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Defining and Assessing Wisdom: A Review of the Literature

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Abstract

With increasing longevity and a growing focus on successful aging, there has been a recent growth of research designed to operationalize and assess wisdom. We aimed to (1) investigate the degree of overlap among empirical definitions of wisdom, (2) identify the most commonly cited wisdom subcomponents, (3) examine the psychometric properties of existing assessment instruments, and (4) investigate whether certain assessment procedures work particularly well in tapping the essence of subcomponents of the various empirical definitions. We searched PsychINFO-indexed articles published through May 2012 and their bibliographies. Studies were included if they were published in a peer-reviewed journal and (1) proposed a definition of wisdom or (2) discussed the development or validation of an instrument designed to assess wisdom. Thirty-one articles met inclusion criteria. Despite variability among the 24 reviewed definitions, there was significant overlap. Commonly cited subcomponents of wisdom included knowledge of life, prosocial values, self-understanding, acknowledgement of uncertainty, emotional homeostasis, tolerance, openness, spirituality, and sense of humor. Published reports describing the psychometric properties of nine instruments varied in comprehensiveness but most measures were examined for selected types of reliability and validity, which were generally acceptable. Given limitations of self-report procedures, an approach integrating multiple indices (e.g., self-report and performance-based measures) may better capture wisdom. Significant progress in the empirical study of wisdom has occurred over the past four decades; however, much needs to be done. Future studies with larger, more diverse samples are needed to determine the generalizability, usefulness, and clinical applicability of these definitions and assessment instruments. Such work will have relevance for the fields of geriatrics, psychiatry, psychology, sociology, education, and public health, among others.

Keywords

wisdom; aging; human development; cognition; personality trait; positive psychology

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INTRODUCTION

Over 700 years ago, Thomas Aquinas decreed, “of all the pursuits open to men, the search for wisdom is most perfect, more sublime, more profitable, and more full of joy.” Despite deep historical roots in philosophy and religion (1, 2), empirical studies of wisdom in psychology and gerontology did not begin until the 1970s. The long delay may be related in part to early gerontology’s emphasis on a deficit model, which characterizes the normative course of aging as a series of losses. Furthermore, psychology and neuroscience have generally tended to focus on elemental components or processes that can be relatively easily operationalized and measured. Given the complex nature of wisdom, there are challenges in defining, operationalizing, and assessing this construct.

Folk psychology suggests that individuals become wiser with increasing age, although published results from empirical studies have been inconsistent, with some demonstrating no age-related differences in wisdom (3) whereas others report increases in wisdom with age (4-6). Evidence suggesting that wisdom is related to better physical health and improved quality of life among older adults (7, 8) in combination with the widespread belief that wisdom increases with age, the global trend of increasing longevity, and the growing interest in successful aging (9-11) have likely contributed to the notable increase in wisdom research over the past several decades (12).

The word ‘wise’ is used in everyday language and the intended or perceived meaning may differ somewhat depending on the context, however, its scientific usage should be precise (13). While there are somewhat different perspectives regarding the essential subcomponents of wisdom, in order for valid empirical research to grow, general agreement on the main characteristics of and the optimal method/s to assess this complex construct is important. Such consistency would be useful in comparing and integrating findings across studies, which is currently difficult given a lack of consensus regarding how to operationalize and measure wisdom. Despite the growth of scientific research and several excellent books on wisdom, to our knowledge, this paper is the first to summarize articles published in peer-reviewed journals that describe the development of definitions of wisdom and instruments designed to assess wisdom. Unlike previously published review articles (13, 14), we restricted our search to include only those articles that were published in peer-reviewed journals so as to focus on those definitions and instruments that were developed through empirical methods.

In reviewing the literature, we aimed to (1) investigate the degree of overlap among empirical definitions of wisdom, (2) identify the most commonly cited wisdom subcomponents, (3) examine the psychometric properties of existing assessment instruments, and (4) investigate whether certain assessment procedures work particularly well in tapping the essence of subcomponents of the various empirical definitions. Summarizing the current literature and addressing these questions will inform future empirical research on wisdom to facilitate further elucidation of its conceptualization, assessment, and application to clinical interventions.

