Exploring the Role of Wisdom in Mental Health: A Systematic Review of Wisdom Measures and a Single-Case Investigation of Wisdom Enhancement in Post-Stroke Depression

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Access Condition and Agreement

Thesis Portfolio Abstract

Background: Post-stroke depression (PSD) is common following a stroke, contributing to distress, identity disruption, and reduced psychological well-being. Existing therapies demonstrate variable efficacy, highlighting the need for alternative approaches. Wisdom, a multidimensional construct, offers potential benefits in the field of Clinical Psychology. Wisdom has been proposed as a possible mechanism for psychological adaptation following life disruptions. Despite this, it remains an underutilised construct.

Aims: This thesis examines the potential role of wisdom in Clinical Psychology through two complementary studies: a systematic review evaluating the psychometric properties of wisdom measures and an empirical study assessing the impact of wisdom enhancement on PSD recovery.

Methods: The systematic review used the COnsensus-based Standards for the Selection of Health Measurement INstruments (COSMIN) guidelines to assess 21 wisdom measures across 27 studies, evaluating various psychometric properties. The empirical study implemented a wisdom-enhancement intervention using a single-case experimental design (SCED) methodology to examine changes in wisdom, identity coherence, self-esteem, and mood among PSD patients.

Findings: The systematic review identified substantial inconsistencies in wisdom measurement, with the Wisdom Development Scale (WDS) emerging as the most psychometrically robust tool, though lacking clinical feasibility due to length. The empirical study provides preliminary evidence of wisdom's effectiveness in PSD. It demonstrates that wisdom enhancement preceded improvements in identity coherence, self-esteem, and mood, supporting the hypothesis that wisdom may serve as a resilience-enhancing factor in PSD recovery.

Significance of the portfolio: This thesis not only advances both theoretical and clinical understandings of wisdom but also holds the potential to transform post-stroke rehabilitation. The findings support the development of wisdom-based interventions as a novel therapeutic avenue, offering hope for improved recovery outcomes. The advocacy for refined measurement tools and further longitudinal research paves the way for a brighter future in the field of clinical psychology.

Chapter One: General Introduction

It is important to draw wisdom from many different places. If you take it from only one place, it becomes rigid and stale. Understanding others, the other elements and the other nations will help you become whole.

- Makoto Iwamatsu, 2006

Post-stroke depression (PSD) is a significant psychological consequence of stroke, affecting approximately one-third of survivors within the first year (Mitchell et al., 2017). It is associated with a decline in self-esteem, disruptions in identity, and increased psychological distress (Smith et al., 2021). Many stroke survivors struggle with emotional adjustment and may not reach complete acceptance of their post-stroke self (Smith et al., 2021). Stroke recovery is a multidimensional process that encompasses physical rehabilitation as well as psychological and social adaptation. PSD can exacerbate difficulties in identity reconstruction, leaving individuals feeling disconnected from their former selves (Carroll & Coetzer, 2011). Many stroke survivors express a strong desire to reconnect with their pre-stroke identity (Gracey et al., 2016), highlighting the importance of interventions that help them construct a coherent and adaptive sense of self.

Despite the availability of psychosocial interventions such as cognitive behavioural therapy (CBT), the evidence base for their effectiveness in PSD remains inconsistent (Chun et al., 2022; Starkstein & Hayhow, 2019). Existing treatments primarily focus on symptom management rather than the broader processes of meaning-making, self-reflection, and resilience, which are critical for long-term psychological adjustment following a stroke. Given the complexity of PSD, there is a pressing need for novel therapeutic approaches that extend beyond symptom reduction to support psychological adaptation, identity reconstruction, and long-term resilience (Broomfield et al., 2011). Addressing these gaps requires a therapeutic approach that facilitates deeper engagement with the emotional and cognitive challenges of PSD, supporting survivors in developing a renewed sense of identity and purpose.

A promising framework for addressing these challenges is wisdom, a multidimensional construct encompassing cognitive, affective, and reflective capacities (Sternberg & Glück, 2019). Despite some variation across psychological theories, wisdom is consistently defined by qualities such as metacognitive insight, empathy, tolerance for uncertainty, self-reflection, self-understanding, practical life knowledge, prosocial values, and competence in managing ambiguity (Baltes & Staudinger, 2000; Ardelt, 2003; Bangen et al., 2013). Research has consistently linked wisdom to psychological well-being, showing that individuals with higher levels of wisdom demonstrate greater resilience, lower levels of distress, and improved overall life satisfaction (Jeste & Lee, 2019). Existing studies on wisdom-enhancing interventions have shown promise in improving mental health outcomes, particularly among older adults with depression (Crabtree et al., 2025). Wisdom has been associated with adaptive reasoning, self-reflection, and emotional regulation (Glück et al., 2005; Jeste & Lee, 2019; Laidlaw, 2021), making it particularly relevant for individuals navigating life transitions. These findings suggest that wisdom-based approaches could be particularly beneficial for stroke survivors, whose recovery often requires a profound re-evaluation of self and meaning.

Wisdom-based approaches may offer distinct advantages for stroke survivors by addressing cognitive difficulties that hinder reflective processing and meaning-making. Stroke-related cognitive impairments, such as executive dysfunction and memory deficits, can make it challenging for individuals to engage in deep self-reflection and adaptive coping (Meeks & Jeste, 2009). Given these challenges, wisdom-based interventions emphasising structured reflection, perspective-taking, and emotional regulation may provide compensatory mechanisms that facilitate psychological adaptation and identity reconstruction.

Although wisdom has demonstrated clinical relevance, its measurement remains an ongoing challenge in psychological research. Numerous self-reported wisdom measures exist, but they differ significantly in their theoretical foundations, factor structures, and validation methodologies (Glück, 2013; Weststrate & Glück, 2017). Some measures focus on cognitive and reflective aspects, while others emphasise emotional or prosocial dimensions, making it difficult to compare results across studies and limiting their applicability in clinical contexts (Dong et al., 2023). This lack of standardisation has hindered

theoretical advancements and constrained the integration of wisdom into psychotherapeutic interventions. Currently, there is no consensus regarding which measure should be used clinically. To address these limitations, the first study in this thesis systematically reviews existing wisdom measures across various psychological and clinical contexts to identify the most psychometrically sound tools. While this review does not focus exclusively on stroke populations, it establishes a critical foundation for selecting validated measures that can be applied in PSD research.

Building on the insights from this review, the second study empirically investigates the role of wisdom-based interventions in PSD recovery. Specifically, it evaluates the effectiveness of the Wisdom Enhancement Timeline (Laidlaw, 2021), a structured, manualised intervention designed to facilitate autobiographical reflection, meaning-making, and self-acceptance. This approach, which has shown promise in treating depression among older adults, has yet to be systematically tested in a post-stroke population. A single-case experimental design (SCED) was employed to measure changes in mood, self-esteem, identity coherence, and wisdom to assess its impact rigorously. This methodology, which allows for individualised analysis, is particularly well-suited for stroke survivors, whose recovery trajectories and psychological needs vary significantly (Tate & Perdices, 2018).

By integrating psychometric evaluation with applied clinical research, this thesis advances both the theoretical understanding and practical application of wisdom. The final discussion chapter will critically synthesise the findings from both studies, reflecting on how the measurement and application of wisdom in stroke rehabilitation contribute to the broader field of psychological adjustment following neurological conditions. In doing so, it will consider the implications for clinical psychology, intervention development, and the role of wisdom-based therapy in supporting long-term post-stroke recovery.

Ultimately, this thesis reflects a broader effort to develop research-driven approaches to addressing emotional needs in post-stroke populations. By integrating theoretical insights with empirical investigation, it seeks to offer a framework that enhances both clinical interventions and the conceptual understanding of wisdom in rehabilitation psychology. Given the persistent psychological challenges faced by this population, developing interventions that extend beyond symptom management to promote meaning-making, identity reconstruction, and long-term emotional resilience is imperative. The findings

from this thesis will offer new insights into the role of wisdom in stroke recovery and inform the development of novel therapeutic approaches that enhance psychological adaptation among stroke survivors.

Chapter Two: Systematic Review Paper

Evaluating the Psychometric properties of Wisdom Measures: A Systematic Review Using the COnsensus-Based Standards for the Selection of Health Measurement Instruments (COSMIN) Checklist

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Author guidelines: Appendix A

Risk of Bias tool: Appendix B

This study has been reported in accordance with
Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) and COnsensus-based Standards for the selection of health Measurement Instruments (COSMIN; Appendix C)

Abstract

Purpose: This systematic review evaluated the measurement properties of self-reported wisdom measures to identify the most valid, reliable, and conceptually robust tools for research and clinical applications, using COnsensus-based Standards for the selection of health Measurement INstruments (COSMIN) guidelines.

Methods: Systematic searches were conducted in eight databases, including MEDLINE, PsycINFO, and SCOPUS. Studies were included if they evaluated one or more measurement properties of wisdom measures. Risk of bias (RoB) was assessed using the COSMIN RoB checklist, and measurement properties were rated against the COSMIN criteria. Results were synthesised using a modified Grading of Recommendations Assessment, Development, and Evaluation (GRADE) approach.

Results: Twenty-seven papers covering 21 measures met the inclusion criteria. The Three-Dimensional Wisdom Scale (3D-WS) and Wisdom Development Scale (WDS) demonstrated sufficient structural validity and internal consistency, with high-quality evidence supporting the WDS. Other measures that exhibited strong psychometric properties but lacked content validity studies included the Brief Wisdom Development Scale (BWDS), Multi-dimensional Wisdom Scale (MWS), Jeste-Thomas Wisdom Index (JTWI), Self-Assessed Wisdom Scale (SAWS), Wisdom Acquired During Emergency Scale (WADES), and Parenting Wisdom Scale (PWS). While short-form instruments such as the 3D-WS-12 showed promise, they lacked robust psychometric evaluations—additionally, no studies evaluated measurement error or responsiveness to change.

Conclusion: The WDS emerged as the most robust wisdom measure, although its length may hinder clinical feasibility. Future research should prioritise high-quality content validity studies and cross-cultural validation to enhance the utility of wisdom measures.

Keywords: wisdom, psychometric properties, COSMIN, systematic review, measures, content validity

Introduction

Applications of wisdom have become increasingly prominent in clinical psychology, education, leadership/management, and decision-making (Glück et al., 2013). Most psychological definitions of wisdom encompass qualities such as effective social decision-making, practical life knowledge, prosocial values, self-reflection, self-understanding, competence in managing uncertainty, and emotional regulation (Bangen et al., 2013).

Wisdom's utility in psychotherapy is especially notable as research suggests that it is linked to personal growth, subjective well-being, health, and resilience (Ardelt, 1997; Ardelt et al., 2018; Etezadi & Pushkar, 2013; Jeste & Lee, 2019; Sternberg & Glück, 2019). Hannah and Ottens (1995) reported that wisdom embodies empowerment, liberation, and personal freedom within a framework of empathy and compassion. These aspects align closely with the goals of psychotherapy by fostering agency, which supports autonomy, decision-making, and the ability to navigate life's challenges more effectively. Developing a sense of agency can help individuals take ownership of their experiences, reframe difficulties, and engage more actively in their personal growth and recovery.

The assessment of wisdom in clinical settings has gained increasing attention due to its potential relevance for psychological formulation, intervention, monitoring clinical effectiveness, and research. Despite its clinical relevance, research on the role of wisdom in psychological interventions remains limited, particularly in clinical populations such as individuals with depression (Kadri et al., 2022). While wisdom-based approaches have been explored in therapeutic contexts, there is still a need to systematically evaluate the effectiveness of wisdom measures in capturing therapeutic and psychological dimensions.

Despite the increasing academic and clinical interest in wisdom, a universally accepted definition remains elusive (Dong et al., 2023; Glück, 2017; Glück et al., 2013). This lack of consensus poses challenges for its measurement and has led to the development of various measures. These measures present their conceptualisations of wisdom, leading to distinctive approaches which can significantly impact research and complicate cross-study comparisons (Dong et al., 2023; Weststrate & Glück, 2017).

The ongoing debate on measuring wisdom centres primarily on validity, how wisdom manifests and how its qualities can be accurately assessed (Glück, 2017). Although validity evaluations exist for most wisdom measures, they often focus on specific psychometric properties and vary in the populations against which they are validated. This variability makes it difficult to form a comprehensive appraisal based on individual studies, as no single measure has been consistently assessed across all relevant validity criteria. This highlights a need for a rigorous, comprehensive, systematic review to evaluate their psychometric properties. Systematic reviews of measures are essential for identifying the most suitable tool for a specific purpose, with high-quality reviews providing a comprehensive overview of measurement properties. This supports evidence-based recommendations for selecting the most appropriate measure for research, clinical practice, or specific applications. Additionally, these reviews help uncover knowledge gaps, directing future research on measurement properties (Mokkink et al., 2024)

The COnsensus-based Standards for health Measurement INstruments (COSMIN) guideline for conducting systematic reviews of patient-reported outcome measures version 2.0 (Mokkink et al., 2024) provides guidelines for systematically reviewing the methodological quality and psychometric properties of measures. These guidelines support researchers and clinicians in selecting the most suitable measures for research and clinical practice. Therefore, this systematic review seeks to answer the question: Which measures are the most valid, reliable, and conceptually robust for assessing wisdom in clinical and research settings? Furthermore, this review seeks to provide practical recommendations for researchers and clinicians seeking to integrate wisdom measurement into personality assessment, psychotherapy, and psychological research.

Methods

This systematic review was conducted in line with the latest COSMIN guidelines (Mokkink et al., 2024) and follows the Guideline for Reporting Systematic Reviews of Outcome Measurement Instruments: PRISMA-COSMIN for measures 2024 (Elsman et al., 2024). The review protocol was registered with the International Prospective Register of Systematic Reviews (PROSPERO) under CRD42024539839.

Eligibility Criteria and Selection of Studies

Papers were included if they were in English, the measurement properties of one or more wisdom measures were assessed, and, in the case of translated measures, evidence of cross-linguistic measurement invariance testing was provided. Papers were excluded if they were systematic reviews, not in English, related to performance-based measures, or evaluated translated measures without evidence of cross-linguistic measurement invariance testing. In line with COSMIN guidelines (Mokkink et al., 2024), such translated measures are considered separate instruments rather than direct equivalents of the original. As a result, they were excluded from this review, as their psychometric properties cannot be assumed to align with those of the English versions.

Two reviewers, EH and GG, independently screened at both the title/abstract and full-text stages. All studies were double-coded, and any coding disagreements were first discussed between EH and GG; when consensus could not be reached, a third reviewer (JB) adjudicated.

Data Source and Searches

Searches were conducted within the MEDLINE Ultimate, PsycINFO, CINAHL, Web of Science, SCOPUS, AMED, APAPsychArticles and Academic Search Ultimate databases on 2nd February 2025. In agreement with the Cochrane methodology (Higgins et al., 2024), databases were searched from their inception date. The search terms were developed based on COSMIN guidelines in collaboration with the university's medical librarian. Both free-text terms and database-specific subject headings were used to maximise the sensitivity and specificity of the search. Free-text terms included the keywords "wisdom" AND "Measure* OR PROM* OR scale* OR Outcome* OR Assess* OR Inventor* OR Questionnaire* OR Instrument*," AND "Valid* OR Reliab* OR Psychometric* OR Internal consistency OR Measurement error OR Hypotheses Testing OR Comparative*."

Subject headings were adapted to the indexing system of each database. MeSH terms were used in MEDLINE Ultimate and AMED; APA Thesaurus terms were used in PsycINFO and APA PsycArticles; and CINAHL Headings were used in CINAHL. Where applicable, subject headings were exploded to include narrower, related concepts. Examples of subject headings used across databases include terms such as "Wisdom", "Psychometrics", "Outcome Assessment (Health Care)", "Questionnaires", "Health Measurement Scales", "Reliability", "Validity", and "Psychological Testing." Subject headings were

combined with free-text terms using Boolean operators, and database-specific syntax was applied as appropriate (e.g., ‘exp’ in MEDLINE, ‘DE’ in PsycINFO). For databases without a controlled vocabulary, such as Web of Science and SCOPUS, searches were conducted using free-text terms only.

Citation-searching was also employed, as recommended by both the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (Moher et al., 2009) and COSMIN (Mokkink et al., 2024).

Characteristics of Measures Extracted

The extracted measure characteristics include name, subscales, scoring algorithm, measurement model (reflective or formative), and construct origins. COSMIN treats each subscale of a multidimensional measure separately, considering subscale scores, single-item scores, and total scores as distinct instruments, each representing a unique construct requiring separate evaluation (Mokkink et al., 2024). In this review, “measure” refers to the whole measure, while "scale" denotes a specific set of items producing a score.

Construct clarity was assessed, as it is crucial for content validity. An unclear construct threatens validity by preventing reviewers from determining whether items are relevant and comprehensive (Mokkink et al., 2024). Clarity was judged based on whether the description was sufficient to evaluate item relevance and comprehensiveness.

The measurement model refers to how a construct is conceptualised and measured through its items. It defines the relationship between observed variables and the underlying latent trait they aim to assess (Jarvis et al., 2003). Formative scales prioritise content validity, defining a construct through its items rather than reflecting it, making structural validity and internal consistency assessment inappropriate. Reflective models assume items mirror an underlying construct, where changes in the construct affect all items similarly (Mokkink et al., 2024). The first reviewer (EH) extracted all instrument data, after which the second reviewer (GG) cross-checked 100 % of the entries. Discrepancies were reconciled by consensus, with JB available as arbiter if required.

Study Data Extraction

COSMIN differentiates between studies and papers to ensure precise evaluation of measurement properties. A study assesses a specific measurement property of an instrument, while a paper may report multiple studies examining different aspects of an instrument, such as content or structural validity. A paper may report multiple studies on multiple instruments.

