COMMENTARY

Barriers to identifying and comparing rates of adaptive and maladaptive loneliness

Commentary for "Loneliness prevalence of community-dwelling older adults and the impact of the mode of measurement, data collection, and country: A systematic review and meta-analysis" by Stegen *et al.*

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Concerns about the deleterious impact of chronic loneliness have increasingly emerged in government, professional, and lay discourse over the past decade (Bodner, 2022; Murthy, 2023; Pérez-Rojo *et al.*, 2023; Spitzer *et al.*, 2022). The search for and development of effective prevention and treatment methods is ongoing but one key component in that search is the identification of modifiable risk factors for (or protective factors against) chronic loneliness. In addition to examining within-group heterogeneity, part of the search for risk and protective factors involves comparing the prevalence of problematic loneliness between different populations and subpopulations. Unfortunately, there are presently several methodologic/measurement barriers that may hinder such comparisons, including a lack of clarity on the temporal and severity characteristics that differentiate adaptive from problematic loneliness.

Under the prevailing evolutionary model of loneliness, the capacity to experience acute loneliness is thought to be an adaptive characteristic favored by natural selection (Cacioppo and Cacioppo, 2018). Acute feelings of loneliness serve as a signal or motivator to increase an individual's effort to connect socially with others. Such connections have obvious relevance for survival and reproduction, thereby increasing the probability of genes related to loneliness being represented in subsequent generations. In accord with this model, estimates of the heritability of loneliness range from the medium to high range, $h^2 = 0.37$ to 0.55 (Spithoven *et al.*, 2019). However, under this same model, persistent or severe loneliness can hinder social functioning, health, and well-being. Although there has been a rapid expansion in published studies on problematic loneliness, there has been far less empirical attention to acute, or adaptive loneliness, and the temporal and severity boundaries of adaptive vs. problematic loneliness have not been empirically established.

Temporal issues: how long is too long?

There is a present lack of consensus on terminology or temporal parameters of "chronic" loneliness, or seemingly synonymous designations. Terms such as "persistent" or "chronic" vs. "acute," "transient," "situational," or "intermittent" loneliness have been employed by different investigators to differentiate stable vs. acute or fluctuating patterns; however, the period and frequency of observation have varied widely from a series of days, weeks, months, or years. For example, Archer Lee *et al.* (2022) differentiated "transient" vs. "chronic" loneliness based on patterns of loneliness scores on an ecological momentary assessment (EMA) survey repeated over 10 consecutive days. Using an abbreviated version of the UCLA Loneliness Scale (UCLA-LS), Ma *et al.* (2021) compared "persistent" loneliness, defined as positive loneliness scores at baseline and at 4-month and 18-month follow-up visits, to "intermittent" loneliness, defined as positive loneliness at one or two but not all three time-points. In contrast, Shiovitz-Ezra and Ayalon (2010), compared "situational" vs. "chronic" loneliness based on the consistency of "yes" or "no" responses over three biannual assessments. The terminology and methods may be appropriate to the goals and hypotheses of each individual study, but there is a clear need for consensus terminology when comparing and synthesizing results across different studies.

Compounding the lack of consensus terminology, the most widely used measures in loneliness research are not optimized to distinguish acute vs. chronic loneliness. For example, the prompt and instructions to respondents for the UCLA-LS (Russell, 1996) are, "*The following statements describe how people sometimes feel. For each statement, please indicate how often you feel the way described.*" For each of the 20 statements, respondents are to choose "NEVER," "RARELY," "SOMETIMES," OR "OFTEN" [capitalization in the original]. In the absence of an explicit timeframe, the implied period seems to be how one generally feels, perhaps pulling for a more stable, or trait-like form of loneliness.

The instructions for the de Jong Gierveld Loneliness Scale (DJG-LS; de Jong Gierveld and van Tilburg, 2023) are more directly focused on current feelings, "*Please indicate for each of the 11 statements, the extent to which they apply to your situation, the way you feel now*" with choices being "yes!," "yes," "more or less," "no," or "no!" [lower case in the original]. But there is nothing in the instructions to distinguish the rated feelings from how one may "typically" feel, and some of the items still make reference to components that may draw for more stable factors, such as, "*There are plenty of people I can lean on when I have problems.*"

In their systematic and meta-analytic review for this volume, Stegen *et al.* (2024) suggested that the UCLA-L, DJG-LS, as well as other scales or questions employed in the studies they reviewed, "capture momentary loneliness as it is 'now,' at the moment of measuring…The answers of the participants…are subjective to how people feel at the moment of answering the question(s), even if they ask about loneliness, e.g., in the past week" (p. 3). Given the phenomenon of affective recall bias, Stegen *et al.* make a compelling argument that even if the scales asked about a past timeframe, the responses may be skewed toward current feelings. This same methodological consideration may apply to personality tests given in a single administration; the key difference is that although personality stability across different assessments is a logical part of validation research, it is less clear if stability over time is expected on a measure of loneliness.

There is some basis for optimism about better understanding of the temporal parameters of adaptive vs. maladaptive loneliness. Recall bias, as well as the goal to test for real-time fluctuations, has been part of the more recent impetus toward inclusion of EMA in loneliness research (Fortuna *et al.*, 2022). It is possible that analyses of loneliness data from long-term administration of EMA surveys may also be helpful in clarifying real-time adaptive vs. maladaptive responses to feelings of loneliness.