DESIGN AND METHODS

To identify articles for review, we surveyed the PsychINFO online database through May 2012 with the following criteria: (1) included the term *wisdom* in the title, (2) published in English, and (3) published in a peer-reviewed journal. This search yielded 571 articles of potential interest, of which 105 were deemed relevant (i.e., involved the study of the construct of wisdom) based upon a review of the abstract. References cited in these 105 articles were also reviewed. To be included in this review, articles either (1) proposed a

definition of wisdom or (2) discussed the development, validation, and/or psychometric properties of an instrument designed to assess wisdom. Thirty-one articles met these criteria. At least two authors examined each journal article and then extracted information related to the proposed definition and/or assessment instrument.

Given our focus on empirically based definitions and measures of wisdom published in peer-reviewed journals, we did not include those published in books (15-18). In addition, as we are interested in the construct of wisdom, we did not include work by researchers who have focused on subcomponents of this construct rather than wisdom *per se*. Such work includes Happé et al.'s work on theory of mind among older adults (4); Levenson and colleagues' research on self-transcendence (19); conceptualizations emphasizing dialectical thinking and viewing wisdom as post-formal reasoning thereby extending beyond Piaget's stages of cognitive development (20); and Kitchener and colleagues' (21) work on the reflective judgment theory.

RESULTS

Table 1 summarizes the key theories and definitions published since the early 1980s when the empirical study of wisdom expanded. A distinction that often has been made among the modern conceptualizations of wisdom involves whether researchers adopt an implicit versus explicit theoretical approach (22). Implicit theories of wisdom highlight lay conceptions or common sense approaches and examine how wisdom is described in everyday language and how individuals are characterized as wise. In contrast, explicit theories are based on constructions of expert theorists and focus on behavioral manifestations of wisdom (13, 23). However, some definitions may be difficult to classify based on such distinctions because they represent a hybrid approach or are not entirely consistent with one of these categories. Given this, theories are organized below in terms of chronology, an approach that highlights the historical development of the study of wisdom.

To integrate conceptually similar dimensions of wisdom, we have summarized the various definitions based on the inclusion of nine specific subcomponents identified through a conceptual review of the literature. For a subcomponent to be used in summarizing it had to be included in at least three of the definitions. The subcomponents overlap with but are more comprehensive than those identified in an earlier literature review by Meeks and Jeste (12). The frequency of inclusion of each of these nine characteristics in the reviewed definitions, which was determined based on consensus among the authors, is included in the last row of Table 1. As demonstrated in Table 1, there is significant overlap among the various empirical definitions of wisdom. The most commonly included subcomponents, which appeared in more than half of the definitions are (1) *social decision making and pragmatic knowledge of life*, which relates to social reasoning, ability to give good advice, life knowledge, and life skills; (2) *prosocial attitudes and behaviors*, which include empathy, compassion, warmth, altruism, and a sense of fairness; (3) *reflection and self-understanding*, which relates to introspection, insight, intuition, and self-knowledge and awareness; (4) *acknowledgement of and coping effectively with uncertainty*; and (5) *emotional homeostasis*, which relates to affect regulation and self-control. Finally, subcomponents included in fewer than half of the reviewed definitions include (1) *value relativism and tolerance*, which involves a nonjudgmental stance and acceptance of other value systems; (2) *openness to new experience*; (3) *spirituality*; and (4) *sense of humor*.

The reviewed definitions have been developed using a variety of methods including theoretical approaches involving review, synthesis, and/or expansion of existing theories of wisdom or related constructs (7, 12, 24, 25); prototypical studies involving methods requiring participants to provide or rate wisdom-related characteristics followed by

researchers analyzing those responses to reveal underlying subcomponents of wisdom (26, 27); interview-based methods asking participants to identify/nominate wise individuals and/or describe instances in which they themselves were wise (28); and consensus of international experts using the Delphi method (29).

ASSESSMENT INSTRUMENTS

Table 2 summarizes instruments developed to assess wisdom in terms of the format, sample(s) used during development or validation, reliability, validity, wisdom subcomponents that the measure was designed to assess, strengths, and limitations. Given that the reviewed instruments are in the form of either interview-based measures, questionnaires, or a hybrid of these two approaches, instruments are organized according to these three categories.