Both measure and validation study characteristics were extracted, including details on author(s), year, original language, construct clarity, origins, target population, intended context, subscales, item count, response options, measurement properties assessed, country, language, setting, and sample demographics. Data extraction was conducted by the first author and verified by the fourth reviewer.

Some measures were later modified by adding or removing items or subscales. While authors often consider these the same measure, conceptual or structural changes typically define a new instrument, requiring independent validation, which can significantly impact its psychometric properties (Mokkink et al., 2024). The first reviewer (EH) extracted all study data, after which the second reviewer (GG) cross-checked 100 % of the entries. Discrepancies were reconciled by consensus, with JB available as arbiter if required.

Risk of Bias

The COSMIN Risk of Bias (RoB) checklist version 3.0 (Mokkink et al., 2024) was used to assess the methodological quality of the included studies. This checklist provides a structured framework for evaluating study design and implementation rigour in measuring specific properties. Ratings of either inadequate, doubtful, adequate, or very good were given for each item, with the methodological quality score for each box determined by the lowest rating of any item (“worst score counts”) (Terwee et al., 2012). Two reviewers (EH and GG) independently and blindly rated every box for 100 % of the included studies. Had discrepancies arisen, they would have been discussed and, if necessary, adjudicated by a third reviewer (JB).

Evaluation and Synthesis of Measurement Properties

The measurement properties of each study were assessed using the COSMIN’s criteria for good measurement properties (Appendix D), which evaluates psychometric properties such as content validity,

structural validity, internal consistency, measurement invariance, reliability, criterion validity, responsiveness, measurement error, and construct validity (Mokkink et al., 2024) Results were rated as sufficient (+), insufficient (-), inconsistent (±), or indeterminate (?), with indeterminate assigned when data were insufficient to determine a rating.

For content validity, studies were evaluated based on item relevance (how well items reflect the construct), comprehensiveness (the extent to which all aspects of the construct are captured), and comprehensibility (clarity and ease of understanding). Structural validity was crucial for interpreting internal consistency, as internal consistency is only meaningful when unidimensionality is established through factor analysis (Cortina, 1993; Mokkink et al., 2024)

COSMIN recommends defining a priori hypotheses for construct validity testing. These were determined through author discussions and included: (1) a negative correlation between wisdom and depression ($r \leq -.40$), (2) a moderate positive correlation with psychological well-being ($r \geq .40$), (3) a strong positive correlation with another established wisdom measure ($r \geq .60$), and (4) a moderate positive correlation with mastery/self-efficacy ($r \geq .40$). See Appendix E data for the rationale and results.

Results from multiple studies were then synthesised to determine whether measures met COSMIN's criteria for good measurement properties. Overall synthesis adhered to COSMIN's guidelines (Appendix F). When findings were consistent, they were summarised collectively. Results were grouped accordingly if inconsistencies were explainable (e.g., due to population differences). Studies of low methodological quality were excluded from summarisation. When inconsistencies remained unexplained, the overall rating was based on the most consistent findings (+, −, or ?). Studies rated (?) were excluded if (+) or (−) studies were available.

The overall quality of evidence for measurement properties was assessed using the GRADE approach (Guyatt et al., 2011), which considered factors such as risk of bias, result inconsistencies, and precision (aggregated sample size). Evidence quality was rated as high, moderate, low, or very low. In cases where no development study existed, content validity was rated by reviewers, leading to a default GRADE rating of very low.

Two reviewers (EH and GG) independently and blindly appraised every psychometric domain for every scale, applying COSMIN's "criteria for good measurement properties." All domains (100 %) were

double-coded. Had discrepancies arisen, they would have been discussed and, if necessary, adjudicated by a third reviewer (JB)

Recommendations prioritised content validity, which underpins all other measurement properties (Terwee et al., 2018). This was followed by internal structure (structural validity, internal consistency, and cross-cultural validity), followed by other properties such as reliability, measurement error, criterion validity, construct validity, and responsiveness.

Results

Study Selection

A total of 775 papers were found using the search terms, as seen in Figure 1. Nineteen additional papers were identified through citation searching for a total of 794 papers. All papers were imported to Rayyan for review. A total of 354 duplicate papers were removed.

After duplicates were deleted, 421 titles and abstracts were screened against the inclusion and exclusion criteria. At this stage, all records (100% raw agreement; Cohen's $\kappa = 1.00$) were coded identically. Forty-one papers were then fully screened against the inclusion and exclusion criteria. Thirteen papers were removed because the full text was unavailable in English or because they evaluated translated versions of wisdom measures without conducting cross-linguistic measurement invariance testing. Forty out of 41 papers were coded identically (99.9% raw agreement; Cohen's $\kappa = 0.997$) were coded identically. The single disagreement was resolved by the third reviewer (JB), who agreed to include the paper. Following the screening, 26 papers met the eligibility criteria for review and were agreed upon by the authors. Table 1 provides an overview of the included papers in this review.

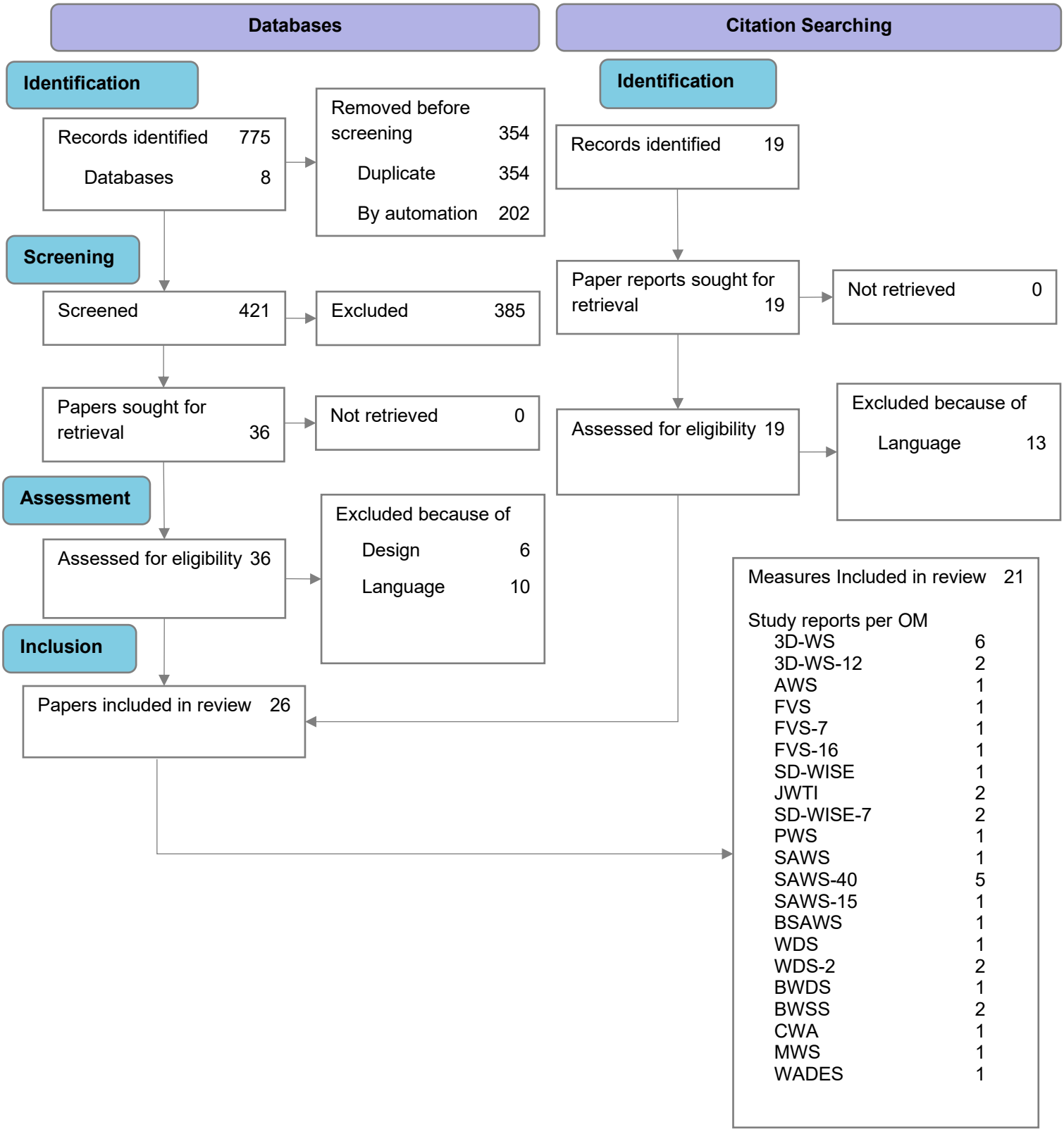
Table 1

Papers Included in the Review

Author	Measures Evaluated	Properties Evaluated
Ardelt (2003)	3D-WS	Measure Development, Pilot Test, Content Validity, Structural Validity, Internal Consistency, Hypothesis Testing
Ardelt (2010)	3D-WS	Internal Consistency
Benedikovicova & Ardelt (2008)	3D-WS	Internal Consistency
Boumpouli et al. (2022)	PWS	Pilot Test, Structural Validity, Internal Consistency, Hypothesis Testing
Brown (2004)	WDS	Measure Development
Brown & Greene (2006)	WDS	Content Validity, Structural Validity, Internal Consistency
Bushlack & Bock (2018)	CWA, BWSS	Pilot Test, Internal Consistency, Hypothesis Testing
DiGangi et al. (2013)	FVS-16	Structural Validity, Internal Consistency
Flebus et al. (2021)	WADES	Measure Development, Structural Validity, Internal Consistency, Hypothesis Testing
Fung et al. (2020a)	WADES, WDS-2	Structural Validity, Internal Consistency, Hypothesis Testing
Fung et al. (2020b)	BSAWS	Structural Validity, Internal Consistency, Hypothesis Testing
Greene & Brown (2009)	WDS-2	Structural Validity, Internal Consistency, Cross-cultural Validity, Hypothesis Testing
Glück et al. (2013)	BWSS, 3D-WS, SAWS-40	Internal Consistency, Hypothesis Testing
Jason et al. (2001)	FVS	Measure Development, Structural Validity, Internal Consistency, Reliability, Hypothesis Testing
Jason et al. (2004)	FVS-7	Structural Validity, Internal Consistency
Jeste et al. (2021)	JWTI	Structural Validity, Internal Consistency, Hypothesis Testing
Leeman et al. (2022)	SAWS-40, SAWS-15	Structural Validity, Internal Consistency, Cross-cultural Validity
Perry et al. (2002)	AWS	Pilot Test, Structural Validity, Internal Consistency
Schmit et al. (2012)	MWS	Pilot Test, Structural Validity, Internal Consistency
Taylor et al. (2011)	3D-WS, SAWS-40	Structural Validity, Internal Consistency, Hypothesis Testing
Thomas et al. (2017)	3D-WS, 3D-WS-12	Structural Validity, Internal Consistency, Criterion Validity, Hypothesis Testing
Thomas et al. (2019)	SD-WISE, 3D-WS-12, SAWS-40	Structural Validity, Internal Consistency, Hypothesis Testing
Thomas et al. (2022)	SD-WISE-7, JWTI	Structural Validity, Internal Consistency, Criterion Validity, Hypothesis Testing
Webster (2003)	SAWS	Structural Validity, Internal Consistency
Webster (2007)	SAWS-40	Structural Validity, Internal Consistency, Reliability
Webster (2010)	SAWS-40	Internal Consistency

Figure 1

PRISMA Flow Diagram for Study Selection



Characteristics of the Included Studies

A total of 114 studies across 26 papers were evaluated for methodological quality across various measurement properties. These included five measure development studies, five pilot studies, four content validity studies, 27 structural validity studies, 43 internal consistency studies, five cross-cultural validity studies, three reliability studies, two criterion validity studies, and 21 hypothesis-testing studies for construct validity. No studies assessed measurement error or responsiveness. Detailed study characteristics and RoB ratings can be found in Appendix G. There were no disagreements between reviewers (100% raw agreement; Cohen's $\kappa = 1.00$).

Characteristics of the Included Measures

The 114 studies described 21 measures and 107 scales, as seen in Table 2. There were no disagreements between reviewers (100% raw agreement; Cohen's $\kappa = 1.00$).

Table 2

Measures and Scales

Measure	No. Of Scales/Items	Scales	Construct	Model	Author
Three-Dimensional Wisdom Scale (3D-WS)	4 / 39	Total Scale, Cognitive, Reflective, and Affective subscales	Derived from theoretical frameworks of wisdom by Erikson. For use in older adults.	Reflective	Ardelt (2003)
Three-Dimensional Wisdom Scale 12-item (3D-WS-12)	4 / 12	Total Scale, Cognitive, Reflective, and Affective subscales	Derived from the original 3D-WS.	Reflective	Thomas et al. (2017)
Adolescent Wisdom Scale (AWS)	6 / 23	Total Scale, Harmony, Intelligence, Spirituality subscales	Developed for adolescents. It is unclear how the constructs collectively form or align with wisdom.	Reflective	Perry et al. (2002)
Foundational Value Scale (FVS)	6 / 23	Total Scale, Harmony, Warmth, Intelligence, Nature, Spiritual subscales	Designed to measure values contributing to wisdom. The scales are clear but unclear how these constructs form or align with the concept of wisdom.	Reflective	Jason et al. (2001)
Foundational Value Scale 7-factor (FVS-7)	7 / 38	Total Scale, Balance/Harmony, Flow, Spirituality, Warmth, Appreciation, Care for Environment, Intelligence subscales	Update from the FVS. Unclear how the collective constructs form or align within the concept of wisdom.	Reflective	Jason et al. (2004)
Foundational Value Scale 16-item (FVS-16)	4 / 16	Total Scale, Spirituality, Intelligence, Relational/Nature subscales	Shorter version of the FVS-7. Unclear how the collective constructs collectively form or align within the overarching concept of wisdom.	Reflective	DiGangi et al. (2013)

Measure	No. Of Scales/Items	Scales	Construct	Model	Author
San Diego Wisdom Scale (SD-WISE)	7 / 24	Total Scale, Social Advising, Emotional Regulation, Pro-social Behaviours, Insight, Decisiveness, Tolerance for Divergent Values subscales	Developed as a multidimensional measure of wisdom	Reflective	Thomas et al. (2019)
Jeste-Thomas Wisdom Index (JTWI)	8 / 28	Total Scale, Social Advising, Emotional Regulation, Pro-social Behaviours, Insight, Tolerance for Divergent Values, Decisiveness, Spirituality subscales	Expanded from SD-WISE	Reflective	Jeste et al. (2021)
Abbreviated San Diego Wisdom Scale (SD-WISE-7)	1 / 7	Total Scale	A condensed version of SD-WISE	Reflective	Thomas et al. (2022)
Parenting Wisdom Scale (PWS)	6 / 30	Total Scale, Reflection, Perspective Change, Emotion Regulation, Learning from Life Experiences.	Focused on wisdom in parenting contexts	Reflective	Boumpouli et al. (2022)
Self-Assessed Wisdom Scale (SAWS)	6 / 30	Total Scale, Experience, Emotion Regulation, Reminiscence/Reflection, Humour, Openness subscales	Theoretically developed to measure self-perceived wisdom	Reflective	Webster (2003)
Self-Assessed Wisdom Scale 40-item (SAWS-40)	6 / 40	Total Scale, Experience, Emotion Regulation, Reminiscence/Reflection, Humour & Openness subscales	Expanded from the SAWS	Reflective	Webster (2007)
Self-Assessed Wisdom Scale 15-item (SAWS-15)	6 / 15	Total Scale, Experience, Emotion Regulation, Reminiscence/Reflection, Humour & Openness subscales	Shortened version of the SAWS-40, retaining its core dimensions for practical and efficient use.	Reflective	Leeman et al. (2022)
Brief Self-Assessed Wisdom Scale (BSAWS)	1 / 9	Total Scale	A brief adaptation of the SAWS-40 for quick assessment, focusing on overall wisdom attributes.	Reflective	Fung et al. (2020b)
Wisdom Development Scale (WDS)	8 / 71	Total Scale, Self-knowledge, Altruism, Inspirational Engagement, Judgement, Life Knowledge, Life Skills, Emotional Management	Developed to assess components of wisdom over time.	Reflective	Brown & Greene (2006)

Measure	No. Of Scales/Items	Scales	Construct	Model	Author
Wisdom Development Scale Version 2 (WDS-2)	9 / 79	Total Scale, Self-knowledge, Emotional Management, Altruism, Leadership, Judgement, Life Knowledge, Life Skills, Willingness to Learn subscales	Expanded from the original WDS to include leadership and willingness to learn as additional dimensions.	Reflective	Greene & Brown (2009)
Brief Wisdom Development Scale (BWDS)	7 / 18	Total Scale, Self-knowledge, Interpersonal Understanding, Judgement, Life Knowledge, Life Skills, Willingness to Learn subscales	A condensed version of the WDS-2, focusing on core dimensions of wisdom for efficiency.	Reflective	Fung et al. (2020a)
Brief Wisdom Screening Scale (BWSS)	1 / 20	Total Scale	A tool to quickly assess wisdom. Based on constructs from the 3D-WS and SAWS. The items reflect various aspects of wisdom. It lacks a standalone theoretical definition of wisdom.	Reflective	Glück et al. (2013)
Centering for Wisdom Assessment (CWA)	5 / 23	Total Scale, Avoidance, Attachment, Pride & Shame subscales	Designed to assess practical wisdom and contemplative practices.	Reflective	Bushlack & Bock (2018)
Multi-Dimensional Wisdom Scale (MWS)	6 / 21	Reflective, Openness, Interactional, Practical, Paradoxical Tolerance & Experience subscales	Addresses the complexity of wisdom with reflective and formative constructs.	Reflective/ Paradoxical Tolerance and experience are Formative.	Schmit et al. (2012)
Wisdom Acquired During Emergency Scale (WADES)	1 / 25	Total Scale	Developed as a situational measure to capture wisdom in high-stress or crises.	Reflective	Flebus et al. (2021)

Most measures are scored by calculating their respective subscale scores and then combining them to form a total score (Total Scale). An exception is the MWS, which does not aggregate subscale scores into a total score. While most scales are reflective measures, the MWS: Paradoxical Tolerance and MWS: Experience scales are formative.

