community psychology*, *54*(3), 328-336.

Crocetti, E., Jahromi, P., & Buchanan, C. M. (2012). Commitment to community and political involvement: A cross-cultural study with Italian and American adolescents. *Human affairs*, *22*(3), 375-389.

Demir, M. (2010). Close relationships and happiness among emerging adults. *Journal of Happiness Studies*, *11*(3), 293-313.

Demir, M., & Davidson, I. (2013). Toward a better understanding of the relationship between friendship and happiness: Perceived responses to capitalization attempts, feelings of mattering, and satisfaction of basic psychological needs in same-sex best friendships as predictors of happiness. *Journal of happiness studies*, *14*(2), 525-550.

Demir, M., Şimşek, Ö. F., & Procsal, A. D. (2013). I am so happy ‘cause my best friend makes me feel unique: Friendship, personal sense of uniqueness and happiness. *Journal of Happiness Studies*, *14*(4), 1201-1224.

DiJulio, B., Hamel, L., Muñana, C., & Brodie, M. (2018). Loneliness and social isolation in the United States, the United Kingdom, and Japan: An international survey. *The Economist & Kaiser Family Foundation*.

DiTommaso, E., and Spinner, B. (1993). The development and initial validation of the Social and Emotional Loneliness Scale for Adults (SELSA). *Personality and Individual Differences*, *14*, 127–134.

Ellison, N. B., Pyle, C., & Vitak, J. (2022). Scholarship on well-being and social media: A sociotechnical perspective. *Current Opinion in Psychology*, 101340.

Fawcett, B., & Karastoyanova, K. (2022). Older people, loneliness, social isolation and technological mitigations: utilising experiences of the Covid-19 pandemic as we move forward. *The British Journal of Social Work*.

Ferrucci, P., Hopp, T., & Vargo, C. J. (2020). Civic engagement, social capital, and ideological extremity: Exploring online political engagement and political expression on Facebook. *New Media & Society*, *22*(6), 1095-1115.

Filiposka, S., Gajduk, A., Dimitrova, T., & Kocarev, L. (2017). Bridging online and offline social networks: Multiplex analysis. *Physica A: Statistical Mechanics and its Applications*, *471*, 825-836.

Fong, P., Cruwys, T., Robinson, S. L., Haslam, S. A., Haslam, C., Mance, P. L., & Fisher, C. L. (2021). Evidence that loneliness can be reduced by a whole-of-community intervention to increase neighbourhood identification. *Social Science & Medicine*, *277*, 113909.

Forthman, K. L., Colaizzi, J. M., Yeh, H. W., Kuplicki, R., & Paulus, M. P. (2021). Latent variables quantifying neighborhood characteristics and their associations with poor mental health. *International journal of environmental research and public health*, *18*(3), 1202.

Gil de Zúñiga, H., & Valenzuela, S. (2011). The mediating path to a stronger citizenship: Online and offline networks, weak ties, and civic engagement. *Communication Research*, *38*(3), 397-421.

Gioia, F., Fioravanti, G., Casale, S., & Boursier, V. (2021). The effects of the fear of missing out on people's social networking sites use during the COVID-19 pandemic: the mediating role of online relational closeness and individuals' online communication attitude. *Frontiers in Psychiatry*, *12*, 620442.

Gui, M., & Büchi, M. (2021). From use to overuse: Digital inequality in the age of communication abundance. *Social Science Computer Review*, *39*(1), 3-19.

Hampton, K. N., Livio, O., & Goulet, L. S. (2021). The social life of wireless urban spaces: internet use, social networks, and the public realm. In *Public Space Reader* (pp. 384-391). Routledge.

High, A. C., Ruppel, E. K., McEwan, B., & Caughlin, J. P. (2022). Computer-Mediated Communication and Well-Being in the Age of Social Media: A Systematic Review. *Journal of Social and Personal Relationships*, 02654075221106449.

Holmberg, L. (2014). Seeking social connectedness online and offline: Does happiness require real contact? (Doctoral dissertation).

Holt-Lunstad, J., & Steptoe, A. (2022). Social isolation: An underappreciated determinant of physical health. *Current Opinion in Psychology*, *43*, 232-237.

Holt-Lunstad, J., Smith, T. B., Baker, M., Harris, T., & Stephenson, D. (2015). Loneliness and social isolation as risk factors for mortality: a meta-analytic review. *Perspectives on psychological science*, *10*(2), 227-237.

Hyland, P., Shevlin, M., Cloitre, M., Karatzias, T., Vallières, F., McGinty, G., ... & Power, J. M. (2019). Quality not quantity: loneliness subtypes, psychological trauma, and mental health in the US adult population. *Social psychiatry and psychiatric epidemiology*, *54*(9), 1089-1099.