To summarize the various instruments, as demonstrated in Table 2, of the nine instruments, three are interview-based, five use a questionnaire format, and one involves a hybrid of these two formats. Interview-based measures are scored by trained raters whereas the questionnaires ask participants to respond using Likert-type scales and range in length from 13 to 79 items. With the exceptions of the measures associated with the Berlin Wisdom Paradigm and the Wise Thinking and Acting Questionnaire (30), which were developed in Germany and Greece, respectively, all measures were developed in the United States. Sample sizes used in development and validation studies ranged from 60 participants (3) to 2,715 participants (31). In terms of reliability, seven of the nine measures assessed internal consistency with Cronbach's alpha (α) values ranging from .60 (30) to .96 (32). The four measures involving an interview component assessed inter-rater reliability with Cronbach's α values ranging from .51 to .99 (33, 34). Three measures reported test-retest reliability data which was calculated across different time intervals ranging from two weeks (35) to 12 months (23) and with correlation coefficients ranging from .65 to .94 (23). Regarding validity, eight of the nine scales assessed convergent validity; five examined discriminant validity; five investigated construct validity using factor analyses; and one each assessed content validity, predictive validity, and concurrent validity. Finally, one measure attempted to validate their coding scheme.

Given that each measure was developed by researchers who had also proposed an empirical definition and the two were often developed in tandem, measures were assumed to generally be designed to assess the particular subcomponents proposed in the associated definition. Each measure has strengths and limitations. Measures with significant strengths include those associated with the Berlin wisdom paradigm, given their foundation from a large body of empirical work across many samples; the Three-Dimensional Wisdom Scale (3D-WS), in view of its rigorous development and good psychometric properties; the Wisdom Development Scale (WDS) and Self-Assessed Wisdom Scale (SAWS) given demonstrations of several types of validity across multiple samples; and the social reasoning measure developed by Grossmann and colleagues (5), in light of its use of naturalistic materials and structured interview format.

DISCUSSION

Through our review of the literature, we aimed to (1) investigate the degree of overlap among empirical definitions of wisdom, (2) identify the most commonly cited wisdom subcomponents, (3) examine the psychometric properties of existing assessment instruments, and (4) investigate whether certain assessment procedures work particularly well in tapping the essence of subcomponents of the various empirical definitions. To summarize our findings, despite some variability, there is a significant degree of overlap among definitions. Further, the most commonly cited subcomponents, which appeared in at

least half of the reviewed definitions, relate to social decision making/knowledge of life, prosocial values, reflection, and acknowledgement of uncertainty. Additional subcomponents included in fewer than half of the definitions relate to emotional homeostasis, value relativism/tolerance, openness to new experience, spirituality, and sense of humor.

Standardized assessment measures have generally involved an interview-based or questionnaire format or a hybrid of the two. Published reports examining the reliability and validity of these scales vary in terms of degree of comprehensiveness and detail. However, all of the instruments have been evaluated for inter-item or internal consistency with several measures also having been examined for additional forms of reliability. There was variability in terms of what type(s) of validity was/were assessed (e.g., convergent, divergent, etc.). Nonetheless, a majority of measures evidenced acceptable psychometric properties.

Most reviewed measures are based on self-report interviews or questionnaires and although each of the subcomponents of wisdom listed above could hypothetically be assessed with either of these formats, some assessment procedures may work particularly well in tapping the essence of subcomponents of the definitions. In particular, given that a key subcomponent of wisdom involves acknowledgement of uncertainty and limits, including limits of one's own knowledge, a wiser individuals would theoretically always score lower than a less wise person on measures asking her to reflect on her own level of aspects of wisdom (e.g., knowledge, self-reflection, or emotional homeostasis) (29). Therefore, self-report measures may not best capture wisdom. Alternative assessment procedures include having an informant report on an individual's level of wisdom. However, the informant may not know the person very well and may have her own biases. Examining an individual's behavior over long periods of time would be the optimal method for assessing wisdom, however, this is neither practical nor feasible. Further, certain subcomponents, including self-reflection and spirituality are difficult to observe. Taken together, wisdom may be best assessed from a variety of sources involving integrating self-report, informant-based, and performance-based measures.