Results of Syntheses

The synthesised results are discussed below for each measurement property. Table 3 provides a summarised overview of the findings for each measure and scale, offering a comparative perspective. A more detailed synthesis, including individual study outcomes and supporting evidence, is available in Appendix H. There were no disagreements between reviewers (100% raw agreement; Cohen's $\kappa = 1.00$).

Table 3

Synthesised Results of Measures

Measure	Scales	Content Validity		Structural Validity		Internal Consistency		Cross-cultural Validity		Reliability		Criterion Validity		Construct Validity	
		Rating	GRADE	Rating	GRADE	Rating	GRADE	Rating	GRADE	Rating	GRADE	Rating	GRADE	Rating	GRADE
3D-WS	Total Scale	+	VL	-	M	?				+	M			±	High
	Cognitive	+	VL			?									
	Reflective	+	VL			?									
	Affective	+	VL			?									
3D-WS-12	Total Scale	+	VL	-	H	+	M					+	H	±	High
	Cognitive	+	VL			-	H					-	H		
	Reflective	+	VL			-	H					-	H		
	Affective	+	VL			-	H					-	H		
AWS	Total Scale	?		?		?									
	Harmony	+	VL			?									
	Intelligence	+	VL			?									
	Spirituality	+	L			?									
BSAWS	Total Scale	+	VL	+	H	+	H							-	H
BWDS	Total Scale	+	VL	+	H	+	H							+	H
	Self-knowledge	+	VL			+	H								
	Interpersonal Understanding	+	VL			+	H								
	Judgement	+	VL			+	H								
	Life Knowledge	+	VL			+	H								
	Life Skills	+	VL			+	H								
	Willingness to Learn	+	VL			+	H								
BWSS	Total Scale	?				?								+	H

Measure	Scales	Content Validity		Structural Validity		Internal Consistency		Cross-cultural Validity	Reliability		Criterion Validity	Construct Validity	
CWA	Total Scale	+	VL			?						-	H
	Avoidance	+	VL			?							
	Attachment	+	VL			?							
	Pride	+	VL			?							
	Shame	+	VL			?							
FVS	Total Scale	?	VL	-	L	?			-	M			
	Harmony	+	VL			?							
	Warmth	+	VL			?							
	Intelligence	+	VL			?							
	Nature	+	VL			?							
	Spiritual	+	VL			?							
FVS-7	Total Scale	?		?		?							
	Balance/ Harmony	+	VL			?							
	Flow	+	VL			?							
	Spirituality	+	VL			?							
	Warmth	+	VL			?							
	Care for Environment	?				?							
	Appreciation	?				?							
	Intelligence	+	VL			?							
FVS-16	Total Scale	?		+	H								
	Spirituality	+	VL			+	H						
	Intelligence	+	VL			+	H						
	Relational/ Nature	+	VL			+	H						

Measure	Scales	Content Validity		Structural Validity		Internal Consistency		Cross-cultural Validity	Reliability	Criterion Validity	Construct Validity	
JTWI	Total Scale	+	VL	+	H	+	H					
	Social Advising	+	VL								+	H
	Emotional Regulation	+	VL									
	Pro-social Behaviours	+	VL									
	Insight	+	VL									
	Tolerance divergent Values	+	VL									
	Decisiveness	+	VL									
	Spirituality	+	VL									
MWS	Reflective	+	VL	+	H	+	H					
	Openness	+	VL	+	H	+	H					
	Interactional	+	VL	+	H	+	H					
	Practical	+	VL	+	H	+	H					
	Paradoxical	+	VL									
PWS	Total Scale	+	VL	+	H	+	H				+	H
	Reflection	+	VL			+	H					
	Perspective Change	+	VL			+	H					
	Emotion Regulation	+	VL			+	H					
	Learning Life Experiences	+	VL			+	H					
	Openness	+	VL									

Measure	Scales	Content Validity		Structural Validity		Internal Consistency		Cross-cultural Validity		Reliability		Criterion Validity		Construct Validity	
SAWS	Total Scale	+	VL	?		?									
	Experience	+	VL												
	Emotion Regulation	+	VL												
	Reminiscence/ Reflection	+	VL												
	Humour	+	VL												
	Openness	+	VL												
SAWS-40	Total Scale	+	VL	-	H	?				+	H			±	H
	Experience	+	VL			?									
	Emotion Regulation	+	VL			?									
	Reminiscence/ Reflection	+	VL			?									
	Humour	+	VL			?									
	Openness	+	VL			?									
SAWS-15	Total Scale	+	VL	-	H	?									
SD-WISE	Experience	+	VL			?									
	Emotion Regulation	+	VL			?		+	H						
	Reminiscence/ Reflection	+	VL			?									
	Humour	+	VL			?									
	Openness	+	VL			?									
	Tolerance for Divergent Values	+	VL												
	Decisiveness	+	VL												
SD-WISE-7	Total cale	+	VL	-	H	?						+	H	+	H
WADES	Total Scale	+	VL	+	M	+	H							-	H

Measure	Scales	Content Validity		Structural Validity		Internal Consistency		Cross-cultural Validity		Reliability	Criterion Validity	Construct Validity	
WDS	Total Scale	+	H	+	H								
	Self-knowledge	+	H			+	H						
	Emotional Management	+	H			+	H						
	Altruism	+	H			+	H						
	Inspirational Engagement	+	H			+	H						
	Judgement	+	H			+	H						
	Life Knowledge	+	H			+	H						
	Life Skills	+	H			+	H						
WDS-2	Total Scale	+	VL	+	H	+	H	+/-*	H			+	H
	Self-knowledge	+	VL			+	H						
	Altruism	+	VL			+	H						
	Leadership	+	VL			+	H						
	Judgement	+	VL			+	H						
	Life Knowledge	+	VL			+	H						
	Life Skills	+	VL			+	H						
	Emotional Management	+	VL			+	H						
	Willingness to Learn	+	VL			+	H						

[a.] ***Rating**: Sufficient (+), insufficient (-), inconsistent (±), indeterminate (?)*

[b.] ***Grade**: High (H), Moderate (M), Low (L), Very Low (VL)*

***** *WDS-2 was sufficient for older adults and the full population but insufficient for the student population*

Content Validity

Of the 107 scales evaluated, only the WDS scales achieved sufficient content validity with high-quality evidence across all domains, attributed to their strong methodological quality, congruence with COSMIN standards, and comprehensive development and validation processes.

While the 3D-WS, PWS, CWA, MWS subscales, and WADES had studies assessing content validity and were rated as sufficient, their overall certainty of evidence was low due to methodological limitations. No specific development or content validity studies were identified for the 3D-WS-12 despite its derivation from the 3D-WS. To address this, the first reviewer consulted the COSMIN team, who recommended adapting relevance and comprehensibility ratings from the original 3D-WS studies while assessing comprehensiveness through reviewer judgment. This approach, while structured, resulted in very low certainty of evidence.

For the remaining scales, content validity assessments were based solely on review team ratings, leading to a GRADE rating of very low. While most were rated as sufficient (+), some, including the AWS: Total Scale, FVS: Total Scale, FVS-7: Total Scale, FVS-7: Care for Environment Scale, FVS-7: Appreciation Scale, FVS-16: Total Scale, and BWSS, were rated as indeterminate (?). This was due to unclear construct definitions, making it uncertain how their items aligned with their intended constructs or their relevance to wisdom.

Structural Validity

Structural validity varied across the measures. Sufficient structural validity was identified for instruments such as the JWTI, WDS, WDS-2, BSAWS, BWDS, and FVS-16, all supported by robust CFA indices (CFI/TLI >.95 or RMSEA <.06). The MWS also demonstrated sufficient structural validity for its Reflective, Openness, and Practical subscales (RMSEA <.06). Conversely, the 3D-WS, 3D-WS-12, FVS, SD-WISE, SD-WISE-7, SAWS-40, and SAWS-15 (CFI/TLI <.95 or RMSEA >.06) reported insufficient structural validity. AWS and SAWS received indeterminate ratings due to issues such as the absence of cross-loading and explained variance reporting. Inconsistencies across studies were noted for the 3D-WS and SAWS-40. To ensure reliability, only studies with adequate or very good RoB ratings were retained, resulting in insufficiency. These were Thomas et al. (2017) for the 3D-WS (CFI = .939, TLI = .925, RMSEA = .074) and Leeman et al. (2022) for the SAWS-40 (CFA: CFI = .72, GFI = .74, TLI = .70, SRMR = .08, RMSEA = .07). Structural validity for the WDS-2

generally met COSMIN thresholds, though Greene and Brown (Greene & Brown, 2009), which involved a student sample, did not meet the criteria (CFA: CFI = .685, TLI = .674, SRMR = .081, RMSEA = .061), prompting the authors to divide the sample into subgroups based on population differences.

Internal Consistency

High-quality evidence supported consistent internal consistency for measures such as the PWS, WDS, WDS-2, SAWS-40, BSAWS, BWDS, and WADES, as well as the MWS subscales Reflective, Openness, Interactional, and Practical (Cronbach's Alpha >.70). The FVS-23, unlike its other versions, demonstrated strong internal consistency across all subscales and provided evidence of unidimensionality. Conversely, the BWSS, AWS, FVS-7, SD-WISE-7, SAWS, and SAWS-15 provided insufficient evidence for unidimensionality, resulting in (?) ratings. The 3D-WS-12 mostly adhered to COSMIN thresholds for internal consistency, though Thomas et al. (2019) reported conflicted findings. With no clear explanation for this discrepancy, the most consistent results were summarised, yielding moderate evidence overall. (Ardelt, 2003) describes the 3D-WS as a multidimensional measure. However, interpreting their internal consistency remains problematic without sufficient evidence of structural validity for their latent constructs. Notwithstanding this limitation, studies report that the internal consistency of the 3D-WS and its subscales fluctuates around the threshold (α = .66 – .85).

Cross-cultural Validity

Cross-cultural evaluations were limited, with the WDS-2 comparing student samples to a professor sample and the SAWS-15 comparing age groups (adolescents, young adults, middle-aged adults, older adults). Both studies found no significant group differences, suggesting applicability across diverse populations. However, methodological concerns arose due to differences in relevant characteristics between groups.

Reliability

Longitudinal assessments showed strong test-retest reliability for the 3D-WS (α = .85) and SAWS-40 (α = .84). At the same time, the FVS demonstrated weaker stability with a coefficient of .62. Criterion validity evaluations, constrained by the lack of a recognised gold standard, focused on short-

form instruments. The SD-WISE-7 and 3D-WS-12 performed well compared to their long-form counterparts, with coefficients of .92 and .70, respectively.

Hypothesis Testing for Construct Validity

Most studies reported positive correlations aligning with hypotheses. For example, wisdom measures such as the 3D-WS, PWS, and JWTI showed moderate-to-strong positive relationships with psychological well-being (r = .33–.61) and mastery/self-efficacy (r = .52–.63). Negative correlations with depression were also consistent: 3D-WS (r = -.59), CWA (r = -.48), JWTI (r = -.48), BWDS (r = -.43), and WDS-2 (r = -.44).

However, some measures demonstrated weaker-than-expected correlations. For instance, the WADES showed weak relationships with other wisdom scales (r = .22) and post-traumatic growth (r = .30). Similarly, the BSAWS exhibited weaker correlations with depression (r = -.35) and well-being (r = .35).

Inconsistencies were noted across measures. The 3D-WS, while showing strong correlations with psychological well-being and mastery, demonstrated weaker associations with other wisdom measures, such as the SAWS (r = .33). The SD-WISE showed moderate convergence with other wisdom scales but weaker relationships with psychological well-being constructs (r = -.08).

Recommendations

The WDS is the only measure recommended for use, demonstrating strong content validity, structural validity, and internal consistency. However, it has been updated with the WDS-2, which includes different factors and, therefore, requires a high-quality content validity study to confirm its relevance, comprehensiveness, and comprehensibility. Similarly, the BWDS, MWS subscales, JTWI, BSAWS, WADES, and PWS exhibit strong structural validity, internal consistency, and good construct validity but would benefit from high-quality content validity studies to enhance their applicability.

Some measures face challenges in recommendation due to significant limitations. Despite high internal consistency, the AWS, CWA, BWSS, FVS-16, and FVS-7 lack clear conceptualisations of wisdom, requiring content validity studies to refine their constructs, followed by structural validity assessments. The BWSS also needs a CFA to confirm its structural validity and unidimensionality.

The 3D-WS, 3D-WS-12, SD-WISE-7, SAWS, SAWS-40, and SAWS-15 demonstrated insufficient structural validity and/or internal consistency. Further development, including content validity assessments, is recommended to improve their internal structure and psychometric robustness.

Discussion

This is the first systematic review evaluating the psychometric properties of wisdom measures using COSMIN. The findings highlight substantial variability in methodological quality and supporting evidence across measures, reflecting the inherent challenges of assessing a complex, multidimensional construct like wisdom. Notably, content validity was often not assessed or evaluated with low-quality methods, limiting confidence in most measures. Additionally, key measurement properties such as responsiveness and measurement error were not examined. Given that wisdom has been linked to resilience, emotional regulation, and cognitive flexibility, ensuring valid and reliable assessment tools is essential for clinical applications, including psychotherapy, personality evaluation, research and education.

The WDS and its subscales emerged as the most robust measures, demonstrating sufficient content validity, structural validity, and internal consistency supported by high-quality evidence. However, the length of the WDS (71 items) limits its practicality in clinical settings, especially with time-constrained contexts or populations such as individuals with fatigue or cognitive impairments. Furthermore, measures with more items tend to yield higher Cronbach's alpha values and CFA fit statistics due to the increased item intercorrelations inherent in longer scales (Cortina, 1993).

Developing shorter measures like the BWDS would improve feasibility in clinical settings. However, it is essential that such adaptations retain the conceptual integrity of wisdom, preserving its multidimensional nature rather than oversimplifying it. Moreover, wisdom's inherent complexity (Bangen et al., 2013) necessitates multidimensional tools that capture interrelated domains like cognitive, reflective, and affective aspects. This is why shorter, unidimensional measures like the BWDS or BSAWS may fail to reflect wisdom's full complexity.

Variability in hypothesis testing among the wisdom measures reflects the diverse conceptual frameworks underlying them. This results in only modest correlations between different instruments

(Glück & Weststrate, 2022), as each measure emphasises distinct facets of wisdom, influencing their relevance to specific domains such as mental health. For example, the 3D-WS highlights cognitive, reflective, and affective dimensions, with its affective component (compassion) directly linked to mental health outcomes (Wang & Cheung, 2024). Others, like the SD-WISE, prioritise decisiveness and social advising, which may relate indirectly to depression (Thomas et al., 2017). The SAWS and BSAWS emphasise openness, humour, and emotion regulation, explaining their unique associations with depression.

Measures demonstrating weaker correlations with clinical outcomes may be perceived as less clinically meaningful. One of the key objectives of measuring and cultivating wisdom is to facilitate tangible improvements in individuals' lives, such as better mental health, emotional regulation, or interpersonal functioning (Jeste & Lee, 2019). Thus, for wisdom measures to be practically valuable, their constructs should correspond to concrete, observable changes that align with real-world outcomes (Cronbach & Meehl, 1955; Kazdin, 2007).

The lack of high-quality content validity studies may reflect inherent challenges in defining wisdom, a pattern also observed in related fields. For instance, Sharif Nia et al. (2022) noted that 15 out of 20 hardiness scale studies failed to report content validity, leading to poor evaluations, while Lo et al. (2020) observed similar gaps in multidimensional trait perfectionism measures. To address this, developers should rigorously define constructs and align them with theoretical frameworks, as seen in robust tools like the Rosenberg Self-Esteem Scale (Rosenberg, 1965). Alternatively, factor analytic approaches, as used in personality research to develop the Five-Factor Model (McCrae & John, 1992), could help identify latent dimensions in wisdom-related data, clarifying the construct and informing multidimensional tool development. Applying these standards to wisdom could enhance its clarity and validity, allowing researchers to target better aspects like emotional regulation to mitigate depressive symptoms.

Notably, many reviewed measures predate the COSMIN guidelines. As a result, older tools often relied on PCA without follow-up CFA or omitted critical properties such as content validity, measurement error, or responsiveness. To ensure their continued relevance in clinical and personality research, these tools require modernisation using advanced psychometric methods.

Other instruments address situational or context-specific wisdom. For instance, the WADES focuses on 'situational wisdom' in emergencies, such as adapting to the COVID-19 pandemic, by emphasising coping strategies and emotion regulation. Conversely, the BWSS examines stable, long-term traits like life integration and reflection. The Post-Traumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996), which assesses positive changes following trauma (e.g., improved relationships or life appreciation), aligns less with situational measures like the WADES.

Given these distinctions, researchers and clinicians should carefully select measures that align with their intended assessment goals. For instance, therapists incorporating wisdom-based interventions into psychotherapy may find multi-dimensional tools like the 3D-WS or SD-WISE, which may offer more consistent insights into the interplay between wisdom and depression. At the same time, the WDS-2 could be more helpful in capturing personal growth, self-reflection, and emotional regulation. In contrast, those conducting brief personality assessments may prefer more targeted instruments with strong construct validity for specific wisdom-related traits.