Johnson, T. J., Zhang, W., & Bichard, S. L. (2010). United we stand? Online social network sites and civic engagement. In *A networked self* (pp. 193-215). Routledge.

Jong-Gierveld, J. (1987). Developing and testing a model of loneliness. *Journal of Personality and Social Psychology*, *53*, 119–128.

Kaufman, V., Rodriguez, A., Walsh, L. C., Shafranske, E., & Harrell, S. P. (2022). Unique Ways in Which the Quality of Friendships Matter for Life Satisfaction. *Journal of Happiness Studies*, 1-18.

Kearns, A., & Whitley, E. (2019). Associations of internet access with social integration, wellbeing and physical activity among adults in deprived communities: evidence from a household survey. *BMC Public Health*, *19*(1), 1-15.

Kim, J. H. (2017). Smartphone-mediated communication vs. face-to-face interaction: Two routes to social support and problematic use of smartphone. *Computers in Human Behavior*, *67*, 282-291.

Kim, Y. C., Shin, E., Cho, A., Jung, E., Shon, K., & Shim, H. (2019). SNS dependency and community engagement in urban neighborhoods: The moderating role of integrated connectedness to a community storytelling network. *Communication Research*, *46*(1), 7-32.

Lee, J., & Lee, H. (2010). The computer-mediated communication network: Exploring the linkage between the online community and social capital. *new media & society*, *12*(5), 711-727.

Lee, S., Chung, J. E., & Park, N. (2018). Network environments and well-being: An examination of personal network structure, social capital, and perceived social support. *Health communication*, *33*(1), 22-31

Le-Phuong, L., Lams, L., & De Cock, R. (2022). Social media use and migrants’ intersectional positioning: A case study of Vietnamese female migrants. *Media and Communication*, *10*(2), 192-203.

Low, D. M., Rumker, L., Talkar, T., Torous, J., Cecchi, G., & Ghosh, S. S. (2020). Natural language processing reveals vulnerable mental health support groups and heightened health anxiety on reddit during covid-19: Observational study. *Journal of medical Internet research*, *22*(10), e22635.

Luanaigh, C. Ó., & Lawlor, B. A. (2008). Loneliness and the health of older people. *International Journal of Geriatric Psychiatry: A journal of the psychiatry of late life and allied sciences*, *23*(12), 1213-1221.

Luchetti, M., Lee, J. H., Aschwanden, D., Sesker, A., Strickhouser, J. E., Terracciano, A., & Sutin, A. R. (2020). The trajectory of loneliness in response to COVID-19. *American Psychologist*, *75*(7), 897.

Meier, A., & Reinecke, L. (2021). Computer-mediated communication, social media, and mental health: A conceptual and empirical meta-review. *Communication Research*, *48*(8), 1182-1209.

Moy, P., Manosevitch, E., Stamm, K., & Dunsmore, K. (2005). Linking dimensions of Internet use and civic engagement. *Journalism & Mass Communication Quarterly*, *82*(3), 571-586.

National Academies of Sciences, Engineering, and Medicine. (2020). *Social isolation and loneliness in older adults: Opportunities for the health care system*. National Academies Press.

Park, C., Majeed, A., Gill, H., Tamura, J., Ho, R. C., Mansur, R. B., ... & McIntyre, R. S. (2020). The effect of loneliness on distinct health outcomes: a comprehensive review and meta-analysis. *Psychiatry Research*, *294*, 113514.

Paul, E., Bu, F., & Fancourt, D. (2021). Loneliness and risk for cardiovascular disease: mechanisms and future directions. *Current cardiology reports*, *23*(6), 1-7.

Pew Research Center (2021). Internet/Broadband Fact Sheet. Internet. *Science & Tech.* Accessed on October 18th, 2022 <https://www.pewresearch.org/internet/fact-sheet/internet-broadband/>

Pittman, M. (2018). Happiness, loneliness, and social media: perceived intimacy mediates the emotional benefits of platform use. *The Journal of Social Media in Society*, *7*(2), 164-176.

Procentese, F., De Carlo, F., & Gatti, F. (2019). Civic engagement within the local community and sense of responsible togetherness. *TPM: Testing, Psychometrics, Methodology in Applied Psychology*, *26*(4).

Prohaska, T., Burholt, V., Burns, A., Golden, J., Hawkley, L., Lawlor, B., ... & Fried, L. (2020). Consensus statement: loneliness in older adults, the 21st century social determinant of health?. *BMJ open*, *10*(8), e034967.

Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. Simon and schuster.