There are limitations to the current review. Despite our best efforts, we might have missed a few relevant articles on this topic. In addition, summarizing the reviewed theories had some inherent challenges. In particular, many authors discuss similar concepts but use different language to describe them; the definitions of characteristics are not always provided by the authors; domains of wisdom are sometimes explicitly stated and at other times implied, which requires a degree of interpretation; and if a domain/characteristic is not mentioned in a particular theory, it is unclear whether it was assessed and subsequently excluded or never considered. Furthermore, given that each measure was developed by researchers who had also proposed an empirical definition and the two were often developed in tandem, we assume that measures were generally designed to assess the particular subcomponents proposed in the associated definition, however, this may not always be the case.

Although debate and diverse perspectives are useful, general agreement on the main characteristics of wisdom will facilitate the advancement of empirical research on this construct as well as comparison and integration of findings across studies. Although there is still no consensus definition of wisdom, there has been recent progress as evidenced by the significant overlap among empirical definitions as well as the recent expert panel conducted by Jeste and colleagues (29). Notably, most theorists believe that wisdom is multi-dimensional (5, 7, 12, 23, 29, 36, 37). Most conceptualizations involve integration and can be considered holistic in the sense that individual subcomponents are necessary but not sufficient for the development of wisdom. For instance, possessing knowledge and good

decision-making abilities but lacking prosocial values, can only make an individual smart, but not wise (37). Wisdom is thought to be a complex, multidimensional characteristic with the whole being greater than the sum of its parts. An individual should holistically integrate several or all subcomponents of wisdom to a high degree in order to be wise. The relative weighting of the various subcomponents is unclear and may vary depending on the context or culture (e.g., subcomponents such as spirituality or sense of humor may be more or less important depending on the context). However, behavior or action is an essential part of wisdom. An individual may think wisely, but unless she acts wisely, she does not truly embody wisdom.

A subcomponent of wisdom that was cited by nearly all definitions relates to prosocial values and behavior, suggesting that wisdom is a useful construct and serves a common good (18, 23). Implicit in this conceptualization is that wisdom is not simply a conglomeration of personality traits but it serves a purpose and is actively exhibited through behavior and social interaction. Given that an important component of wisdom involves promoting the well-being of others, taken together with evidence suggesting that wisdom is related to better physical health, improved quality of life, and better quality of relationships among older adults (7, 8), suggests that wisdom is useful for both individuals and society at large.

Despite significant progress in the development of assessment instruments, all existing measures have limitations. Several of these weaknesses are not specific to instruments designed to assess wisdom and may be relevant to interview-based measures or questionnaires in general (e.g., time consuming nature of transcribing and rating qualitative interviews, susceptibility of self-report measures to response bias, concerns about ecological validity). However, there are potential problems that may be more relevant for measures designed to assess wisdom compared to those assessing other constructs (e.g., as mentioned above, there is difficulties using self-report to assess one's wisdom given that a key component of wisdom relates to recognizing one's own limitations). Nonetheless, existing measures with significant strengths include those associated with the Berlin wisdom paradigm, given their foundation from a large body of empirical work across many samples; the 3D-WS, in view of its rigorous development and good psychometric properties; the WDS and SAWS given demonstrations of several types of validity across multiple samples; and the social reasoning measure developed by Grossmann and colleagues (5), in light of its use of naturalistic materials and structured interview format.

There are several potential areas of wisdom-related research that merit further focused investigation and are outlined below.

1. Establishing the generalizability of definitions and measures of wisdom

In light of the relatively small and homogenous samples included in most empirical studies (i.e., mostly Caucasian and highly educated participants) as well as documented cross-cultural differences in beliefs about wisdom (38), demonstrating the applicability of definitions and measures across larger, more diverse samples in terms of culture and socioeconomic and educational background is a key to demonstrating their generalizability and broader relevance. Notably, the vast majority of reviewed definitions and instruments were developed by researchers based in North America or Europe. However, one definition was developed by a researcher based in Taiwan (25) and the definition derived based on the Delphi method involved an international group of experts (29). Nonetheless, these definitions and measures would generally benefit from additional investigations involving larger and more diverse samples.