The multifaceted, culturally contingent nature of wisdom further complicates its conceptualisation and measurement, as variability in its dimensions can influence observed correlations across demographics such as age, cultural background, and setting (clinical or community). For example, spirituality and reflective thinking relate differently to depression across cultures (Zadworna, 2023). Therefore, clinicians and researchers should consider these cultural influences when selecting wisdom measures, ensuring that the chosen instruments align with the conceptualisation of wisdom most relevant to their population of interest. Strengthening cross-linguistic measurement invariance testing would enhance the global applicability of wisdom scales, enabling more accurate comparisons across diverse clinical and research contexts.

This review identified several limitations in the included studies. Key measurement properties such as measurement error and responsiveness were absent, leaving gaps in understanding the reliability and sensitivity of these measures over time. Many studies relied on homogeneous populations, particularly student samples or younger samples, which may identify less with wisdom than older cohorts, raising concerns about the generalisability of findings to clinical populations.

The conclusions of this review need to be considered in the context of its methodological strengths and limitations. The exclusion of non-English studies may bias findings by omitting culturally

diverse perspectives on wisdom. This also likely contributed to the limited number of studies on cross-cultural validity, as research assessing the applicability of wisdom measures across different cultural contexts may be underrepresented in English-language literature. Cross-cultural adaptations, such as the Spanish 3D-WS (García-Campayo et al., 2018) and Turkish SD-WISE (Cambaz & Ünal, 2024), highlight how cultural values shape wisdom constructs. Spirituality and reflective thinking, for example, may relate differently to depression across cultures. However, these adaptations were excluded due to resource constraints and lack of measurement invariance evidence, as required by COSMIN (Mokkink et al., 2024). This underscores a broader challenge in COSMIN reviews, where language barriers hinder content validity assessments across cultural adaptations. Addressing this issue requires multilingual expertise and evidence of conceptual and psychometric equivalence.

The exclusive focus on self-report measures presents additional limitations. These tools are prone to biases, such as social desirability and inaccurate self-perception, which may distort findings. Performance-based measures, like those assessing wisdom through hypothetical scenarios, offer an alternative by evaluating demonstrated understanding and problem-solving abilities (Kunzmann, 2019). Combining these approaches could enhance the robustness of wisdom assessments.

Despite these limitations, this review has several implications for assessment and Clinical Psychology. The WDS and WDS-2 appear promising for clinical and research applications due to their robust theoretical foundations and comprehensive approach. However, their length and limited evaluations for measurement error and responsiveness pose challenges for tracking changes in wisdom over time, particularly in longitudinal studies or intervention-based research.

Future research should prioritise high-quality content validity studies for measures like the BWDS, 3D-WS-12, and BWSS, ensuring their items reflect all aspects of the wisdom construct. Strengthening cross-linguistic measurement invariance testing would ensure that translated measures function comparably across cultures, enhancing their applicability in global research and clinical contexts. Addressing measurement error and responsiveness, particularly for tools used in longitudinal studies or intervention outcomes, is also essential. These efforts will pave the way for developing contextually relevant, robust, and reliable measures, fostering their application in diverse domains.

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Chapter Three: Bridging the Gap – The Clinical Potential of Wisdom

Wisdom has long been regarded as a fundamental human virtue, valued across cultures for its role in guiding ethical decision-making, fostering emotional regulation, and promoting psychological resilience (Ardelt, 2003; Jeste & Lee, 2019). In recent years, psychological research has increasingly explored wisdom as a multidimensional construct with potential clinical applications, particularly in the domains of mental health and psychological well-being (Glück & Weststrate, 2022). Despite this growing academic and clinical interest, the systematic review presented in Chapter Two highlights a key limitation: While various measures of wisdom demonstrate validity and reliability, very few have been designed for practical use in clinical settings. This presents a clear paradox where wisdom is empirically linked to positive psychological outcomes, including lower depression levels and improved self-esteem (Ardelt, 2018; Thomas et al., 2017).

The findings from the systematic review's hypothesis testing indicate that wisdom is significantly associated with mental health outcomes. Specifically, the hypotheses that wisdom measures would correlate negatively with depression ($r \leq -0.40$) and positively with well-being and self-efficacy ($r \geq 0.40$) were supported across several established measures, including the Three-Dimensional Wisdom Scale (3D-WS), the San Diego Wisdom Scale (SD-WISE-7), the Jeste-Thomas Wisdom Index (JWTI), and the Centering for Wisdom Assessment (CWA) (Ardelt, 2003; Jeste et al., 2021; Thomas et al., 2022; Bushlack et al., 2018). These findings align with existing research demonstrating that wisdom fosters adaptive coping strategies and emotional stability, helping individuals counteract vulnerabilities to depression (Glück, 2017). It also aligns with the notion that wisdom enhances self-confidence and perceived control over life circumstances, both of which are essential components of psychological resilience and recovery from adversity (Glück et al., 2005). These relationships suggest that wisdom-based interventions hold promise for improving well-being, particularly by fostering cognitive and emotional capacities that contribute to life satisfaction, resilience, and meaning-making (Etezadi & Pushkar, 2013). Furthermore, they reinforce that wisdom is not merely a philosophical construct but a tangible psychological resource that can be actively cultivated to improve mental well-being.

While the systematic review underscores the measurement challenges of wisdom, its roles in reducing depression and improving well-being suggests it may serve as an important therapeutic

target, particularly for individuals experiencing post-stroke depression (PSD). Wisdom is conceptually linked to identity coherence, self-esteem, and emotional regulation (Ratner & Burrow, 2019), all of which are central to psychological recovery following a stroke (Lapadatu & Morris, 2019). While interventions targeting mindfulness, self-compassion, and meaning-making have gained increasing attention, structured wisdom-enhancing techniques, such as guided autobiographical reflection, perspective-taking exercises, and emotional regulation strategies, may provide an effective means to improve self-esteem, identity coherence, and mood regulation (Laidlaw, 2021).

Preliminary studies suggest positive outcomes in utilising wisdom-based approaches for older adults with depression (Kadri et al., 2022), yet its potential remains unexplored in other clinical populations. Given the well-documented psychological and neurobiological similarities between late-life depression and PSD, including emotional distress, cognitive dysfunction, and social withdrawal (Shin et al., 2022), it follows that wisdom-based interventions, already showing promise in older adults, should be explored as a viable treatment approach for stroke survivors. Investigating its efficacy in this population could not only extend the reach of wisdom as a clinical tool but also contribute to the development of novel, evidence-based interventions that address the complex psychological challenges associated with PSD.

Given the above, the next step is to examine whether wisdom can be actively cultivated to improve mental health outcomes. If successful, this work has the potential to inform the development of wisdom-based interventions, ultimately paving the way for psychological therapies that incorporate self-reflection, emotional regulation, and perspective-taking as key components. By harnessing the untapped potential of wisdom, clinical psychology may gain a novel and effective tool for promoting resilience and long-term emotional well-being.

Chapter Four: Empirical Research Paper

Evaluation of the Wisdom Enhancement Timeline Approach for Post-Stroke Depression Using a Single-Case Experimental Design

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This paper is being prepared for submission to *Behavioural and Cognitive Psychotherapy*

Author guidelines: Appendix A

This study has been reported in accordance with
Single-Case Reporting guideline In BEhavioural interventions (SCRIBE; Appendix I)

Health Research Authority (HRA; Appendix J)

South Yorkshire Research Ethics Committee (REC ref: 24/YH/0055; Appendix K)

NHS Letter of Access: Appendix L

REC Substantial Amendment Tool: Appendix M

This study has been registered on ClinicalTrials.gov. Identifier: NCT0645196

Abstract

Background: Post-stroke depression (PSD) affects approximately one-third of stroke survivors, and is associated with poor psychological recovery, identity disruption, and reduced self-esteem. Psychological interventions often fail to address these broader challenges. The Wisdom Enhancement Timeline technique, which facilitates autobiographical reflection, has shown promise for depression in older adults. It has not yet been studied in a post-stroke population.

Aims: This study evaluated the effectiveness of the Wisdom Enhancement Timeline technique in stroke. It was hypothesised that wisdom would improve first, followed by identity/self-esteem and mood.

Method: A multiple-baseline single-case experimental design (SCED) was used across three stroke survivors. Daily Visual Analogue Scale (VAS) ratings measured mood, identity, self-esteem, and wisdom during the trial. The Patient Health Questionnaire-9 (PHQ-9) measured depressive symptoms at pre- and post-intervention. Visual analysis, Tau-U, Generalised Least Squares regression (adjusting for autocorrelation), and Piecewise regression evaluated intervention effects.

Results: Improvements were observed across all participants and outcomes. Tau-U analysis indicated small-to-large effect sizes across outcomes. Breakpoints confirmed wisdom improved first, followed by identity/self-esteem, and mood last. Regression confirmed significant level shifts across all outcomes. All participants experienced clinically meaningful PHQ-9 reductions.

Conclusions: Wisdom-based interventions could be beneficial in a stroke population, promoting improvements in mood, identity coherence, self-esteem and wisdom. The Wisdom Enhancement Timeline technique shows promise for PSD treatment, though further research is needed to validate these effects.

Keywords: Post-stroke depression, wisdom, identity, self-esteem, single-case experimental design, CBT.

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Practitioner Points

- **PSD Intervention:** The Wisdom Enhancement Timeline technique, a structured autobiographical reflection approach, may improve mood, identity, self-esteem, and wisdom in post-stroke depression (PSD).
- **Sequence of Change:** Wisdom tended to improve before self-esteem/identity, which in turn improved before mood, suggesting that fostering wisdom might drive broader psychological recovery in PSD.
- **Single-Case Design Utility:** Multiple-baseline single-case designs can detect nuanced, individual treatment effects in stroke populations and accommodate patient heterogeneity when large trials are impractical.
- **Clinical Implication:** Integrating wisdom-based techniques into stroke rehabilitation could augment traditional therapies, helping patients reconstruct identity and build resilience after stroke.

Introduction

Stroke survivors face cognitive, physical, and emotional challenges (Lincoln et al., 2013), with Post-stroke Depression (PSD) affecting one-third of survivors within the first year (Hackett & Pickles, 2014; Towfighi et al., 2017). It is associated with diminished quality of life and poorer recovery (Kim et al., 2018; Robinson et al., 1983).

Despite its prevalence and impact, PSD remains undertreated, highlighting the need for targeted psychological interventions (Medeiros et al., 2020). Psychosocial factors, such as disrupted identity and low self-esteem, play a critical role in PSD (Chung et al., 2016; Lapadatu & Morris, 2019). The Y-shaped process model of rehabilitation (Gracey et al., 2009) explains how survivors navigate pre- and post-stroke identity reconstruction, either integrating their new identity (leading to resilience) or experiencing persistent distress and self-esteem challenges. Survivors often attempt to reconnect with their former selves (Gracey et al., 2008), but when this is unattainable, they may experience grief and social isolation (Cloute et al., 2008; Engberg & Teasdale, 2004).

Given the complexity of PSD, effective interventions are essential. Despite the availability and theoretical suitability of Cognitive Behavioural Therapy (CBT), findings regarding its efficacy remain inconsistent (Broomfield et al., 2011; Chun et al., 2022; Starkstein & Hayhow, 2019). Stroke-related challenges such as adjustment identity changes, cognitive and communication difficulties, structural limitations, and restricted participation may limit its efficacy. Therefore, interventions should extend beyond symptom reduction. Instead, actively supporting narrative reconstruction to help reconcile pre- and post-stroke identities (Broomfield et al., 2011).

Wisdom-based interventions present a novel approach to post-stroke rehabilitation, fostering self-reflection, flexible thinking and meaning-making that could help survivors adapt to their new reality. Wisdom encompasses cognitive, affective and reflective capacities (Sternberg & Glück, 2019) and includes attributes such as self-reflection, emotional regulation, and tolerance for uncertainty (Bangen et al., 2013). This could empower survivors to navigate post-stroke cognitive and emotional challenges.

Wisdom is linked to resilience, personal growth, and well-being (Ardelt, 1997; Ardelt et al., 2018; Etezadi & Pushkar, 2012; Jeste & Lee, 2019) and plays a central role in identity development

(Erikson, 1968). Its structured development follows a stepwise process, beginning with identity clarity, followed by emotional resilience and self-transcendence (Beaumont, 2009). By facilitating meaning-making and self-acceptance, wisdom may aid post-stroke identity reconstruction, enabling survivors to engage with adversity constructively. Moreover, mood regulation appears to emerge last, following meaning-making and self-affirmation rather than co-occurring (Beaumont, 2009).

Although wisdom often emerges from significant life experiences (Bluck & Glück, 2004; Glück et al., 2005; Webster, 2007), it also requires structured reflective practices to foster adaptation (Weststrate & Glück, 2017). Psychotherapy, particularly with reflective techniques, can cultivate wisdom by helping individuals reframe past experiences constructively. Narrative psychology supports this, suggesting that reinterpreting life events enhances well-being and optimism (Hanna & Ottens, 1995; McAdams, 2001).

The CaR-FA-X model (Williams, 2006) explains why depressed individuals struggle with autobiographical memory retrieval, often recalling overgeneralised memories due to three interacting mechanisms: capture and rumination (CaR), where repetitive negative thinking impedes recall; functional avoidance (FA), where emotionally intense memories are subconsciously avoided; and executive control deficits (X), which limit cognitive resources needed for specificity. In PSD, stroke-related cognitive impairments may worsen executive deficits, reinforcing avoidance tendencies and social withdrawal while hindering reflective processing and access to personal wisdom (Laidlaw, 2010, 2021; Laidlaw & Kishita, 2015).

To address this, Laidlaw (2021) developed a wisdom enhancement model within CBT, using the Wisdom Enhancement Timeline to facilitate insight and growth through structured reflection. This technique helps individuals construct a timeline of life events, identify resilience, accept uncertainties, and develop a sense of agency. By systematically reflecting, clients cultivate a wise perspective, reframing challenges as opportunities for growth, mitigating overgeneralised thinking, and enhancing psychological well-being and coping.

The Wisdom Enhancement Timeline is included in UK clinical guidelines for CBT interventions for older adults (British Association for Behavioural and Cognitive Psychotherapies [BABCP], 2024), indicating potential applicability within NHS settings (Kadri et al., 2022). Preliminary evidence supports its effectiveness in treating depression in older adults (Kadri et al., 2022), yet it

remains unevaluated in PSD. Given PSD's prevalence and the absence of specific psychotherapy guidelines, investigating wisdom-based interventions like the timeline technique could offer valuable treatment options.

Broomfield et al. (2011) emphasise the need for further validation of psychological interventions, yet testing in stroke populations presents methodological challenges. Randomised Controlled Trials (RCTs) often face recruitment and retention issues due to the diverse needs of stroke survivors. In contrast, Single-Case Experimental Designs (SCEDs), particularly Multiple-Baseline Designs (MBDs), offer a practical alternative for evaluating novel interventions with small samples (Kazdin, 2011).

MBDs are well-suited for rehabilitation settings, as they do not require intervention withdrawal, making them ethical and feasible (Carr, 2005; Krasny-Pacini & Evans, 2018). They also enhance external validity through participant replication (Tate & Perdices, 2018), accommodate individual differences, and reduce type-II error risks in small, heterogeneous samples (Krasny-Pacini & Evans, 2018). Given the need for tailored PSD treatments (Broomfield et al., 2011; Kootker et al., 2012; Wang et al., 2018), MBDs provide a robust framework for assessing wisdom-based interventions in stroke survivors.

This study seeks to answer the question: Does enhancing wisdom through the timeline technique improve mood in post-stroke depressed individuals? Additionally, does enhancing wisdom restore identity continuity and improve self-esteem?

It is hypothesised that wisdom will improve first, followed by gains in identity clarity or self-esteem, as structured self-reflection fosters agency and self-worth. Finally, mood regulation is expected to improve last, aligning with findings that emotional stabilisation follows meaning-making and self-affirmation rather than co-occurring (Beaumont, 2009).

Methods

Design

A single-case experimental MBD was adopted. Following Christ's (2007) recommendations, the study pre-specified hypotheses, predetermined baseline durations, and randomised allocation via Random.org Participants were assigned to baseline durations (14, 21, or 28 days), with non-

concurrent intervention introduction to enhance flexibility. The independent variable was the intervention, while the dependent variables were mood, wisdom, identity, and self-esteem, measured repeatedly.

Although stability is generally recommended before intervention, Krasny-Pacini and Evans (2018) suggest that five baseline data points are sufficient to distinguish natural fluctuations from intervention effects. Replication was built into the multiple-baseline design, with each participant serving as an independent test of the intervention's effects. Initially, a one-month follow-up review was planned; however, due to insufficient time, this was omitted (Appendix M).

Participants

Three participants were recruited, meeting SCED standards (Epstein et al., 2021; Kratochwill et al., 2013). Inclusion criteria required adults with PSD who could provide informed consent and engage in therapy. Exclusion criteria included severe cognitive or mental health impairments, medical instability, substance dependency, concurrent psychological treatment, participation in clinical trials, or newly prescribed psychotropic medication that had not yet stabilised. However, participants who started psychotropic medication during the trial remained eligible, as SCED analysis could account for medication-related changes.

Measures

Participants received a measure pack containing all measures, along with questions on medication use and adverse events (Appendix Q).

Idiographic Visual Analogue Scale

The primary outcome was assessed using a Visual Analogue Scale (VAS), a widely used measure for tracking subjective experiences in clinical research (McCormack et al., 1988). Participants rated their agreement with four daily statements on vertically presented 10 cm scales, with higher scores indicating stronger agreement. VAS items were aligned with the research questions and reviewed for relevance by individuals with lived stroke experience via the university's Personal and Public Involvement (PPI) database.

