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# Anger By Any Other Name: Sampling the Domain

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## Abstract

The purpose of this paper is to introduce some of the conceptual and theoretical issues surrounding the measure of anger in the elderly, to present a brief data-based case from an Alzheimer caregiving study, and to provide recommendations for measuring the anger variable. The limited research available suggests that Spielberger's updated State-Trait Anger Expression Inventory 2 (STAXI-2) is a good choice for clinicians and researchers, because it has a strong conceptual basis. The STAXI-2 has normative data for a variety of age groups, and includes representative anger terms found in interview data with elderly individuals. Additional recommendations are provided.

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## INTRODUCTION

Research on discrete emotions like anger is relatively limited; and this limitation is more pronounced in the elderly population (1, 2). The purpose of this paper is to introduce the reader to some of the conceptual and theoretical issues surrounding the measure of anger in the elderly, to present a brief data-based case from an Alzheimer's caregiving study, and to provide recommendations and references for measuring the anger variable.

Researchers, clinicians, and caregivers understand that the anger emotion occurs in the course of caring for a person with Alzheimer's disease or a related disorder (3, 4, 5, 6, 7, 8, 9, 10, 11, 12). As recently as 2007, Croog and colleagues (13) reported that 41% of the 199 caregiving spouse participants in their study experienced anger or resentment 'sometimes' or 'frequently' as measured by 5 items from a well-known standardized instrument; wives experienced these feelings the most. The researchers noted "Although anger and resentment are well known clinically . . . in . . . Alzheimer patients, these particular responses have not often been cited specifically in terms of their extent and intensity in published research on spouse caregivers" (p. 96). Clearly, the potential impact of anger is enormous and deserves systematic investigation to determine its prevalence,

intensity, timing and frequency of occurrence; as well as the effects on the caregiving dyad, and its secondary effects on informal and formal support.

## ANGER CONCEPT

Research on the anger emotion is increasing, but there are still unresolved methodological and theoretical issues concerning the domain of anger (anger vs. aggression vs. hostility) and about the components of anger (feelings, thoughts, physiological, behavioral, musculoskeletal). The interested reader is referred to two extensive reviews (14, 15), as well as Pankseep's (16) chapter devoted to the anger emotion for a summary of these issues. The remainder of this paragraph provides a brief overview of the anger emotion. Pankseep (16) defined anger as a primitive state of the nervous system, locating its origin in subcortical circuits running medially in the amygdala, through the hypothalamus, and into the periaqueductal gray area. According to Pankseep (16), the evolution of higher layers of cortical control in humans led to emotional regulation, or plans for retribution, through cognitive processing of the triggering stimuli. The short-circuiting of aggressive acting out achieved through cognitive processing may allow an individual to choose whether or not a stimulus triggers anger, or if anger is allowed to grow beyond the initial triggering event. Pankseep (16) reported numerous bodily manifestations of anger including invigorated musculature, an activated autonomic nervous system, increased body temperature, characteristic posturing and facial expressions, increased blood flow, and vocalizations. The subjective affective experience of anger has numerous labels, colorful

internal dialogue, and imagined acting out, beyond those listed in Table 1.

**Figure 1**

Table 1. POMS (17), PANAS-X (18), and Spielberger (19) Summary of Anger Terms

POMS: bitter, spiteful, rebellious, deceived, ready to fight, angry, peeved, furious, grouchy, bad-tempered, annoyed, resentful
PANAS-X: scornful, hostile, angry, loathing, irritable, and disgusted
SPIELBERGER: mad, angry, burned up, irritate, frustrate, aggravate, about to explode, like banging on table, yelling at _____, swearing, furious, like hitting someone, breaking things, annoyed, resentful

**METHODOLOGICAL ISSUES**

Researchers and theoreticians have largely agreed with Pankseep’s (16) description of anger as a multidimensional construct, although in any given study it is seldom measured as such. Depending on the research design, data may be gathered via self-report only, or physiological measures may be taken; observation may also be conducted. In selecting methodology, it is critical to consider characteristics of the population and the problem to be investigated, as well as cost in terms of time and dollars, in determining the best way to obtain valid measures of the key variables. Appreciation of instrument psychometrics, including population norms, and a deep understanding of the theoretical definitions and prepositions supporting each instrument, will optimize valid operationalization of study variables. Eckhardt and colleagues (14) presented a useful review of issues in the assessment of hostility and anger, including long-standing concerns about the adequacy of existing instruments. The authors included an extensive listing of instruments and other methods of data collection. Standardized anger measures incorporated and detailed in the article were as follows: Buss-Durkee Hostility Inventory, Aggression Questionnaire, Cook-Medley Hostility Inventory, Hostility and Direction of Hostility Questionnaire, Novaco Provocation Inventory, Novaco Anger Scale, Multidimensional Anger Inventory, State-Trait Anger Expression Inventory-2, MMPI-2 Anger Scale, and other scales needing additional research. Eckhardt and colleagues (14) concluded that only four of these instruments possessed the properties of being theoretically based, with adequate construct boundaries, and clear indications for use. These instruments were the Aggression Questionnaire, Novaco Anger Scale, MMPI-2 Anger Scale, and the State-Trait Anger Expression Inventory-2. Psychometric testing of