2. Constructing standardized multimodal measures of wisdom characterized by good psychometric properties and feasibility and assessing the usefulness of these measures

Recently published constructive commentaries debating different approaches (39, 40) represent an important step in achieving a better understanding of how to measure wisdom. However, given that wisdom is a multidimensional construct along with the weaknesses of individual measurement techniques (e.g., social desirability biases associated with self-report measures), it may be best assessed from a variety of sources. For instance, a combination of quantitative data and qualitative semi-structured interviews using both hypothetical situations and situations from an individual's own life would be helpful as would integrating self-report, informant-based, and performance-based measures. Instruments should focus on measuring observable behavior and strike a balance between being comprehensive and brief. It may be impossible to develop an ideal scale that would be appropriate for all individuals and all contexts. It may be that different scales are useful for different purposes (e.g., assessing wisdom in young adults versus older adults).

In addition, whether these measures assess a useful concept of wisdom should be assessed. Studies investigating the benefits of wisdom have demonstrated that wisdom is more strongly associated with life satisfaction than physical health, socioeconomic status, social involvement, physical environment, and age (7). Other studies using social reasoning vignettes have implied that wisdom is useful given that wise behavior is defined, in part, as prosocial behavior that serves the common good (5). Taken together, evidence suggests that wisdom is a useful construct. However, future systematic investigations of the usefulness of wisdom as assessed by these instruments are important for further determining the ecological validity of these measures as well as determining which assessment methods (e.g., performance-based measures involving social reasoning) may be more likely to advance the understanding and application of this construct.

3. Developing interventions designed to promote wisdom

Despite increasing research focus, wisdom has received little clinical attention. Although it is generally thought that wisdom is not likely to be enhanced by medication, it is thought that it can be cultivated (29). To our knowledge, only one psychotherapy technique has explicitly targeted increased wisdom as a therapy goal. So called wisdom therapy uses modified versions of the Berlin Wisdom Project's research protocol to facilitate the client's abilities to consider challenging life events from multiple perspectives with the aim of enhancing subcomponents of wisdom including flexible thinking and acceptance of uncertainty (41). Additional interventions that may promote wisdom or its components include mindfulness and acceptance based psychotherapies, which emphasize aspects of wisdom including nonjudgmental awareness and emotional regulation (42); volunteer programs through which older adults mentor and tutor school-aged children facilitating the activation of wisdom among older adults as well as intergenerational transmission of wisdom (43); and cognitive rehabilitation techniques designed to improve executive functioning and cognitive flexibility which may help older adults improve their abilities related to accepting multiple viewpoints and acknowledging uncertainty. Finally, additional research on the developmental process of wisdom (as opposed to wisdom as an outcome) may inform how to best facilitate the growth of wisdom (44). Interventions promoting wisdom may be relevant not only to older adults but also for to the study of disorders and conditions, such as antisocial personality disorder and frontotemporal dementia, that affect commonly proposed subcomponents of wisdom (e.g., prosocial attitudes and behaviors, emotional homeostasis).

In conclusion, throughout history and across cultures, wisdom has been considered an optimal outcome of human development (45). Evidence suggests that wisdom is related to

better physical health and improved quality of life among older adults (7, 8), suggesting that wisdom is a useful construct and may have important implications for individuals, the healthcare system, and society at large. There has been a considerable growth in empirical research on wisdom over the past three to four decades (12). As a result, excellent empirically based contributions aimed at defining and measuring wisdom have been made. However, there is still much work to be done and the field is ripe for continued growth. Further elucidation of wisdom and investigation of wisdom across diverse samples as well as the development of theoretically and psychometrically valid multimodal assessment instruments are important steps in the promotion of the rigorous scientific study of this complex construct. Such work has relevance for the fields of geriatrics, psychiatry, psychology, sociology, education, and public health, among others, and would facilitate the development of wisdom-based interventions.