The four VAS items were as follows:

1. Today, my mood is good (VAS_mood)

2. Today, I feel able to accept the person I am/Today, I feel like I am adapting to life after my stroke (identity; VAS_ID)
3. Today, I feel good about myself (self-esteem; VAS_SE)
4. Today, I feel that I can use the wisdom of my life to help me deal with my current problems (VAS_wisdom)

Standardised Measure

The Patient Health Questionnaire (PHQ-9; Kroenke et al., 2001) assessed pre-post clinical mood changes. This nine-item tool (scoring 0–27) reliably detects clinically significant depression and is validated for PSD screening across diverse demographic groups with minimal somatic symptom confounding (Blake et al., 2025; Katzan et al., 2021)

Intervention

Laidlaw's (2021) Wisdom Enhancement Timeline was delivered in six structured, manualised sessions (Table 1; Appendix R), guiding participants through autobiographical reflection using a visual timeline of meaningful life events. To ensure accessibility and relevance, the manual was reviewed for comprehensibility by individuals with lived stroke experience via the university's PPI panel.

Fidelity was monitored through recorded sessions and assessed using the Revised Cognitive Therapy Scale (CTS-R; James et al., 2001; Appendix S), which evaluates therapeutic quality and adherence to the CBT framework. Ratings were conducted by a Clinical Psychologist supervising the author, ensuring competence and consistency in intervention delivery.

Table 1

Overview of the Intervention Sessions and Key Objectives

Session	Focus	Key Activities
1	Information gathering, rapport-building and goal setting	Assessed individual difficulties, set client-focused goals
2	Psychoeducation on stroke impact and introduction to the timeline	Discussed changes in identity, mood and self-esteem. Introduced the concept of wisdom and the timeline intervention.
3	Reflected on timeline events	Reflected on complex life events, promoted resilience, meaning-making, self-compassion, and self-acceptance.
4-5	Active change methods	Explored past coping strategies and identified significance in events of regret.
6	Review and consolidation	Reflected on learning, reviewed new perspectives

Ethical Statement

The study adhered to the Ethical Principles of Psychologists and Code of Conduct set by the BABCP and BPS. Ethical approval was granted by the South Yorkshire Research Ethics Committee (24/YH/0055) and the UK Health Research Authority. The study was registered on ClinicalTrials.gov (NCT06451965).

Procedure

Potential participants were identified and screened via local stroke services according to inclusion/exclusion criteria. After providing informed consent, participants completed pre-baseline measures and were given baseline VAS rating scales to complete daily at home. Baseline durations were randomised using an online random number generator. No blinding was implemented due to feasibility constraints. Following baseline, participants received six weekly Wisdom Enhancement Timeline sessions, delivered remotely or in person as preferred. Sessions were audio-recorded for fidelity monitoring and supervised by the second reviewer (JB). Daily VAS ratings continued throughout baseline and intervention phases. The PHQ-9 was administered before and after the intervention to assess clinical mood changes. Medication use and adverse events were monitored weekly via self-report during sessions or check-ins. All data were anonymised and securely stored on the university's cloud storage in line with GDPR and institutional policies.

Analysis

Both single-case visual and statistical techniques were used following best practices (Harrington & Velicer, 2015; Manolov & Moeyaert, 2017). Visual analysis assessed phase variability using a ±25% stability envelope (Lane & Gast, 2014). Higher percentages indicate greater stability, and lower percentages reflect greater variability**.**

To assess whether VAS ratings during the intervention phase were higher than baseline, Tau-U (Parker et al., 2011) was implemented. It accounted for baseline trends, effect sizes, and phase non-overlap. Resistant to autocorrelation, Tau-U provides strong statistical power in small datasets (Parker et al., 2014). Interpretations followed Vannest and Ninci's (2015) guidelines, with baseline corrections applied as needed to prevent inflated effect sizes.

Piecewise regression (Center et al., 1985) complemented Tau-U findings by quantifying change over time within each phase. Level and slope changes were examined, estimating the breakpoint for outcome improvements. This approach modelled level shifts and gradual trends while considering data variability and abrupt changes (Tate & Perdices, 2018). To address autocorrelation, lag-1 autocorrelation was assessed, and if detected, Generalised Least Squares (GLS) regression with an AR(1) structure was applied (Somer et al., 2022). Tau-U was analysed using the method proposed by Parker et al. (2011), with calculations performed via the Tau-U calculator (Vannest et al., 2016). Piecewise regression was conducted in software R using the segmented package (Muggeo, 2008), while GLS regression with an AR(1) error structure was performed using the nlme package (Pinheiro et al., 2024).

Reliable change in PHQ-9 was measured via the Reliable Change Index (RCI; Jacobson & Truax, 1991), with Cronbach's α = 0.79 (De Man-Van Ginkel et al., 2012) and a stroke sample SD of 5.1 (Strong et al., 2021). Clinically Significant Change (CSC) could not be determined due to limited non-clinical-normative data for stroke populations. Given concerns about the comparability of PHQ-9 scores between stroke and non-stroke populations (Blake et al., 2025), data from other populations were not considered. Instead, a cut-off of 10 was applied to approximate clinically meaningful change, based on validated studies (De Man-Van Ginkel et al., 2012; Negeri et al., 2021; Williams et al., 2005).

Results

Participant Flow

Figure 1 shows the flow of participants enrolled in the study. Table 2 describes each participant.

Figure 1

Participant Flow

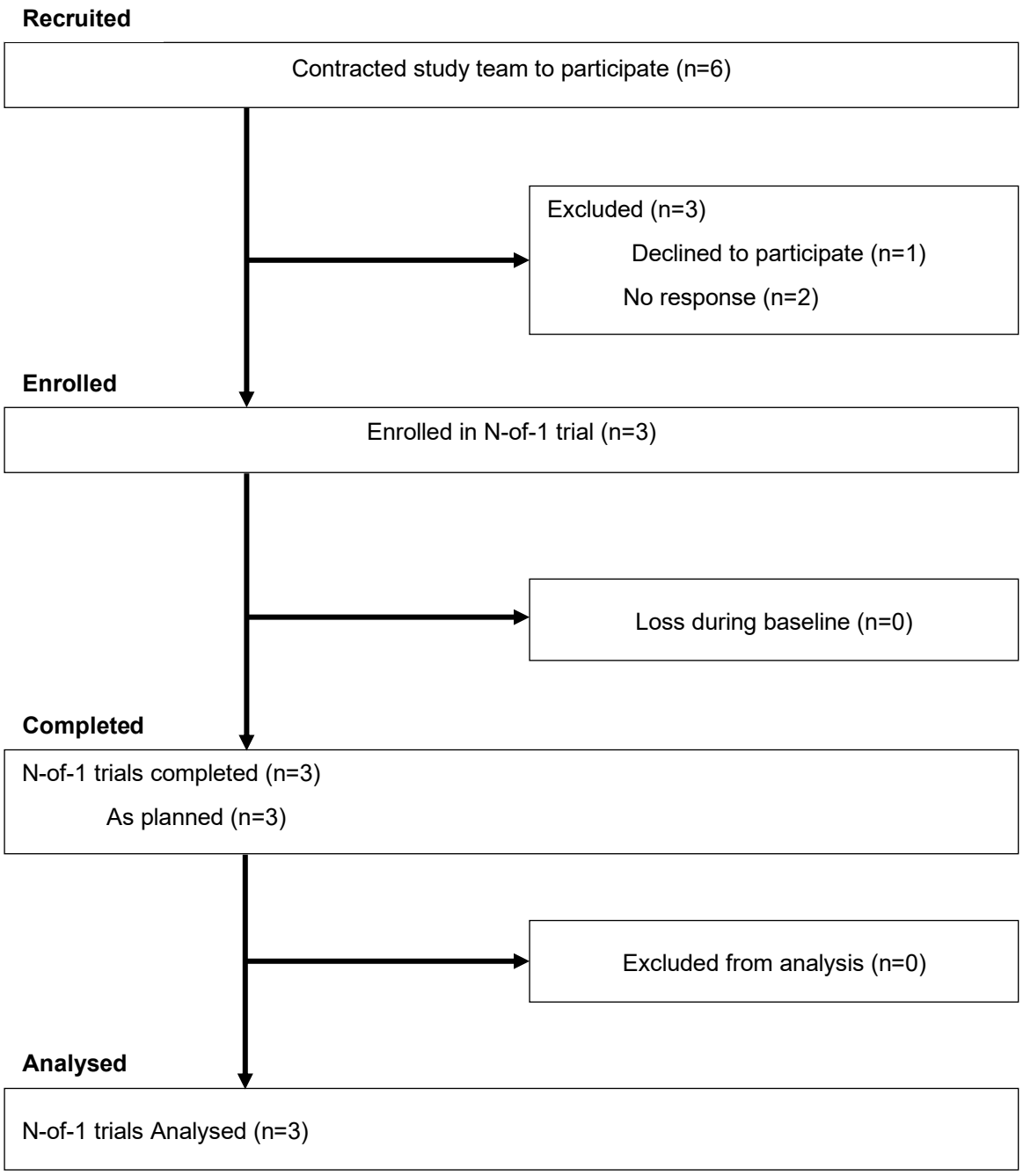


Table 2

Participant Characteristics

Participant	Age/Sex	Baseline Condition	Detail
1	85/F	14 Days	Participant 1 experienced a stroke one year prior to enrolment. Since then, they have felt disconnected from their former self. Around the same time, there were family matters, contributing to low mood and loss of confidence. They struggled to engage in activities that once provided independence, such as driving, particularly at night or in unfamiliar places. They also expressed guilt when enjoying activities, feeling it misaligned with their family situation, reinforcing their withdrawal. The intervention focused on helping them draw on life experiences to navigate current challenges, make difficult decisions about an uncertain future, and work towards re-engaging with previously enjoyed activities.
2	91/F	21 Days	Participant 2 experienced a stroke approximately eight months before enrolment. Since then, they have struggled with activities such as going on walks and have found loneliness to be particularly challenging. The combination of social isolation and the stroke's impact on their ability to engage in everyday tasks contributed to feelings of depression. The intervention focused on helping them draw upon their life experiences to reconnect with former activities, engage socially in manageable ways, and develop a more self-compassionate approach to coping with their depression.
3	54/M	28 Days	Participant 3 experienced a stroke approximately six months before enrolment. Since then, they have struggled with walking and maintaining their balance, which has significantly impacted their independence. They described feelings of depression, mainly due to frustration regarding having to rely on others for support. Although they had made progress in their recovery, they felt as though they had plateaued, which further exacerbated their low mood. The intervention focused on helping them draw upon past life experiences of overcoming challenges to enhance their motivation for continued recovery. Additionally, it supported them in accepting both the uncertainty of their situation and the lasting impact of the stroke.

Analysis of Depression and Daily VAS Scores

Participants' data are visually presented in Figures 3, 4, and 5. All participants completed the six intervention sessions, with no dropouts or deviations. No adverse events were reported. Individual participant analyses are summarised in Table 3.

Participant 1

Baseline Tau-U trend analyses indicated no significant changes across identity (Tau = –0.0330, p = .8695, 90% CI [–0.363, 0.297]), self-esteem (Tau = 0.0110, p = .9563, 90% CI [–0.319, 0.341]), or wisdom (Tau = 0.0110, p = .9563, 90% CI [–0.319, 0.341]), while mood showed a small, non-significant upward trend (Tau = 0.1868, p = .3520, 90% CI [–0.143, 0.517]). These results suggest a stable baseline, supporting the internal validity of the intervention effects.

Baseline regression analyses further confirmed this pattern. Significant intercepts (β_0, $p < .05$) were recorded across all outcomes, while slopes were non-significant: wisdom ($\beta_1 = 0.002$, $p = .961$), self-esteem ($\beta_1 = 0.002$, $p = .907$), identity ($\beta_1 = 0.002$, $p = .961$), and mood ($\beta_1 = 0.037$, $p = .197$).

Tau-U analyses of the intervention revealed statistically significant improvements across all outcome measures. Moderate-to-large effects were observed for wisdom (Tau = 0.69, p = .0001, 90% CI [0.395, 0.986]) and self-esteem (Tau = 0.69, p = .0001, 90% CI [0.395, 0.986]), while identity (Tau = 0.84, p < .001, 90% CI [0.546, 1.000]) and mood (Tau = 0.86, p < .001, 90% CI [0.568, 1.000]) produced large effects.

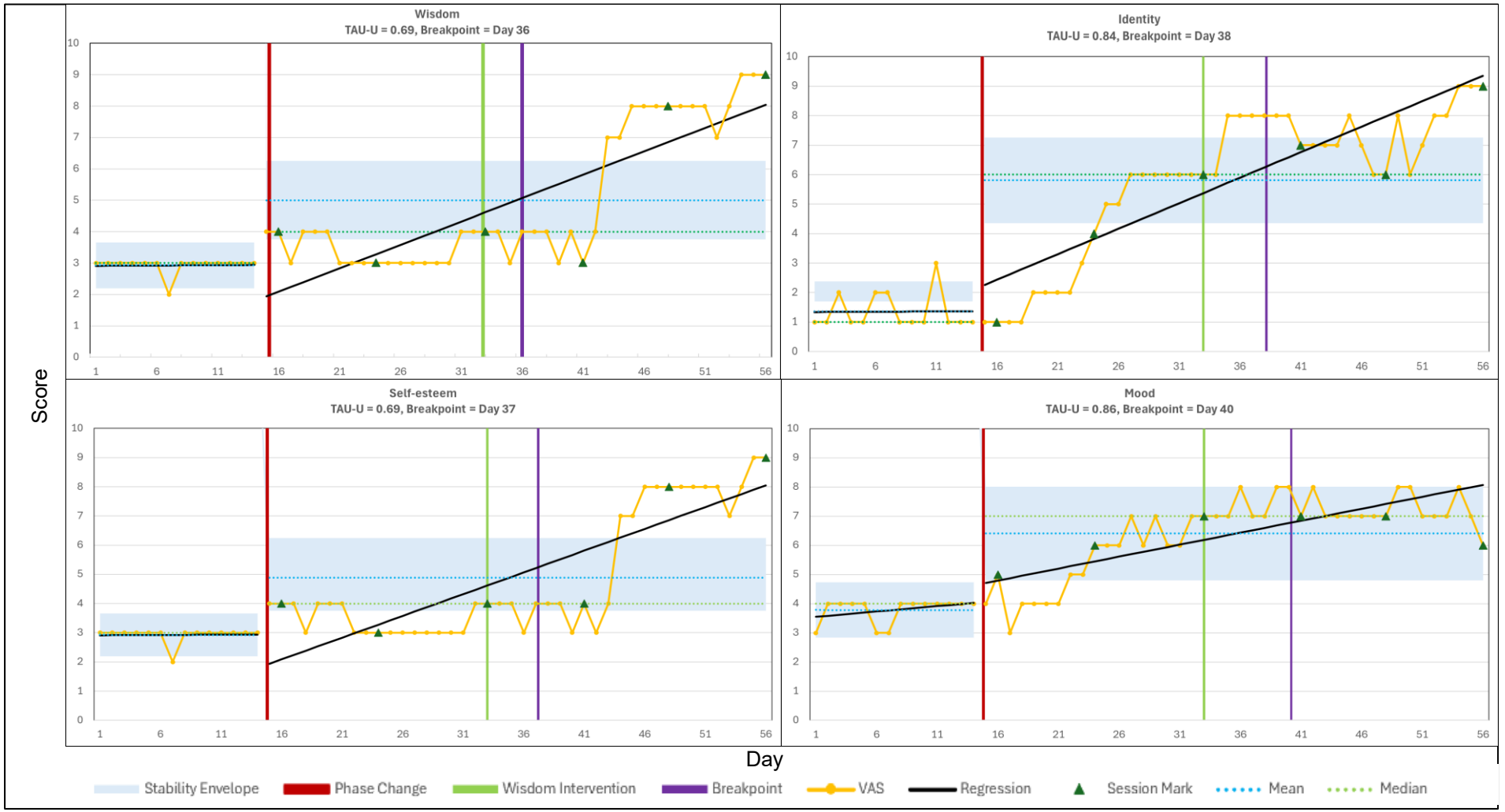
Treatment-phase regression analyses showed significant intercept shifts across all outcomes. Wisdom and self-esteem improved sharply ($\beta_0 = 1.79$, $p < .001$ for both), with non-significant slope changes (wisdom: $\beta_1 = 0.149$, $p = .073$; self-esteem: $\beta_1 = 0.149$, $p = .097$). Identity and mood demonstrated both significant level shifts and progressive increases (identity: $\beta_1 = 0.173$, $p < .001$; mood: $\beta_1 = 0.082$, $p < .001$).

Significant autocorrelation (Pearson's $r > 0.90$) was addressed using GLS models with an AR(1) correction. Breakpoint analysis indicated sequential change: wisdom on day 36, self-esteem on day 37, identity on day 38, and mood on day 40.

The participant's PHQ-9 score decreased from 11 (moderate depression) to 6 post-intervention, suggesting a clinically meaningful but not statistically reliable change (RCI = –1.47). Functionally, the participant reported resuming independent driving and re-engaging in social and leisure activities.

Figure 3

VAS Outcomes for Participant 1



Participant 2

Baseline Tau-U trend analyses revealed a significant increasing trend for self-esteem (Tau = 0.40, p = .0103, 90% CI [0.145, 0.664]), indicating the need for baseline correction. Wisdom (Tau = 0.09, p = .5459), identity (Tau = 0.038, p = .8091), and mood (Tau = –0.13, p = .3978) trends remained stable. These results suggest a stable baseline, supporting the internal validity of the intervention effects.