Severity issues: how much is too much?

There are also presently no clear empirical or expert consensus based means of determining the severity boundaries of problematic loneliness. For example, consider the UCLA-LS; potential scores on the 20-item UCLA-LS range from 20 to 80, with higher scores reflecting worse loneliness. In the absence of established cut-scores a variety of approaches have been employed by different investigators employing the UCLA-LS. A widely cited national survey by the American Association for Retired Persons (2010) defined persons with a UCLA-LS of 44 through 80 as "lonely" and those with scores of 20 through 43 as "not lonely." Other investigators have used different cut-scores, such as categorizing 50–80 as "lonely" and 20–49 as "not lonely"(Anil *et al.*, 2016). Another frequently used categorization scheme, first presented in Smith's (1985) unpublished Master's thesis, defines scores of 20–34 as "low, " 35–49 as "moderate," 50–64 as "moderately high" and 65–80 as "high" loneliness. Although Smith explicitly noted these divisions were arbitrary they have been adopted by other investigators, sometimes lacking the acknowledgement of the arbitrary nature of divisions. These are just three of many different UCLA-LS cut-scores employed in the empirical literature. Logically, higher cut-scores will result in fewer false-positives and lower cut-scores will result in more false negatives. An external criterion standard is needed to identify the cut-score yielding the best balance of sensitivity and specificity.

The DJG-LS is the other most widely employed instrument in loneliness research. The 11-item version has a potential range of 0 to 11, and the authors suggested that cut-points of ≥ 3 indicated loneliness. This cut-score was provided in a 1999 report by van Tilburg and de Jong Gierveld (1999) from a study in which they compared DJG-LS scores to an interview-based direct question about level of current loneliness among 3823 older adult Dutch-speaking dwelling residents of The Netherlands. However, a cautionary statement by de Jong Gierveld & van Tilberg (2023) in the DJG-LS manual notes that, "cut-off points are related to the specific culture and point-in-time" (p. 11). Given the latter, it is difficult to be certain about the degree to which similar cut-scores would be derived in contemporary samples or for people from non-Dutch languages and cultures.

Another potential approach to defining loneliness is statistical deviation from a normative mean score, such as the T-scores for the loneliness scale of the NIH Emotions Toolbox (Babakhanyan *et al.*, 2018). However, in the absence of information on the population base-rates of problematic loneliness, even cut-scores based on

statistical deviation may conflate "atypical" with "problematic."

Comparing loneliness prevalence across countries and the impact of mode of measurement

The issues of the impact of measuring loneliness when synthesizing and comparing reports of loneliness prevalence rates is directly addressed in the systematic review and meta-analysis provided by Stegen *et al*. (2024) (this volume). They conducted a comprehensive search of the English-language empirical literature on the prevalence of loneliness among community-dwelling older adults, resulting in 62 studies in their systematic review, and 45 for meta-analysis. The studies had wide variability in methods of assessing presence of loneliness, but Stegen *et al*., found that measurement instrument in assessing loneliness explained 63% of the variance in prevalence rates, with the highest prevalence associated with the 20-item UCLA-LS and the lowest prevalence associated with a single item direct question.

To determine prevalence rates from the original studies, Stegen *et al* (2024) applied the standard cut-scores for the DJG-LS, even when this required recalculation from the original data of the studies. However, in the absence of cut-scores endorsed by the author of the UCLA-LS, Stegen *et al*., "followed the cutoff that each of the studies provided since we then had some clarity in who is considered 'lonely' in each of the studies" (p. 3). Further complicating comparison of prevalence rates, beyond the effects of measurement tool, Stegen *et al*. (2024) also found that mode of administration explained 8% of the variance in prevalence; the highest prevalence rates occurred with face-to-face administration. Although mode of administration has less impact on observed prevalence than instrument choice, mode of administration is clearly another factor to consider in comparing prevalence rates from different studies.

Conclusions

The search for means to unequivocally compare rates of adaptive vs. problematic loneliness across groups is ongoing. Also note that throughout this commentary we have treated loneliness as a unitary construct with the primary variations being in time and severity. This is likely an oversimplification; although the degree to which current measures unequivocally distinguish among subtypes of loneliness remains a concern, theories of different subtypes of loneliness, such as social vs. emotional loneliness, have been present since the earliest academic attention to loneliness as a topic warranting scientific attention (Cacioppo *et al*., 2015; Weiss, 1973). [The DGS-LS has social vs. emotional loneliness subscales, but the distinction is confounded by positively vs. negatively wordeing. That is, tThe Emotional Loneliness subscale items are worded in the lonely direction, whereas the Social Loneliness subscale items are woered in the non-lonely direction.] Moreover, even with the same subtype, the specific internal phenomenologic affective experience may differ between individuals (see Gentry and Palmer, 2021, 2022). Whether subtypes or internal experiences vary by group and/or in terms of downstream deleterious effects also warrants further empirical attention. Research on loneliness among older adults has provided vital information documenting the importance of attending to loneliness and social connection throughout the lifespan, but further attention to the above measurement challenges may yield better identification of those in need and new targets for the prevention and treatment of problematic loneliness, thereby also reducing the adverse effects on health and well-being.

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