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Table 1

Definitions of Wisdom: Common Subcomponents

Author(s)	Decision making/knowledge	Prosocial attitudes	Self-reflection	Acknowledgement of uncertainty	Emotional homeostasis	Tolerance	Openness	Spirituality	Sense of humor	Other
1. Kekes (36)	X		X	X						
2. Taranto (24)	X	X	X	X						
3. Bales and colleagues (3, 23, 46, 47)	X	X		X	X					lifespan contextualism (e.g., knowledge of many contexts of life, temporal perspective)
4. Achenbaum and Orvonn (48)		X	X	X	X	X	X	X		integrity
5. Denney, Dew, and Kroupa (26)	X	X	X							specific skills (e.g., those related to business, politics, mechanical work, etc.)
6. Ardelt (7)	X	X	X	X	X					
7. Hershney and Farrell (27)	X	X	X	X	X	X		X		enlightened
8. Wink and Helson (49)	X	X	X	X	X	X		X		
9. Sternberg (22)	X	X	X	X						
10. Levitt (50)	X	X	X							honesty, humility, efficiency
11. McKee and Barber (51)	X	X		X						
12. Olejnik (52)	X			X						biographical
13. Jason and colleagues (53)	X	X	X	X	X		X	X	X	reverence for nature
14. Yang (25)	X	X			X		X			modesty/uno brusiveness
15. Montgomery, Barber, and McKee (28)	X	X	X							moral principles
16. Perry and colleagues	X	X		X	X			X		reverence for nature

Author(s) (54)	Decision making/knowledge	Prosocial attitudes	Self-reflection	Acknowledgement of uncertainty	Emotional homeostasis	Tolerance	Openness	Spirituality	Sense of humor	Other
17. Takahashi and Overton (55)	X	X	X		X					
18. Webster (37)	X		X		X		X		X	
19. Gluck, Bluck, Baron, and McAdams (56)	X	X	X	X	X	X				
20. Brown and Greene (32)	X	X	X	X	X					
21. Jeste and Vahia (1)	X	X	X		X					
22. Meeks and Jeste (12)	X	X	X	X	X	X				
23. Grossmann and colleagues (5)	X	X	X	X						acknowledgment of likelihood of change, prediction flexibility
24. Jeste and colleagues (29)	X	X	X	X	X	X	X		X	maturity
Number of reviewed definitions including subcomponent	23	21	19	16	13	7	5	5	3	

Table 2

Measures Designed to Assess Wisdom

Measure	Description	Development/Validation Sample(s)	Reliability	Validity	Wisdom Subcomponents Designed to Assess	Strengths	Limitations
Interview-Based							
1. Berlin wisdom paradigm (3, 23, 33, 34, 47)	Participants respond to vignettes containing challenging life dilemmas (e.g., how to respond to a phone call from a friend who is contemplating suicide) and trained raters use Likert-type scale to evaluate response	Multiple samples (Germany) N range = 60 – 204 Age range = 14 – 81 years	Internal consistency: $r = .50 - .77$ among the five separate wisdom criteria Inter-rater: $\alpha = .51 - .99$ Test-retest (12 month interval): correlations = $.65 - .94$	Convergent: Those nominated as wise also earned higher scores on life planning tasks relative to control groups Discriminant: Wisdom scores correlated with, yet distinct from, a variety of related constructs including intelligence and personality	1 Decision making/knowledge 2 Prosocial values 3 Acknowledgment of uncertainty 4 Tolerance 5 Lifespan contextualism	Replicated demonstrations of acceptable psychometric properties across samples Large body of empirical support	Uncertainty regarding appropriateness of distinction among the 5 criteria and 2 categories (Brugman, 2006) Potential over-emphasis of cognitive aspects of wisdom (Ardelt, 2004) Weaknesses associated with interview-based measures in general
2. Personal wisdom (57)	Participants instructed to think aloud “about yourself as a friend” and trained raters evaluate responses	N = 161 (Germany) Age range = 20 – 80 years	Inter-rater: $\alpha = .84$ for mean score; $\alpha = .53 - .74$ for individual criteria	Convergent: Personal wisdom correlated with several theoretically relevant variables including cognitive measures, life events, and general wisdom Discriminant: Different variables predicted personal wisdom and general wisdom	1 Decision making/knowledge 2 Prosocial values 3 Self-reflection 4 Acknowledgment of uncertainty 5 Tolerance	See those listed above for the Berlin wisdom paradigm	See those listed above for the Berlin wisdom paradigm
3. Reasoning about social conflicts (5)	Participants read descriptions of social conflicts and then predict how the conflict would unfold and trained raters	Multiple samples (US) N range = 141 – 247 Age range = 25 – 93 years	Inter-rater: Cohen’s $\kappa = .52 - 0.98$	Validation of coding scheme: Ratings of participant responses by wisdom experts and trained coders were in agreement	1 Decision making/knowledge 2 Prosocial values 3 Self-reflection 4 Acknowledgment of uncertainty	Naturalistic materials Sample with a wide age range Pre-screening of potential participants for	Limited reporting on validity Weaknesses associated with interview-