Baseline regression analyses supported these findings: identity showed a small but significant upward trend (β_1 = 0.092, p = .004), while slopes for wisdom (β_1 = 0.012, p = .555), self-esteem (β_1 = 0.009, p = .759), and mood (β_1 = –0.021, p = .392) were non-significant. All outcomes demonstrated significant intercepts (β_0, p < .05).

Tau-U analyses of the intervention revealed statistically significant improvements across all outcome measures. Large intervention effects were observed for wisdom (Tau = 0.99, p < .001, 90% CI [0.736, 1.000]) and identity (Tau = 0.92, p < .001, 90% CI [0.674, 1.000]). Mood demonstrated a moderate effect (Tau = 0.56, p = .0003, 90% CI [0.305, 0.817]. Following baseline correction, self-esteem also showed a large intervention effect (Tau = 0.73, p < .001, 90% CI [0.568, 1.000]).

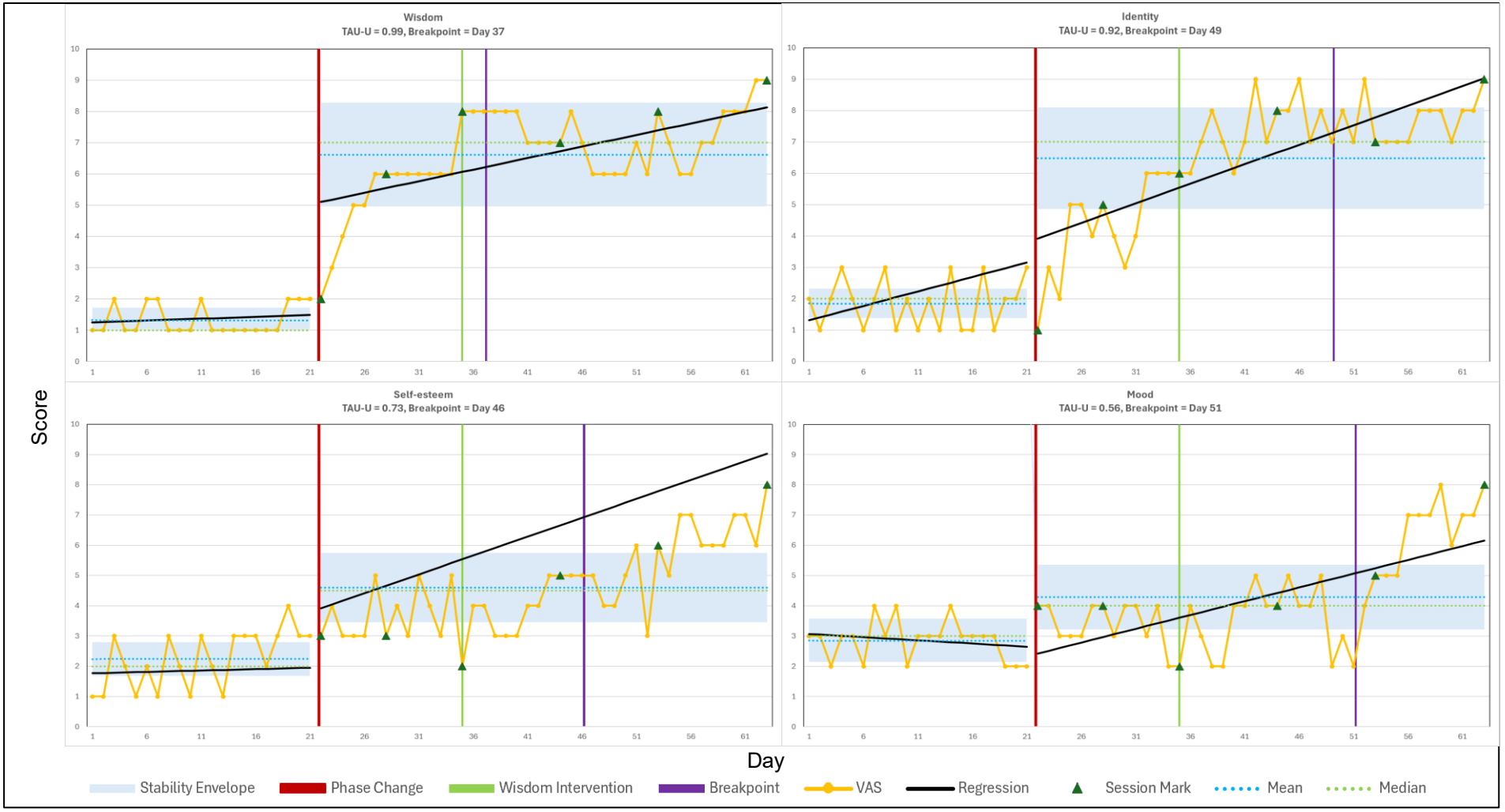
Treatment-phase regression analyses revealed significant intercept shifts across all outcomes: wisdom (β_0 = 5.03, p < .001), identity (β_0 = 2.65, p < .001), self-esteem (β_0 = 3.79, p < .001), and mood (β_0 = 2.33, p < .001). Slope changes were non-significant for wisdom (β_1 = 0.0739, p = .073) and self-esteem (β_1 = 0.1248, p = .097), while identity (β_1 = 0.0907, p < .001) and mood (β_1 = 0.0911, p < .001) showed significant progressive improvements.

Significant autocorrelation (Pearson's r > 0.90) was addressed using GLS models with an AR(1) correction. Breakpoint analysis revealed sequential change: wisdom (day 37), self-esteem (day 46), identity (day 49), and mood (day 51).

The participant's PHQ-9 score reduced from 19 (moderately severe depression) to 8 post-intervention, a statistically reliable change (RCI = –3.33). Functional improvements included increased physical activity, enhanced social engagement, and participation in community events.

Figure 4

VAS Outcomes for Participant 2



Participant 3

Baseline Tau-U trend analyses identified a small, significant downward trend for wisdom (Tau = –0.2407, *p* = .0722, 90% CI [–0.461, –0.020]), indicating the need for baseline correction. Self-esteem (Tau = –0.1931, *p* = .1492, 90% CI [–0.413, 0.027]), identity (Tau = 0.0608, *p* = .6495, 90% CI [–0.159, 0.281]), mood (Tau = –0.02, *p* = .8900, 90% CI [–0.239, 0.202]), trends were non-significant. These results suggest a stable baseline, supporting the internal validity of the intervention effects.

Baseline regression analyses further supported these findings. Identity (β_1 = 0.007, p = .603), self-esteem (β_1 = –0.031, p = .093), and mood (β_1 = –0.004, p = .812) showed no significant slopes. Wisdom showed a slight but significant downward trend (β_1 = –0.057, p = .017). All outcomes showed significant intercepts (β_0, p < .05), indicating consistent measurement levels during baseline.

Tau-U analyses of the intervention revealed statistically significant improvements across all outcome measures. Moderate intervention effects were observed for self-esteem (Tau = 0.4209, p = .003, 95% CI [0.188, 0.654]), identity (Tau = 0.3206, p = .024, 95% CI [0.087, 0.554]), and mood (Tau = 0.3027, p = .033, 95% CI [0.069, 0.536]). Following baseline correction, wisdom also showed a moderate intervention effect (Tau = 0.3886, p = .0062, 95% CI [0.155, 0.622]).

Treatment-phase regression analyses showed significant immediate level shifts for all outcomes: wisdom (β_0 = 1.97, p < .001), identity (β_0 = 1.93, p < .001), self-esteem (β_0 = 1.68, p < .001), and mood (β_0 = 2.59, p < .001). These were accompanied by progressive improvements across all outcomes: wisdom (β_1 = 0.144, p < .001), identity (β_1 = 0.163, p < .001), self-esteem (β_1 = 0.168, p < .001), and mood (β_1 = 0.112, p < .001).

Significant autocorrelation (Pearson's r > 0.90) was addressed with GLS models using AR(1) correction. Breakpoint analysis indicated changes beginning with wisdom (day 46), followed by identity and self-esteem (day 48), and mood (day 49).

Importantly, the participant began antidepressant medication on day 38, which may have contributed to improvements in the latter part of the intervention. Their PHQ-9 score dropped from 19 to 8 (RCI = –3.33), indicating a reliable and clinically meaningful reduction. Additional gains included improved confidence in walking and independent stair use.

Figure 5

VAS Outcomes for Participant 3

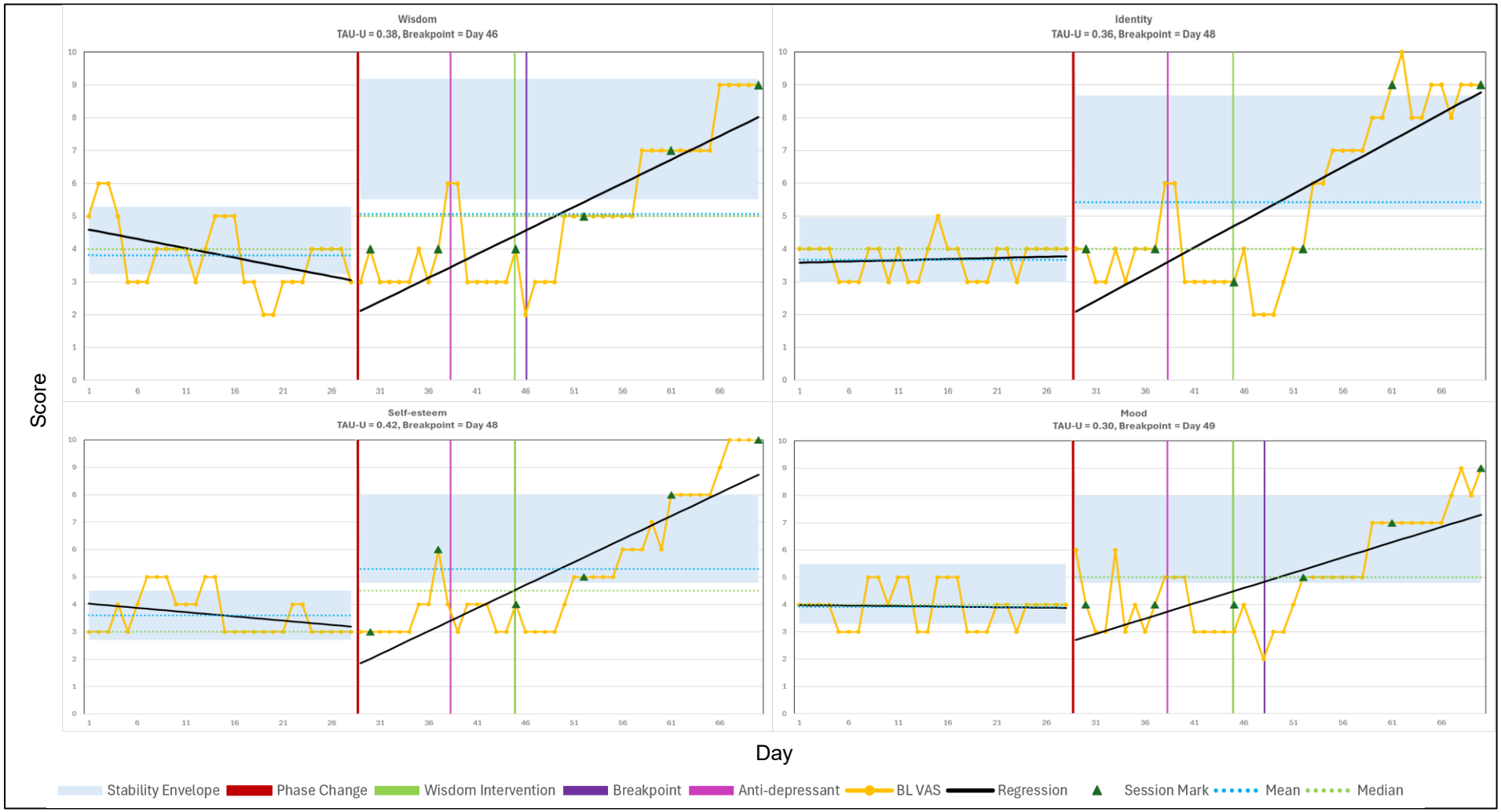


Table 4

Summary of Participant Results

	Mood				Identity	Self-Esteem	Wisdom
	VAS	PHQ-9			VAS		
Participant	Tau-U (Breakpoint)	Pre	Post	RCI	Tau-U (Breakpoint)	Tau-U (Breakpoint)	Tau-U (Breakpoint)
1	0.86[a] (40)	11	6[b]	-1.47	0.84[a] (38)	0.69[a] (37)	0.69[a] (36)
2	0.56[a] (51)	19	8[b]	-3.33[c]	0.92[a] (49)	0.73[a] (46)	0.99[a] (37)
3	0.30[a] (49)	19	8[b]	-3.33[c]	0.32[a] (48)	0.42[a] (48)	0.38[a] (46)

*Note***.** Tau-U values indicate effect sizes for each outcome; Breakpoint days indicate when each outcome showed initial improvement.

[a] significant ($P < 0.05$); [b] clinically meaningful change (cut-off < 10); [c] reliable change at post-intervention

Discussion

This study evaluated the effectiveness of the wisdom enhancement timeline technique in addressing PSD using a single-case experimental design. Findings showed significant improvement in the primary outcome measures (VASs) for all participants and Reliable Change on the secondary outcome measure (PHQ-9) in two (P2 and P3). These results suggest that wisdom-based interventions offer a novel approach to PSD, particularly in addressing identity and self-esteem.

As hypothesised, wisdom gains emerged only after the timeline intervention (session 3), suggesting that structured autobiographical reflection facilitated improvement rather than spontaneous change. Laidlaw's (2021) model underscores guided reflections on self-perception and emotional adaptation.

A consistent pattern of improvement emerged, with wisdom improving first, followed by identity or self-esteem, and finally, mood. This suggests that wisdom is a driver of self-esteem, identity coherence, and mood enhancement, supporting models that position wisdom as central to psychological adaptation (Ardelt, 2003; Jeste & Lee, 2019). The Berlin Wisdom Paradigm (Baltes & Staudinger, 2000) defines wisdom as advanced knowledge facilitating meaning-making and emotional regulation, aligning with research linking wisdom to resilience against depression (Etezadi & Pushkar, 2012; Webster et al., 2014).

The results parallel research on post-traumatic growth (PTG; Tedeschi & Calhoun, 2004), which posits that cognitive processing of adversity fosters transformation. Participants' VAS scores align with this, suggesting that wisdom-based reflection promotes meaning-making, a core PTG mechanism. However, unlike PTG's assumption that growth emerges naturally from trauma, these findings support the idea that structured reflection is essential for fostering growth (Weststrate & Glück, 2017), potentially due to autobiographical memory retrieval impairments (Williams, 2006).

Similarly, enhanced wisdom facilitated the adaptive trajectory proposed by the Y-Model (Gracey et al., 2009) by fostering meaning-making, perspective-taking, and emotional regulation. This was evident in Participant 3's reflection:

"I'm a person of an age that grew up believing not to talk about my problems, but from these trials, I learned the value of talking to people and opening up. This has taught me not to bottle my problems. It has reminded me of everything I've overcome. I don't give up, and I can be proud of myself again. I've done really well. I've made no end of progress and feel proud of myself again. I feel like I'm 80%-85% back to who I was."

Participant 3's statement highlights two key processes: cognitive flexibility, transitioning from an emotionally suppressive identity to one embracing openness, and self-continuity, reconnecting with pre-stroke identity while integrating change rather than resisting it.

A central question is whether wisdom functioned as an intervention outcome or a change mechanism. This is difficult to determine due to the lack of a standardised wisdom measure in this study. Instead, wisdom was assessed via VAS, which, while useful for tracking subjective experiences, cannot fully capture the complexity of wisdom-related processes. However, the observed temporal sequence suggests that wisdom played a mechanistic role in driving change.

It is unclear which aspects of wisdom (self-reflection, emotional regulation, or perspective-taking) were most influential. Measuring wisdom is challenging as self-report tools struggle to capture its dynamic and context-dependent nature (Glück & Weststrate, 2022), and self-perceived wisdom may not align with the real-world application (Grossmann et al., 2020). While some view wisdom as a stable trait (Ardelt, 2003), others conceptualise it as a developing process shaped by experience and reflection (Jeste & Lee, 2019; Webster et al., 2014). The findings support the latter perspective, suggesting that wisdom-based interventions should focus on cultivating reflective processes rather

than simply increasing self-reported wisdom scores. This distinction is critical, as the therapeutic value of wisdom-based interventions may lie not in quantifying wisdom but in fostering deeper cognitive and emotional shifts essential for psychological recovery.

The trajectories of change varied across participants. While wisdom gains occurred first, their sustainability differed. Participants 1 and 2 showed early improvements in wisdom and self-esteem, followed by a plateau, which may reflect genuine stabilisation or a ceiling effect within the VAS measure, limiting the detection of further gains. Alternatively, this plateau may suggest that once a threshold level was reached, further improvements depended on external factors such as social engagement or continued therapy. In contrast, Participant 3 exhibited gradual, sustained improvement across all outcomes, indicating that some individuals may require extended engagement to integrate reflective processes and maintain change fully.

Theories of cognitive reserve and psychological flexibility (Kashdan & Rottenberg, 2010) provide potential explanations for this divergence in therapeutic change. Cognitive flexibility refers to the ability to shift thinking strategies, adapt to new situations, and integrate new information, playing a key role in problem-solving and emotional regulation. In contrast, psychological flexibility involves the capacity to remain open to experiences, adjust behaviours in accordance with values, and tolerate discomfort without rigid avoidance. In this context, Participants 1 and 2's rapid changes may reflect higher psychological flexibility, allowing them to engage with therapy in an adaptive, responsive manner, leading to quicker shifts in thought and behaviour. Participant 3's sustained, but slower improvement does not necessarily indicate lower flexibility but may instead reflect a different trajectory of change. Rather than viewing flexibility as a factor that determines the speed of improvement, it may be more useful to consider how individuals vary in their responses to therapy, some demonstrating rapid shifts while others undergo a more gradual but enduring transformation.