the Aggression Questionnaire was completed on introductory psychology students, ages 18-20 (15). Psychometric testing of the Novaco Anger Scale was accomplished on hospitalized patients and was intended for use with individuals having mental disorders (14, 15). Psychometric testing of the MMPI-2 was completed on a geographically diverse adult population, ages 18-80 (15). The anger content scale of the MMPI-2 is a trait only measure for anger. Spielberger’s updated State-Trait Anger Expression Inventory 2 (STAIX-2) was tested on both normal and hospitalized psychiatric patients, ages 16-63. This instrument was identified as an excellent choice both clinically and in the research area, being theoretically-based and having psychometric data for many normative groups. No further recommendations were offered concerning the measurement of anger in elderly individuals.

Another thorough review, focused on aggression, but with numerous measures of anger, was found in Suris et al. (15). The authors developed a comprehensive table of instruments (n = 41) with extensive sample, reliability and validity data. Approximately 30% of the instruments are specifically for the measurement of anger, or have a subscale for anger. Only two out of that 30% are noted to have prior use in an elderly sample. Examining Table 3 in Suris et al., one finds that the Angry-Hostility facet of the NEO Personality Inventory, a trait measure, has been administered in the Augmented Baltimore Longitudinal Study of Aging (ABLSA). Also, The State-Trait Anger Expression Inventory (STAXI-2), has been administered to individuals age 16-63; normative data are available for age 30+. A review of the Professional Manual (STAXI-2)(20) revealed that psychometric data from the normative groups was collapsed from the original four groups, including a group of 40 years and older, to three age groups age 16 to 19, 20 to 29, and 30 and older. This step was implemented due to lack of statistical differences between the age 30 to 39 group and the age 40 and older group. Overall, Spielberger found that scores on the State and Trait anger scales decreased with age.

Eckhardt et al. (14) and Suris et al. (15) reviewed and incorporated laboratory and observational methods for measuring anger. While these methods are often more time consuming, both in actual data collection, and in the training of research staff, such methods are worth considering given the state of research on anger and limitations of measures currently available for assessing this important emotion in elderly individuals. The interested reader is directed to

Malatesta-Magai et al. (21) for an excellent example of a well-designed multi-method investigation of anger using self-report and observation combined with several well-known paper and pencil scales, and a videotaped emotion induction procedure using a facial coding system. The article is a valuable resource in terms of anger content, general discussion of emotions and aging, design and methods, and list of references.

Another helpful methodological and theoretical resource is Alea, Bluck, and Semegon's (1) study comparing scalar and narrative accounts of recalled emotional experience in older adults. The authors provided a thorough account of the use of autobiographical narrative in capturing discrete emotions in response to life events in elderly individuals. Coding of the interviews is described, including development of decision rules, and the determination of interrater reliability. The researchers detailed the manner in which narrative was compared to scalar data; making the important point that older individuals are more likely to express negative affect in the narrative, as compared to scalar method of assessment.

### MEASUREMENT IN ELDERLY

Obtaining quality data at the desired level of specificity requires a process for determining by what means or measure the anger emotion will be captured, given one's research design, the instrument availability, and budgetary constraints. Further, due to sparse research literature on anger in caregivers, and in elderly individuals in general, researchers may also benefit from clinical wisdom in seeking valid measures for the anger emotion (22). Knight (23), a practitioner of psychotherapy with the elderly, noted the following:

Word usage changes across cohorts can be . . . subtle and introduce a need to be aware of differences in meaning of words . . . client and therapist use the same language but do not always mean the same things. . . . I find that older female clients resist using the word anger and that it is better strategy to use their words (often terms such as irritated or frustrated) than to insist that they use my words (p. 29).