Measure	Description	Development/Validation Sample(s)	Reliability	Validity	Wisdom Subcomponents Designed to Assess	Strengths	Limitations
4. Adolescent Wisdom Scale (AWS) (54)	Self-report ratings on 23 items using 5-point Likert scale rating to assess 3 subcomponents of wisdom	N = 2027 (US) Age range not reported Mean age = 18 years (participants were high school seniors)	Internal consistency: $\alpha = .92$ for total scale; $\alpha = .79 - .87$ for three subscales	Convergent: Wisdom score associated with less substance use and violent behavior, greater self-efficacy, and lower scores on a measure of psychopathology Construct: Principal component analysis yielded 3 subscales: (1) Harmony and Warmth, (2) Intelligence, and (3) Spirituality	<p>5 Acknowledgment of likelihood of change</p> <p>6 Prediction flexibility</p>	<p>- Large sample size included in empirical studies</p>	<p>- Lack of validation in age groups beyond high school</p> <p>- Weaknesses associated with questionnaires in general</p>
5. The Regional Wisdom Scale (3D-WS) (38)	39 items with 5-point Likert scale ratings to assess 3 dimensions of wisdom	N = 180 (US) Age range = 52 – 87 years	Internal consistency: $\alpha = .71 - .85$ for each of the three dimensions Test-retest (10 month interval): (subset of initial sample, N = 123) .85	Convergent: Higher 3D-WS scores in persons nominated as wise by peers and significant correlations between 3D-WS scores and wisdom ratings by the qualitative interviewer ($r = .30$) Discriminant: Lack of correlation with demographics (except education and occupation) and social desirability Construct: Confirmatory factor analyses provided support for all items loading on specific dimensions Content: 3D-WS scores correlated with trained rater scores of three dimensions of wisdom from qualitative interviews ($r = .41 - .45$)	<p>1 Decision making/knowledge</p> <p>2 Prosocial values</p> <p>3 Acknowledgment of uncertainty</p> <p>4 Emotional Homeostasis</p> <p>5 Spirituality</p> <p>6 Reverence for nature</p>	<p>- Rigorous scale development</p> <p>- Demonstration of various forms of reliability and validity</p>	<p>- Weaknesses associated with questionnaires in general</p>