Ren, Y., Kraut, R., & Kiesler, S. (2007). Applying common identity and bond theory to design of online communities. *Organization studies*, *28*(3), 377-408.

Russell, D. W. (1996). UCLA Loneliness Scale (Version 3): Reliability, validity, and factor structure. *Journal of Personality Assessment, 66*(1), 20–40. [https://doi.org/10.1207/s15327752jpa6601\_2](https://psycnet.apa.org/doi/10.1207/s15327752jpa6601_2)

Russell, D. W., Cutrona, C. E., McRae, C., & Gomez, M. (2012). Is loneliness the same as being alone?. *The Journal of psychology*, *146*(1-2), 7-22.

Scott, R. A., Stuart, J., & Barber, B. L. (2021). Contemporary friendships and social vulnerability among youth: Understanding the role of online and offline contexts of interaction in friendship quality. *Journal of Social and Personal Relationships*, *38*(12), 3451-3471.

Steafnone, M. A., Huang, Y. C., & Lackaff, D. (2011, January). Negotiating social belonging: Online, offline, and in-between. In *2011 44th Hawaii International Conference on System Sciences* (pp. 1-10). IEEE.

Stickley, A., & Koyanagi, A. (2016). Loneliness, common mental disorders and suicidal behavior: Findings from a general population survey. *Journal of affective disorders*, *197*, 81-87.

Subramanian, S. V., Kubzansky, L., Berkman, L., Fay, M., & Kawachi, I. (2006). Neighborhood effects on the self-rated health of elders: uncovering the relative importance of structural and service-related neighborhood environments. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, *61*(3), S153-S160.

Thibaut, J. W., & Kelley, H. H. (1959). The social psychology of groups. New York: Wiley.

Vacchiano, M., & Bolano, D. (2021). Online and offline leisure, relatedness and psychological distress: A study of young people in Switzerland. *Leisure Studies*, *40*(3), 338-351.

Valtorta, N. K., Kanaan, M., Gilbody, S., & Hanratty, B. (2016). Loneliness, social isolation and social relationships: what are we measuring? A novel framework for classifying and comparing tools. *BMJ open*, *6*(4), e010799.

Van Beek, M., & Patulny, R. (2022). 'The threat is in all of us': Perceptions of loneliness and divided communities in urban and rural areas during COVID‐19. *Journal of Community Psychology*, *50*(3), 1531-1548.

van Eldik, A., Kneer, J., & Jansz, J. (2019). Urban & online: Social media use among adolescents and sense of belonging to a super-diverse city. *Media and Communication*, *7*(2), 242-253.

Villalonga-Olives, E., Adams, I., & Kawachi, I. (2016). The development of a bridging social capital questionnaire for use in population health research. *SSM-population Health*, *2*, 613-622.

Whitehead, A. L., & Stroope, S. (2015). Small groups, contexts, and civic engagement: A multilevel analysis of United States Congregational Life Survey data. *Social Science Research*, *52*, 659-670.

Wirtz, D., Tucker, A., Briggs, C., & Schoemann, A. M. (2021). How and why social media affect subjective well-being: Multi-site use and social comparison as predictors of change across time. *Journal of Happiness Studies*, *22*(4), 1673-1691.

Wong, A., Ho, S., Olusanya, O., Antonini, M. V., & Lyness, D. (2021). The use of social media and online communications in times of pandemic COVID-19. *Journal of the Intensive Care Society*, *22*(3), 255-260.

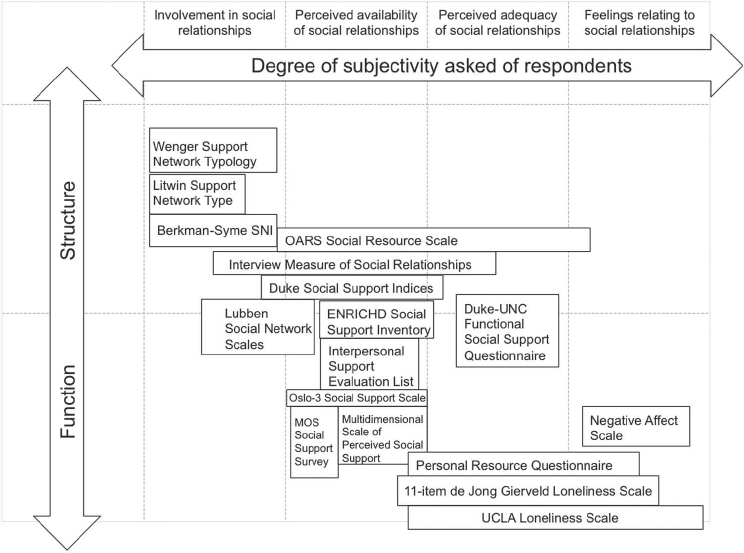
Wray-Lake, L., DeHaan, C. R., Shubert, J., & Ryan, R. M. (2019). Examining links from civic engagement to daily well-being from a self-determination theory perspective. *The Journal of Positive Psychology*, *14*(2), 166-177.