Warnick (24), another seasoned clinician, emphasized the importance of attending to cue words for the various emotions. These cue words used by the client in the therapeutic interaction offer insight to the counselor as to what the client is feeling. Based on Warnick's experience with elderly individuals, the following cue words were suggested for anger: against, argue, hate, attack, criticize, hit, angry, dislike, hurt, compete, fight, and nasty.

In a similar vein, Albrecht and Ewing (25) conducted a series of investigations to generate alternate items for the POMS. The researchers stated, "Words constantly fluctuate in regard to their frequency of use. A word or a phrase . . . , with the passage of only a few years, may . . . undergo a complete change in meaning" (p. 32).

Laidlaw (22) identified age as one factor contributing to individualization in language use. The author noted that age and other factors, including past experience and cultural context, can produce reactivity to word items. Such reactivity can cause an individual to deny a particular emotional item because the meaning is unclear or too pungent. Laidlaw addressed the issue of attempting to measure personal emotional vocabulary in a study of concurrent validity. This consisted of administering the Personalized Emotional Index (PEI) and the Profile of Mood States Bipolar Version (POMS-BI) to 30 caregivers for individuals with schizophrenia and 62 controls. The Personalized Emotional Index was designed to capture personal emotional vocabulary for individual assessment. Based on reliability, validity, and comparability analysis, Laidlaw claimed that the PEI allowed for selection and rating of emotional terms of personal choice, and within an individual's potency comfort range. The author surmised that this approach accounted for the situation where "the New Zealand young person's 'furious' could be equivalent to the American middle aged 'hopping mad' and the elderly English 'irritated' (p. 1205). The author maintained that furious, hopping mad, and most irritated, refer to an extreme anger state, even though the term anger might not be a part of any individual's day to day vocabulary.

Coon, Thompson, Steffen, Sorocco, and Gallagher-Thompson (12) identified anger measurement in middle-aged and elderly women as a significant methodological issue in their 2003 psychoeducational intervention study involving 161 female caregivers for relatives with dementia. The mean age for caregivers in this study was 63.7, with a standard deviation of 8.4 years. In the Anger Management component of the intervention, the researchers stipulated the inclusion of several anger terms preferred by middle-aged and older women. Terms listed in the methods section describing the Anger Management component included frustration, irritation, and anger. Further, the researchers named their intervention "Coping with Frustration" in order to facilitate recruitment through reflecting language choices of older women. The rationale for this methodological specification was, "Our research has found that some related

terms (e.g., frustrated) are more acceptable to these participants than angry and lead to improved ability to engage . . .” (p. 680).

Knight, Warnick, Albrecht and Ewing, and Laidlaw’s observations were further supported in a 1999 investigation of the intra- and inter-cultural variations in the semantic structure of emotion terms (26). Through a process of word mapping, the researchers determined that the portion of shared meaning of emotion terms in their monolingual English-speaking participants (n=33) was about 72.4%. This substantial amount of shared meaning occurred in a relatively homogeneous sample; but still there was ample room for meaning unique to the individual.

The following case example described below provides an illustration of how differences in word usage, particularly for anger vocabulary, could affect item response in elderly respondents. Data for the case comes from a secondary analysis (5) of data from the National Caregiver Training Study (27). A report of the original psychoeducational intervention study is published in Buckwalter et al. (28)

**CASE EXAMPLE**

Sample. Data for the case comes from a secondary analysis (5) of data from the National Caregiver Training Study (27). In the primary study a convenience sample of 226 caregivers residing in Iowa, Minnesota, Indiana, and Arizona were recruited for a randomized trial of a theory-based psychoeducational intervention. Data collection in the primary study was via standardized instruments and an open-ended interview posing the question, “What’s it like for you to be a caregiver for \_\_\_\_\_?” No specific prompts or questions about anger were supplied for the open-ended interview. Some interviews were unavailable due to equipment failure, caregiver refusal of the recording, or a paraphrased transcript. The current report is based on, 127 baseline, taped, transcribed interviews of family caregivers (female = 93; male = 34; see Table 2), overwhelmingly spouses, caring for persons with Alzheimer disease or a related disorder that were reviewed for the presence of anger terms. Approximately 45% of the 127 reviewed transcripts contained anger terms; interestingly, about 3/4 of the transcripts from female study participants contained anger terms, while only about 1/4 of the transcripts from male study participants contained anger terms.