Questionnaires

Measure	Description	Development/Validation Sample(s)	Reliability	Validity	Wisdom Subcomponents Designed to Assess	Strengths	Limitations
6. Self-Assessed Wisdom Scales (SAWS) (35, 37, 58)	40-items rated on a 6-point Likert scale to assess 5 subcomponents of wisdom	Multiple samples (US) N range = 61 – 171 Age range = 17 – 92 years	Internal consistency: $\alpha = .88 - .90$ for the total score Test-retest (2 week interval): .84	<u>Predictive:</u> 3D-WS scores correlated with mastery ($r = .63$), well-being ($r = .45$), purpose in life ($r = .61$), subjective health ($r = .30$), depression ($r = -.59$), feelings of economic pressure ($r = -.23$), death avoidance ($r = -.33$), and fear of death ($r = -.56$) <u>Convergent:</u> Wisdom positively associated with generativity ($r = .45$), ego-integrity ($r = .45$) and other positive psychosocial values (e.g., goal seeking) <u>Discriminant:</u> Wisdom negatively correlated with hedonistic values and attachment avoidance <u>Construct:</u> Exploratory and confirmatory factor analyses demonstrated the viability of the five dimension model: (1) life experiences, (2) emotional regulation, (3) reminiscence/reflectiveness, (4) openness to experience, and (5) humor	1 Decision making/knowledge 2 Self-reflection 3 Emotional homeostasis 4 Openness 5 Sense of humor	- - - - -	Possibility that subscales (e.g., openness to experience, humor) may be considered predictors or consequences of wisdom rather than essential elements of wisdom (Ardelt, 2011) Weaknesses associated with questionnaires in general Replication of acceptable psychometric properties in multiple samples Development to assess wisdom across the adult life-span Reported lack of correlation with a measure of social desirability (Taylor, Bates, & Webster, 2011)
7. Wisdom Development Scales (WDS) (31, 32)	79-item, 7-point Likert scale, self-report questionnaire assessing 8 dimensions of wisdom	Multiple samples (US) N range = 338 – 2715 Age range not reported Mean age range = 21.1 to 34.1 years	Internal consistency: $\alpha = .96$ for total score; $r = .39 - .86$ for the seven subscales	<u>Convergent:</u> WDS scores correlated with scores from related measures assessing developing autonomy ($r = .56$), developing purpose ($r = .51$), and managing emotions ($r = .27$) <u>Discriminant:</u> As hypothesized, scores were higher for professionals compared to college students <u>Construct:</u> Confirmatory factor analysis	1 Decision making/knowledge 2 Prosocial values 3 Self-reflection 4 Acknowledgment of uncertainty 5 Emotional homeostasis	- - - - -	Samples did not include older adults Survey response rates were generally low (11–40%) Several items correlated with a measure of social desirability Use of multiple large samples during development and validation

Measure	Description	Development/Validation Sample(s)	Reliability	Validity	Wisdom Subcomponents Designed to Assess	Strengths	Limitations
8. The Wise Thinking and Acting Questionnaire (WITHAQ) (30)	13-item, 4-point Likert scale, self-report questionnaire assessing 3 cognitive facets of wisdom	Multiple samples (Greece) N range = 89 – 446 Age range = 19 – 90 years	Internal consistency: $\alpha = .74$ for total score; $\alpha = .60 - .75$ for the three factors	Construct: Exploratory and confirmatory factor analyses demonstrated three interrelated factors Concurrent: WITHAQ Integrated Dialectical Thinking factor was predicted by the 3D-WS Reflective dimension Convergent: WITHAQ factors were positively associated with a measure of hope	<ol style="list-style-type: none"> 1 Practical wisdom based on accumulated knowledge 2 Dialectical thinking 3 Awareness of life uncertainty 	<ul style="list-style-type: none"> - Use of multiple large samples during development and validation - Broad age range - Found to have measurement invariance given items did not display differential functioning across age, gender, and education groups (with the exception of one item) 	<ul style="list-style-type: none"> - Focused solely on cognitive dimension of wisdom - Age and education were confounded (older age was associated with lower educational level)
Hybrid Interview-Based and Questionnaire/Multi-Modal Approach							
9. Practical Wisdom Scale (PWS) of Transcendental Wisdom (TWR) (49)	Self-report adjective checklist questionnaire and rating of response to open-ended question requiring participant to provide an example of wisdom (TWR) that is then rated by judges	N = 138 (US) Age range not reported design PWS items completed at mean ages 27 and 52 years for women and 31 and 56 years for men. TWR completed at mean age of 52 for women and 56 for men.	Internal consistency (PWS); $\alpha = .74 - .81$ Inter-rater (TWR); $\alpha = .81 - .86$	Convergent: Small-to-moderate correlations among PWS/TWR and a variety of theoretically related variables including measures of ego development ($r = .22$ to $.30$), insight ($r = .22$ to $.44$), autonomy ($r = .22$ to $.26$), and psychological mindedness ($r = .24$ to $.26$)	<ol style="list-style-type: none"> 1 Decision making/knowledge 2 Prosocial values 3 Self-reflection 4 Acknowledgment of uncertainty 5 Tolerance 6 Spirituality 	<ul style="list-style-type: none"> - Longitudinal design of empirical studies - Multi modal assessment 	<ul style="list-style-type: none"> - Use of a single question to assess wisdom (TWR) - Limited evidence for validity - Weaknesses associated with interview-based measures (TWR) and questionnaires (PWS) in general