Xia, N., & Li, H. (2018). Loneliness, social isolation, and cardiovascular health. *Antioxidants & redox signaling*, *28*(9), 837-851.

Yu, R. P., Mccammon, R. J., Ellison, N. B., & Langa, K. M. (2016). The relationships that matter: Social network site use and social wellbeing among older adults in the United States of America. *Ageing & Society*, *36*(9), 1826-1852.

Zhang, X. A., & Sung, Y. H. (2021). Communities Going Virtual: Examining the Roles of Online and Offline Social Capital in Pandemic Perceived Community Resilience-Building. *Mass Communication and Society*, 1-27.

**Tables and Figures**

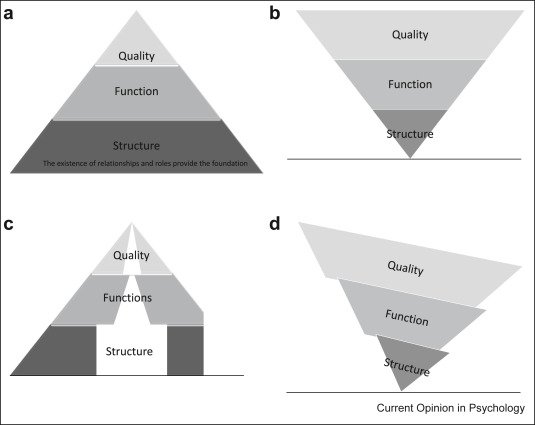


**Figure 1.** LonelinessScales ordered by study of relationship structure versus function, and subjectiveness of questionnaire (Valtorta, Kanaan, Gilbody, & Hanratty, 2016).

Diagram

Description automatically generated

**Figure 2.** Possible biochemical explanations of social isolation and loneliness effects of well-being and perceived health (Park et al., 2022).



**Figure 3.** Different types of social networks based on functionality and structure: **a)** bonding and bridging equilibrium, with little discomfort for the individual; **b)** prevalence of bonded relationships, but with sufficient support; **c)** large social network of shallow quality, typical of online interactions; **d)** prevalence of low quality bonded relationships, which destabilize the individual (Holt-Lunstad & Steptoe, 2022).

1. “Bonding social capital refers to connections between members of a network who are similar to each other with respect to social class, race/ethnicity, or other attributes. By contrast, bridging social capital is defined as the connections between individuals who are dissimilar (or heterogeneous) with respect to socioeconomic and other characteristics” (Villalonga-Olives, E., Adams, I., & Kawachi) [↑](#footnote-ref-1)
2. While the view of digital equality here is optimistic, the literature also contends that focusing on praising growth rather than reinforcing it will lead to dangerous complacency, as new risks from the developing digital age remain unadressed (Gui & Bu¨ chi, 2021) [↑](#footnote-ref-2)
3. Cyberbullying, upward comparisons, fear of missing out, overuse, problematic internet use (Gioia, F., Fioravanti, G., Casale, S., & Boursier, 2021) [↑](#footnote-ref-3)
4. Cover specifically discusses the work that goes into creating and maintaining cognitive consistency across one’s friends and identity online, which directly copies our real-life work to avoid cognitive dissonance. [↑](#footnote-ref-4)
5. Ren, Kraut and Kiesler (2007) specifically reference Bond theory and the presence of common identity groups, which simplify their identity over the group’s existence, and bond groups, which function under intercommunicative relations across members. Topic-based groups are a simplification of the former, as norm guided entities with little empathy for existing members but attraction towards newcomer growth [↑](#footnote-ref-5)
6. Spatial and social inequalities, belonging to multiple communities at once, and temporal changes in well-being, as well as community structure types. [↑](#footnote-ref-6)
7. See Luchetti et al. (2020) and DiJulio, Hamel, Muñana, & Brodie (2018) for specific interrelationship characteristics [↑](#footnote-ref-7)
8. See Auxier and Anderson (2021) for specific site use [↑](#footnote-ref-8)
9. Time spent is the only factor that may vary between offline and online engagement. For details see Moy, Manosevitch, Stamm & Dunsmore (2005) [↑](#footnote-ref-9)
10. In both papers sense of uniqueness is referenced as individuality within a shared community, which can be interpreted as usefulness without entailing intermember dependency. [↑](#footnote-ref-10)