**Figure 2**

Table 2. Caregivers and Care Recipients (CR) Characteristics

	Caregivers M (SD) or Frequency (%) (N=127)	Care Recipients M (SD) or Frequency (%) (N=127)
Age	63.5 (13.05)	76.45 (8.85)
Average Hours Care /Week	117.6 (61.85)	
Health	1.1 (1.35)	1.4 (1.5)
CR Behavioral Problems <sup>a</sup>	21.55 (6.65)	
<b>Transcripts Anger Terms</b>		
Men	9 (26%)	
Women	65 (70%)	
<b>Gender</b>		
Men	34 (27%)	57 (45%)
Women	93 (73%)	70 (55%)
<b>Relationship to CR</b>		
Spouse	86 (67.5%)	
Child	27 (21.5%)	
Other Relative	11 (8.5%)	
Friend	3 (2.5%)	
<b>Caregiver Ethnicity</b>		
Black/Hispanic/Other	8 (6%)	
White	119 (94%)	

<sup>a</sup>Behavioral Assessment for Low-Stimulus Care Plan (29)  
Note: M=mean, SD=standard deviation

Procedure. Transcripts were reviewed in order to identify and count anger terms, which were defined as those terms found on the Profile of Mood States (POMS) (17), the Positive and Negative Affect Schedule – Expanded Form (PANAS-X) (18), and the Spielberger State—Trait Anger Scale (STAS) (19) (see Table 1), as well as other anger words and phrases listed in a thesaurus and in the literature.

Analysis. Descriptive analysis included listing of terms from most to least frequent, for both male and female caregivers. The 10 most frequent anger terms used by caregivers in the open-ended interviews were compared to those terms found on the POMS, the PANAS-X, and the STAS.

Results. The 10 most frequent anger terms were as follows: frustrate, aggravate, irritate, angry, upset, mad, exasperate, losing it, short-tempered, blow-up. For males the frequency of the 10 most frequent terms was slightly different from females due to non-use of “upset, losing it, or short-tempered” in their transcripts. In addition to the 10 most

frequent terms, other transcript terms included “sick of it,” “gets to you,” “annoyed,” “disgusted,” “resented,” and some miscellaneous terms and phrases. Examples of female phrases in the miscellaneous category included “wanting to hit,” “same GD question again and again,” “want to scream,” and “want to choke him.” Examples of male phrases in the miscellaneous category included “you almost yell,” “set you right off,” and “tries my patience.” It is noteworthy that for both groups the miscellaneous category was the second largest category and the miscellaneous terms were very similar to items on the Spielberger instrument. This finding suggests that the State Trait Anger Scale reflects the content domain of anger terms and phrases used by this sample of elderly individuals. However, a similar conclusion could not be made concerning the items from the POMS and the PANAS-X.

### DISCUSSION

The POMS and the PANAS-X are well-known and widely-used instruments for the measure of mood and positive/negative affect, respectively. Both instruments have subscales to measure the discrete anger emotion; however, the terms are quite different between the two scales. Similarly, in the interview data the terminology used by caregivers to describe anger differed markedly from the terms and phrases available on the POMS and the PANAS-X. A comparison of the caregiver anger terms with items on the STAS reveals that the Spielberger instrument has many of the same or similar words and phrases used by caregivers. Another important point is that only by using the STAS would a researcher have the term “frustrated” as an available item, even though “frustrated” accounted for over half of the terms in the transcripts for both males and females in the current analysis. Likewise, in a focus group of Alzheimer caregivers conducted by Steffen and Berger (9), caregiver participants generated terms that were much like those used by caregivers in this case example, including annoyed, aggravated, angry, frustrated, disgusted, and resentful. A comparison of these focus group terms with the items on the STAS, reveals that the focus group participants, who were also caregivers for persons with Alzheimer disease, used anger terms and phrases similar to the ones available on the Spielberger instrument (19).

### CONCLUSIONS

Most of the instruments discussed in this paper are used in research settings and less frequently in clinical settings. Psychometric testing of many of the instruments occurred in college students and clinical populations. Psychometric

testing in older adults, particular those over the age of 60 is limited across all instruments. Therefore, researchers wishing to capture the anger emotion in an elderly sample are urged to consider the methodological issues outlined in the preceding paragraphs.

As research progresses, attending to the choice of instruments will potentially improve understanding of the anger emotion and how this caregiver emotion is related to other important caregiving variables. Anger is an important emotion, both clinically and in daily life, causing both intrapersonal and interpersonal distress and conflict, and often leading to negative and unpredictable outcomes for the involved parties. Understanding anger and its triggers, verbal and nonverbal expressions, physiologic response, “tamers”, motivators and/or uses is necessary in order to minimize or prevent negative and unpredictable outcomes. Correct measurement is the first step in this direction.

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