Variability in response could also suggest that metacognitive abilities, which influence self-reflection and insight, could determine whether change occurs gradually or abruptly (Weststrate & Glück, 2017). Neurological factors, such as stroke severity and lesion location, may have also influenced responses, as frontal and subcortical damage can impair metacognitive reflection and emotional processing (Al Banna et al., 2016; Scott et al., 2012). Contextual factors also played a role. Age-related attitudes toward wisdom may explain why older adults are more receptive to wisdom-

based interventions due to cultural associations between ageing and wisdom (Ardelt et al., 2018). In contrast, younger stroke survivors may require alternative engagement strategies. While speculative, these interpretations highlight the complex interplay of cognitive, neurological, and contextual factors in shaping intervention outcomes.

Tau-U analyses indicated moderate-to-large treatment effects (>0.50) for Participants 1 and 2, while Participant 3 had lower effect sizes (<0.50) despite showing clinically meaningful improvement. This highlights a key methodological limitation: effect sizes alone may not fully capture treatment response in SCEDs. Since Tau-U is sensitive to immediate level shifts, it may underestimate gradual, cumulative improvements (Parker et al., 2011). These findings underscore the need to integrate multiple analytic approaches, including effect size calculations, breakpoint analysis, and regression modelling, to fully capture treatment effects in SCED research (Manolov & Moeyaert, 2017; Tate & Perdices, 2018).

Participant 3's antidepressant use complicates the distinction between intervention and medication effects. With a 2–4-week latency period (Cipriani et al., 2018), antidepressant effects may have emerged later, potentially reinforcing intervention gains. This raises the question of whether Participant 3's rate of change exceeded expectations based on the intervention alone. Furthermore, the placebo effect and patient expectations may have influenced their scores sooner than the 2–4-week latency period. A meta-analysis found that 35–40% of patients responded to placebo treatments (Jones et al., 2021). Conversely, guidelines commonly recommend a joint pharmacological and non-pharmacological approach to treating depression, and the inclusion of someone receiving concurrent medication provides a helpful contrast.

This study has limitations, particularly the reliance on self-report measures, which may introduce response biases such as social desirability and mood-congruent recall (Podsakoff et al., 2012). This aligns with broader critiques of self-report wisdom measures, which struggle to capture wisdom's dynamic and context-dependent nature (Glück & Weststrate, 2022). Performance-based assessments (e.g., Grossmann et al., 2020) may better reflect how individuals apply wisdom in real-world contexts. Blinding challenges in clinical trials may also amplify perceived efficacy, as both patients and clinicians develop biases based on their expectations (Lin et al., 2022).

Another limitation is the sample size. While meeting the minimum criteria, it is recommended to have more than one person per baseline condition or length to enhance external validity and capture individual differences (Epstein et al., 2021). The study also lacked a follow-up review, leaving uncertainty about the persistence of observed improvements. Clinical response was not explicitly categorised using a predefined binary classification (i.e., per-patient designation of "responded" or "not responded") because no benchmark criteria were established before analysis. Instead, an exploratory approach was adopted to examine clinical outcomes. As a result, any interpretation of clinical response is not based on confirmatory thresholds, which limits the strength of the conclusions that can be drawn.

Despite its limitations, a key strength of this study is its design, which offers advantages over traditional RCTs. MBDs provide strong internal validity while accommodating the heterogeneity of stroke recovery. MBDs also enable a fine-grained analysis of psychological change and can provide deeper insights on mechanisms. This approach captures subtle nuances that standardised measures might miss and accounts for variability in recovery trajectories. The integration of Tau-U and regression models further strengthened the analysis by quantifying effect sizes and identifying breakpoints, helping to establish the temporal sequence of recovery.

These findings have important implications for PSD treatment, suggesting that wisdom-based interventions offer a novel approach by fostering self-reflection, meaning-making, and emotional regulation. This technique could be used as a standalone brief intervention or integrated into broader treatment packages. Unlike traditional CBT, which primarily targets symptom reduction, wisdom-based techniques encourage individuals to engage with past experiences in a structured way, promoting narrative coherence and psychological resilience (Weststrate & Glück, 2017). The Wisdom Enhancement Timeline may also support psychological growth and resilience (Laidlaw, 2021), making it particularly beneficial for stroke survivors facing identity disruptions and self-esteem loss.

Individual differences in treatment response underscore the need for tailored interventions. Some (P1 and 2) may benefit from a structured but shorter intervention that facilitates immediate change, while others (P3) may require extended engagement for gradual progress. This highlights the importance of flexible, person-centred treatment planning in PSD interventions.

These findings also highlight the potential for integrating wisdom-based interventions into standard stroke rehabilitation programs, addressing the need for individualised PSD treatments (Broomfield et al., 2011). The Wisdom Enhancement Timeline supports coherent self-narrative construction, helping to resolve grief from identity loss post-stroke. By emphasising meaning-making and self-reflection, this approach facilitates identity reconstruction and strengthens psychological resilience in post-stroke identity disruption.

Beyond its clinical implications for PSD, this study highlights the broader potential of wisdom-based approaches in psychotherapy. Despite growing theoretical interest, wisdom remains underutilised in Clinical Psychology, partly due to its perceived complexity. This may deter empirical clinicians from incorporating it into therapeutic frameworks. However, as shown in this study and by Laidlaw and Kishita (2015) and (Kadri et al., 2022), wisdom can be translated into structured, accessible interventions with practical clinical utility.

The findings suggest that wisdom-related constructs could serve as a foundation for broader psychological recovery. While promising, further research is needed to establish long-term efficacy and determine how best to integrate wisdom-based interventions into stroke rehabilitation frameworks. Future studies should include larger samples, control comparisons, and extended follow-ups to refine clinical applications. Establishing a priori responder criteria based on predefined clinical thresholds would enhance methodological rigour and reduce post hoc bias.

Scalability also remains a challenge, given the high prevalence of PSD and limited psychological therapy access in stroke services. It is essential to assess whether healthcare professionals with minimal psychological training can effectively deliver these interventions. Training rehabilitation clinicians or peer supporters in wisdom-based reflection techniques could improve accessibility while maintaining intervention fidelity. Finally, feasibility trials with standardised wisdom assessments could enhance validity and support implementation.

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Chapter Five: Discussion and Critical Evaluation

This chapter presents an overall discussion of the thesis portfolio, including a summary of the findings, the theoretical and clinical implications and strengths and limitations. The chapter concludes with recommendations for future research and overall conclusions.

Overview of the Thesis Portfolio and Main Findings

The overarching aim of this thesis was to explore how wisdom can be conceptualised, measured, and applied in clinical settings, particularly in post-stroke depression (PSD). A systematic review (Chapter Two) evaluated the psychometric properties of existing wisdom measures, revealing inconsistencies in measurement approaches and a lack of clinically validated tools. Among existing measures, only the Wisdom Development Scale (WDS) demonstrated sufficient psychometric robustness, though its length limits feasibility in clinical settings. Measures varied in their emphasis on cognitive, prosocial, or emotional regulation dimensions, leading to inconsistent correlations with clinical outcomes such as well-being and depression. This aligns with Glück and Weststrate (2022), who state that the way wisdom is conceptualised directly influences measurement outcomes, leading to variability across different scales.

The empirical study (Chapter Four) provided preliminary evidence that wisdom enhancement may facilitate psychological recovery in PSD, particularly by promoting identity coherence, self-esteem, and mood improvement. Using a Visual Analogue Scale (VAS) to track wisdom-related changes, findings suggested that wisdom gains preceded improvements in psychological well-being, supporting models that position wisdom as a resilience-enhancing factor (Ardelt, 2003; Jeste & Lee, 2019). However, individual variability in treatment response and the lack of a standardised wisdom measure highlight the need for more reliable assessment tools to track change over time.

The findings also suggest that structured reflection and autobiographical reasoning play a central role in PSD recovery, aligning with existing models of wisdom development (Glück et al., 2019) and identity reconstruction (Gracey et al., 2009). This reinforces the potential for wisdom-based interventions to serve as a strengths-based alternative to traditional deficit-focused rehabilitation approaches. Since wisdom is not typically emphasised in conventional therapy, structured training could help clinicians guide

autobiographical reflection, cognitive reframing, and perspective-taking exercises. Integrating wisdom-based techniques into existing frameworks such as CBT, ACT, and Narrative Therapy would enhance their accessibility and applicability in routine clinical practice. The Positive PsychoTherapy in ABI Rehab (PoPSTAR) trial (Cullen et al., 2018) further supports integrating structured psychological interventions into rehabilitation, reinforcing the importance of resilience-building strategies in enhancing psychological well-being.

Theoretical and Clinical Implications

This thesis contributes to both the theoretical understanding of wisdom and its clinical applications. Overall, this thesis demonstrates the potential of wisdom-based therapy beyond older adult populations. This suggests its potential for broader clinical use, particularly in post-stroke depression (PSD) and acquired brain injury (ABI) rehabilitation.

The systematic review revealed substantial measurement inconsistencies, reinforcing the need for an integrated theoretical model that aligns wisdom conceptualisation with empirical measurement. Current measures vary in their emphasis on cognitive, prosocial, or emotional regulation dimensions, leading to inconsistent correlations with clinical outcomes. This supports arguments from Aldwin and Igarashi (2015) that state-based, rather than trait-based, measures may better reflect wisdom's therapeutic potential, as wisdom is not a static trait but a process that evolves through life experiences. This is particularly important given that current wisdom scales often fail to capture dynamic, context-dependent aspects of wisdom (Glück & Weststrate, 2022).

Findings from the empirical study further reinforce this dynamic conceptualisation of wisdom. as wisdom-related changes occurred within a structured intervention period. This ability to cultivate wisdom through reflective exercises may suggest that wisdom is not an innate quality, but an adaptive process shaped by life experiences and psychological insight. This aligns with Ratner and Burrow (2018), who argue that achieving a coherent sense of identity fosters emotional stability and meaning-making qualities integral to wisdom. Given that identity disruption is central to PSD, these findings suggest that wisdom can be enhanced and that interventions should be designed with its dynamic nature in mind. This also

reinforces the need for state-sensitive measures that can track wisdom's fluctuations in response to therapeutic interventions, rather than treating it as a static personality dimension.

A key theoretical contribution of this thesis is the positioning of wisdom as a resilience-enhancing factor in psychological adaptation following major life disruptions. The sequence of improvements found in the empirical study aligns with the Y-Model (Gracey et al., 2009), which describes how meaning-making and self-reflection support adaptation following identity-disrupting events. This suggests that interventions could be strategically sequenced, beginning with wisdom development before targeting identity reconstruction and emotional regulation.

Findings from the empirical study further highlight the relevance of structured reflection and autobiographical reasoning in PSD recovery. This aligns with Glück et al.'s (2019) Mastery, Openness, Reflectivity, and Emotion Regulation (MORE) model, which emphasises autobiographical reflection as central to psychological adaptation. Similarly, the Y-Model (Gracey et al., 2009) describes identity reconstruction through meaning-making and self-reflection, suggesting that both wisdom development and post-stroke recovery rely on structured reflection and emotional regulation.

While existing therapies such as Cognitive Behavioural Therapy (CBT) and Acceptance and Commitment Therapy (ACT) incorporate perspective-taking and meaning-making, they do not explicitly frame wisdom as a therapeutic mechanism. The findings from this thesis suggest that a wisdom-focused approach could be developed as an integrative model, combining autobiographical reflection, structured wisdom-building exercises, and identity reconstruction. Unlike CBT, this approach extends beyond symptom reduction. Instead, it fosters psychological resilience and self-continuity, which may be particularly beneficial for individuals experiencing identity loss due to PSD or acquired brain injury (ABI).

These findings highlight the potential for a paradigm shift in rehabilitation psychology. Traditional deficit-based models prioritise symptom reduction and impairment-focused rehabilitation, whereas wisdom-focused interventions actively cultivate resilience, identity coherence, and emotional regulation. Unlike Cognitive Behavioural Therapy (CBT), which primarily targets maladaptive thoughts and behaviours, a wisdom-based approach focuses on autobiographical reflection, identity reconstruction, and

meaning-making. This strengths-based model offers a novel framework for psychological adaptation, particularly for individuals experiencing identity loss following ABI.

While wisdom-based interventions share key conceptual overlaps with positive psychotherapy, resilience-based therapies, and narrative therapy, they offer a distinct approach to psychological adaptation. Unlike positive psychotherapy, which primarily aims to enhance positive emotions and engagement, wisdom-based interventions explicitly target autobiographical reasoning, perspective-taking, and the ability to navigate ambiguity. This focus may be particularly valuable for stroke survivors with PSD, who often experience self-continuity disruptions and loss of autonomy (Gracey et al., 2009).

Rather than treating wisdom-based and resilience-based therapies as separate approaches, an integrated model could optimise long-term psychological and cognitive adaptation for stroke survivors. By combining targeted wisdom-enhancing interventions with structured resilience-building strategies, clinicians could develop a more comprehensive framework for post-stroke psychological recovery. This hybrid approach could foster identity reconstruction and emotional regulation but also provide a gradual transition toward psychological growth, supporting individuals as they navigate post-stroke life. Developing such a hybrid model would allow the clinical practice to expand beyond traditional rehabilitation frameworks, fostering a more adaptive, person-centred approach to PSD and ABI recovery.

Critical Appraisal

This thesis portfolio contributes to an emerging field by examining wisdom's role in PSD and advancing the understanding of wisdom as a construct relevant to psychological resilience. The completion of two studies within the expected timeframe, covering study design, ethical approvals, recruitment, trial management, intervention delivery, and analysis, reflects a high degree of independence and adaptability. However, several methodological and conceptual limitations should be acknowledged, particularly concerning measurement issues, sample size constraints, and the complexity of evaluating wisdom as a therapeutic mechanism.

A key limitation across both studies is the reliance on self-report wisdom measures rather than performance-based measures. Self-report measures may introduce biases such as social desirability and

mood-congruent recall (Podsakoff et al., 2012). In the empirical study, wisdom was assessed using a Visual Analogue Scale (VAS), which, while useful for tracking subjective experiences, does not fully capture the complexity of wisdom-related processes (Grossmann et al., 2020). Additionally, Glück & Weststrate (2022) highlight that self-report measures of wisdom often yield only modest correlations with real-world wisdom manifestation, questioning their validity in intervention studies. Similarly, Aldwin and Igarashi (2015) argue that integrating performance-based wisdom assessments may enhance the sensitivity of interventions in tracking dynamic psychological changes. This raises concerns about whether existing self-report measures can accurately differentiate between transient self-perceptions and genuine wisdom-related change. However, the decision not to utilise standardised wisdom measures was influenced by the lack of existing measures validated for stroke populations. Additionally, using a performance-based measure may have been unfeasible in a Single-Case Experimental Design (SCED) study. This limitation underscores the need for validated, clinically applicable wisdom measures that can accurately assess changes over time and differentiate between genuine growth and transient self-perceptions.

Another methodological limitation is the sample size of the empirical study. While the SCED provided a detailed, individualised analysis, where each participant acts as their own control, the original plan for eight participants was reduced to six, and ultimately, three datasets were analysed in full. This small sample size limits generalisability and increases the likelihood that findings reflect individual variability rather than broader trends. While SCEDs offer strong internal validity, their external validity is often questioned, necessitating larger-scale replication studies.

Additionally, there was a lack of a long-term follow-up assessment, restricting conclusions about the sustainability of wisdom-related changes. While the study identified a sequential trajectory of wisdom, it remains unclear whether these gains persisted beyond the intervention period. Given that wisdom development is theorised to be an ongoing process, follow-up assessments at six months or one year could determine whether wisdom-based interventions lead to enduring psychological benefits.

In addition to methodological constraints, the structured nature of the intervention protocol may have limited participant engagement. While the use of a standardised therapy manual ensured

intervention fidelity, this approach also reflects a broader challenge in intervention research, where the scientific method prioritises manualized interventions to maximize internal validity, yet such rigid structures often reduce clinical acceptability and real-world applicability (Broomfield et al., 2011). In PSD populations, where individual recovery trajectories vary significantly, greater flexibility in intervention delivery may enhance both engagement and effectiveness. Therefore, balancing standardisation with adaptability remains a critical challenge in the development of wisdom-based therapy, requiring a framework that preserves research rigour while accommodating individual differences to improve clinical relevance.

Given that frontal and subcortical damage can impair metacognitive reflection and emotional regulation (Al Banna et al., 2016; Scott et al., 2012), there is a possibility that neurological factors, such as lesion location and cognitive reserve, may influence treatment response. While stroke recovery involves both cognitive and emotional adaptation, the extent to which wisdom-based interventions are effective across different neuropsychological profiles remains unclear.

Despite these limitations, a major strength of this thesis is its novel application of wisdom to PSD treatment, offering an alternative to traditional deficit-based approaches. While conventional therapies focus on symptom reduction, this research suggests that wisdom-based interventions may foster resilience, identity coherence, and meaning-making, representing a paradigm shift in psychological rehabilitation. The findings contribute to growing interest in positive psychology interventions, emphasising strength-based recovery models rather than pathology-focused treatments.

Furthermore, the integration of SCED methodologies provided rich, individualised insights into intervention response patterns, which are often overlooked in group-based studies. By focusing on within-person changes, this research captured the nuanced ways in which wisdom-based interventions unfold over time. This methodological strength complements existing RCT-based approaches, offering a fine-grained perspective on psychological recovery processes.

Overall, this thesis provides a strong foundation for future research by integrating theoretical, psychometric, and clinical perspectives on wisdom. The systematic review contributed to psychometric refinement, while the empirical study advanced knowledge of wisdom's role in psychological adaptation

following PSD. Bridging these perspectives enhances the translational potential of wisdom research, demonstrating its clinical relevance while identifying areas for improvement.

Future Research

This thesis highlights the potential of wisdom-based interventions for psychological recovery, yet several important research avenues remain. One of the most pressing issues is the measurement of wisdom in clinical contexts. Existing measures show substantial inconsistencies and are lacking in crucial measurement properties such as responsiveness. Unlike symptoms of depression, which can be tracked with established scales like the PHQ-9, there is currently no clinically validated measure that can assess wisdom-related change over time. This measurement gap presents a critical barrier to translating wisdom-focused interventions into routine clinical practice.

Some measures evaluate wisdom as a stable trait (Ardelt, 2003). However, the empirical study suggests that wisdom may function as a dynamic, evolving process influenced by structured reflection and autobiographical reasoning. Rather than treating wisdom as a fixed personality characteristic, future research should focus on developing state-sensitive measures that capture wisdom's fluctuations throughout therapy. Aligning such measures with COSMIN (Mokkink et al., 2024) guidelines and ensuring their clinical feasibility will be essential for their integration into psychological interventions. Furthermore, self-report measures alone may be insufficient, as wisdom is a complex, applied construct. Performance-based assessments, which evaluate how individuals apply wisdom in real-world scenarios (Grossmann et al., 2020), should be explored as complementary tools to provide a more comprehensive assessment of therapeutic change. A systematic review using COSMIN to evaluate performance-based measures would be essential.

To ensure sufficient content validity, future measures should be developed with clear theoretical constructs of wisdom. These should align with established wisdom models such as MORE (Glück & Bluck, 2013; Glück et al., 2019) or the Integrative Model of Wise Behaviour (Glück & Weststrate, 2022). These frameworks provide theoretical consistency between conceptualisations of wisdom and its empirical assessment. Additionally, refining wisdom assessments to identify individual strengths and

weaknesses could allow for personalised therapeutic strategies that adapt to each patient's wisdom-related growth trajectory.

While this thesis primarily focused on wisdom in PSD, the findings suggest that identity disruption is a common feature across various conditions, indicating broader applications for wisdom-based therapy. Future research should explore how wisdom-enhancing interventions could support individuals adjusting to major life changes, such as grief, chronic illness, trauma, or neurorehabilitation challenges (e.g., traumatic brain injury, multiple sclerosis, spinal cord injury). Given that self-continuity, autobiographical reflection, and meaning-making are central to psychological adjustment, investigating wisdom's role in these domains could help establish structured intervention frameworks that align with post-traumatic growth (PTG; Tedeschi & Calhoun, 2004).

Moreover, wisdom may function as a mediating factor in psychological adaptation beyond PSD, playing a key role in resilience and post-trauma growth across a range of identity-disrupting conditions. Future studies should explore how wisdom mediates recovery pathways, particularly in populations where traditional symptom-focused interventions may be insufficient. Understanding these mechanisms could refine clinical interventions, allowing for the development of tailored psychological treatments that integrate wisdom-building as a foundational process.

Beyond measurement and causal mechanisms, future research should refine the structure of wisdom-based interventions to optimise their impact on psychological adaptation. The empirical study demonstrated that wisdom-related changes were linked to identity coherence and emotional regulation. However, it remains unclear how to cultivate wisdom across different recovery trajectories systematically. One potential approach is to enhance and refine the Wisdom Enhancement Timeline (Laidlaw, 2021) by integrating it with established wisdom models. Since post-stroke psychological recovery involves identity disruption, emotional regulation, and meaning-making, a multidimensional model that incorporates cognitive, reflective, and affective components such as the Integrative Model of Wise Behaviour (Glück & Weststrate, 2022) could improve its suitability for clinical applications.

Additionally, future research should explore integrating the MORE model (Glück & Bluck, 2013; Glück et al., 2019) with the Y-Model (Gracey et al., 2009) to create a structured post-stroke rehabilitation

framework. The Y-Model describes how individuals navigate identity reconstruction following a neurological injury, while the MORE model highlights wisdom-related processes, such as perspective-taking and meaning-making, that may facilitate this adaptation. By embedding these wisdom-enhancing processes into rehabilitation programs, individuals could engage with wisdom-based strategies throughout recovery, not only during structured therapy sessions but also in their daily lives. This real-world application could help reinforce psychological adaptation over time, ensuring that wisdom-based interventions translate beyond the therapy setting into sustainable personal growth.

The effectiveness of wisdom-based interventions may also depend on individual differences in cognitive flexibility, self-reflection ability, and identity coherence. The empirical study revealed differing response trajectories. Some participants experienced rapid initial gains that later plateaued, while others demonstrated more gradual, sustained growth. Given that identity diffusion and unstable life purpose are linked to greater emotional distress (Ratner & Burrow, 2018), further research should examine whether these factors moderate treatment responsiveness. This could inform the development of tailored intervention strategies that maximise effectiveness for diverse psychological profiles.

Another key research area is the scalability and accessibility of wisdom-based interventions. Given the high prevalence of PSD and the limited availability of psychological therapy, developing digital or peer-supported wisdom interventions could enhance accessibility. Self-guided digital tools that provide structured reflection exercises could allow stroke survivors to engage in wisdom-enhancing practices at their own pace. Similarly, peer-supported models, where individuals recovering from stroke facilitate wisdom-based discussions, may provide a scalable alternative to therapist-led interventions. However, future research must evaluate whether these delivery methods maintain intervention fidelity and whether they can be integrated into standard rehabilitation pathways.

In addition to scalability, research should assess whether wisdom-based therapy is more effective in individual or group-based formats. Socially embedded wisdom practices, such as collective storytelling or intergenerational discussions (Glück & Weststrate, 2022), may reinforce self-reflection and identity reconstruction. Comparing group interventions with individualised therapy could clarify whether social

engagement enhances wisdom development or whether self-directed reflection remains the most effective approach.

Given that many individuals with ABI experience executive dysfunction, future studies should explore how cognitive impairments affect engagement with wisdom-based interventions and whether adapted therapeutic models are needed for these populations. A more flexible, individualised approach to Wisdom-Focused Therapy may be necessary, with therapist-guided adjustments based on cognitive flexibility and reflective capacity.

Beyond these intervention refinements, integrating wisdom-based therapy with existing resilience-focused interventions represents an important future direction. The PoPSTAR trial (Cullen et al., 2018) provides preliminary evidence for positive psychotherapy in ABI rehabilitation. However, further research is required to determine whether wisdom-based interventions provide additional or distinct benefits. A comparative study between wisdom-enhancing interventions and PoPSTAR's positive psychotherapy framework could clarify whether wisdom functions as a mechanism of psychological change or an outcome of resilience-based therapy. Since PoPSTAR reported challenges with participant engagement, wisdom-based approaches may offer alternative pathways for structuring self-reflection and perspective-taking, potentially improving adherence and long-term psychological outcomes.

Finally, cultural variability in wisdom conceptualisation remains an underexplored area in clinical psychology. While Western models of wisdom emphasise cognitive insight and rational decision-making, many traditions prioritise spiritual and communal wisdom (Ratner & Burrow, 2018). Future research should explore how wisdom interventions can be tailored to different cultural frameworks, ensuring that therapeutic approaches remain relevant across diverse populations. In cultures where intergenerational storytelling and collective wisdom are central, narrative-based interventions that foster community storytelling and shared reflection may be more effective than individual self-exploration. Investigating whether existing wisdom measures can adequately capture these diverse expressions will be crucial for adapting interventions for non-Western contexts.

By addressing these research priorities, wisdom-based interventions could gain greater clinical relevance, paving the way for their incorporation into therapeutic approaches aimed at promoting long-term psychological well-being.

Conclusion

Wisdom remains an underutilised construct in clinical psychology, even with its potential as a meaningful therapeutic tool. Despite the limitations, this thesis provides a foundation for integrating wisdom into clinical practice by highlighting its role in psychological recovery. The systematic review exposed critical gaps in measurement, while the empirical study offers preliminary evidence that wisdom enhancement could potentially be an effective approach in PSD. Its applications may extend beyond this, offering a broader framework which challenges some traditional CBT methods primarily focused on symptom reduction.

For wisdom to become a viable therapeutic approach and a construct utilised in clinical psychology, three key developments are necessary: a validated, clinically feasible wisdom measure, further research to clarify wisdom's causal role in psychological recovery and an expansion into broader domains.

By bridging the gap between rehabilitation psychology and wisdom research, this thesis lays the foundation for a more holistic approach to post-stroke recovery, recognising wisdom's role in fostering resilience, identity coherence, and long-term well-being.

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Appendices

Appendix A

Journal Author Instructions

Springer Nature – Current Psychology Submission Guidelines

Instructions for Authors

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Regular Article: This article type is limited to a maximum of 10,000 words, not including references, tables, and figures. There should be a maximum of 3-4 figures, 3-4 tables, and 40-45 references. The abstract should be between 150 and 250 words, and the manuscript should include 4-6 keywords.

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Please make sure your title page contains the following information.

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The title should be concise and informative.

Author information

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- The affiliation(s) of the author(s), i.e. institution, (department), city, (state), country
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For authors that are (temporarily) unaffiliated we will only capture their city and country of residence, not their e-mail address unless specifically requested.

Large Language Models (LLMs), such as ChatGPT, do not currently satisfy our authorship criteria. Notably an attribution of authorship carries with it accountability for the work, which cannot be effectively applied to LLMs. Use of an LLM should be properly documented in the Methods section (and if a Methods section is not available, in a suitable alternative part) of the manuscript. The use of an LLM (or other AI-tool) for "AI assisted copy editing" purposes does not need to be declared. In this context, we define the term "AI assisted copy editing" as AI-assisted improvements to human-generated texts for readability and style, and to ensure that the texts are free of errors in grammar, spelling, punctuation and tone. These AI-assisted improvements may include wording and formatting changes to the texts, but do not include generative editorial work and autonomous content creation. In all cases, there must be human accountability for the final version of the text and agreement from the authors that the edits reflect their original work.

Abstract

Please provide an abstract of 150 to 250 words. The abstract should not contain any undefined abbreviations or unspecified references.

For life science journals only (when applicable)

- Trial registration number and date of registration for prospectively registered trials
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Please provide 4 to 6 keywords which can be used for indexing purposes.

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Always use footnotes instead of endnotes.

Acknowledgments

Acknowledgments of people, grants, funds, etc. should be placed in a separate section on the title page. The names of funding organizations should be written in full.

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References

Citation

Cite references in the text by name and year in parentheses. Some examples:

- Negotiation research spans many disciplines (Thompson, 1990).
- This result was later contradicted by Becker and Seligman (1996).
- This effect has been widely studied (Abbott, 1991; Barakat et al., 1995; Kelso & Smith, 1998; Medvec et al., 1999).

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Appendix B

COSMIN Risk of Bias Tool

Box 1. Measure development

1a. Concept elicitation study

1 Was the concept elicitation study performed in a sample representing the target population for which the measure was developed?

2 Was an appropriate qualitative data collection method used to identify relevant items for a new PROM?

3 Were skilled group moderators/ interviewers used?

4 Were the group meetings or interviews based on an appropriate topic or interview guide?

5 Were the group meetings or interviews recorded and transcribed verbatim?

6 Was an appropriate approach used to analyse the data?

7 Was at least part of the data coded independently?

8 Was data collection continued until saturation was reached?

9 For quantitative studies: was the sample size appropriate?

10 Were there any other important flaws?

QUALITY OF THE STUDY *Lowest score of standards 1-10*

1b. Pilot study (cognitive interview study or other pilot test)

11 Was the pilot study performed in a sample representing the target population?

12 Were patients asked about the comprehensibility of the PROM, including instructions, items, response options, and recall period?

13 Were all items tested in their final form?

14 Was an appropriate qualitative method used?

15 Was each item tested in an appropriate number of patients?

16 Were skilled interviewers used?

17 Were the interviews based on an appropriate interview guide?

18 Were the interviews recorded and transcribed verbatim?

19 Was an appropriate approach used to analyse the data?

20 Were at least two researchers involved in the analysis?

21 Were problems regarding the comprehensibility of the measure instructions, items, response options, and recall period appropriately addressed by adapting the PROM?

22 Were there any other important flaws?

QUALITY OF THE STUDY *Lowest score of standards 11-22*

QUALITY OF THE MEASURE DEVELOPMENT *Lowest score of standards 1-22*

Box 2. Content validity

2a. Asking patient about relevance

1 Was an appropriate method used to ask patients whether each item is relevant for their experience with the condition?

2 Was each item tested in an appropriate number of patients?

3 Were skilled group moderators/interviewers used?

4 Were the group meetings or interviews based on an appropriate topic or interview guide?

5 Were the group meetings or interviews recorded and transcribed verbatim?

6 Was an appropriate approach used to analyse the data?
7 Were at least two researchers involved in the analysis?
8 Were there any other important flaws?

QUALITY OF THE STUDY *Lowest score of standards 1-8*

2b. Asking patients about comprehensiveness

9 Was an appropriate method used for assessing the comprehensiveness of the PROM?
10 Was each item tested in an appropriate number of patients?
11 Were skilled group moderators/interviewers used?
12 Were the group meetings or interviews based on an appropriate topic or interview guide?
13 Were the group meetings or interviews recorded and transcribed verbatim?
14 Was an appropriate approach used to analyse the data?
15 Were at least two researchers involved in the analysis?
16 Were there any other important flaws?

QUALITY OF THE STUDY *Lowest score of standards 9-16*

2c. Asking patients about comprehensibility

17 Was an appropriate qualitative method used for assessing the comprehensibility of the measure instructions, items, response options, and recall period?
18 Was each item tested in an appropriate number of patients?
19 Were skilled group moderators/interviewers used?
20 Were the group meetings or interviews based on an appropriate topic or interview guide?
21 Were the group meetings or interviews recorded and transcribed verbatim?
22 Was an appropriate approach used to analyse the data?
23 Were at least two researchers involved in the analysis?
24 Were there any other important flaws?

QUALITY OF THE STUDY *Lowest score of standards 17-24*

2d. Asking professionals about relevance

25 Was an appropriate method used to ask professionals whether each item is relevant for the construct of interest?
26 Were professionals from all relevant disciplines included?
27 Was each item tested in an appropriate number of professionals?
28 Was an appropriate approach used to analyse the data?
29 Were at least two researchers involved in the analysis?
30 Were there any other important flaws?

QUALITY OF THE STUDY *Lowest score of standards 25-30*

2e. Asking professionals about comprehensiveness

31 Was an appropriate method used for assessing the comprehensiveness of the PROM?
32 Were professionals from all relevant disciplines included?
33 Was each item tested in an appropriate number of professionals?
34 Was an appropriate approach used to analyse the data?
35 Were at least two researchers involved in the analysis?
36 Were there any other important flaws?

QUALITY OF THE STUDY *Lowest score of standards 31-36*

2f. Asking professionals about comprehensibility

37 Was an appropriate method used for assessing the comprehensibilitys of the PROM?
38 Were professionals from all relevant disciplines included?

39 Was the measure tested in an appropriate number of professionals?
40 Was an appropriate approach used to analyse the data?
41 Were at least two researchers involved in the analysis?
42 Were there any other important flaws?

QUALITY OF THE STUDY *Lowest score of standards 37-42*

Box 3. Structural validity

1 For CTT: Was exploratory or confirmatory factor analysis performed?
2 Was the sample size included in the analysis adequate?
3 Were there any other important flaws?

QUALITY OF THE STUDY *Lowest score of standards 1-4*

Box 4. Internal consistency

1 For continuous scores: Was Cronbach's alpha or omega calculated?
2 For dichotomous scores: Was Cronbach's alpha or KR-20 calculated?
3 Were there any other important flaws?

QUALITY OF THE STUDY *Lowest score of standards 1-4*

Box 5. Cross-cultural validity\measurement invariance

1 Were the samples similar for relevant characteristics except for the group variable?
2 Was an adequate approach used to analyse the data?
3 Was the sample size included in the analysis adequate?
4 Were there any other important flaws?

QUALITY OF THE STUDY *Lowest score of standards 1-4*

Box 6. Reliability

1 Were patients stable on the construct to be measured in the time between the repeated measurements?
2 Was the time interval between the repeated measurements appropriate?
3 Were the test conditions similar for the repeated measurements - –xcept for the condition being evaluated?
4 For continuous scores: Was the appropriate intraclass correlation coefficient (ICC) calculated?
5 For dichotomous/nOMnal/ordinal scores: Was kappa calculated?
6 For ordinal scores: Was a weighted kappa calculated?
7 Were there any other important flaws?

QUALITY OF THE STUDY *Lowest score of standards 1-7*

Box 8. Criterion validity

1 For continuous scores: Were correlations, or the area under the receiver operating curve calculated?
2 For dichotomous scores: Were sensitivity and specificity determined?
3 Were there any other important flaws?

QUALITY OF THE STUDY *Lowest score of standards 1-3*

Box 9. Hypotheses testing for construct validity

9a. Comparison with other outcome measurement instruments (convergent validity)

1 Is it clear what the comparator instrument(s) measure(s)?
2 Were the measurement properties of the comparator instrument(s) sufficient?
3 Were design and statistical methods adequate for the comparisons being made?
4 Were there any other important flaws?

QUALITY OF THE STUDY *Lowest score of standards 1-4*

9b. Comparison between subgroups (discriminative or known-groups validity)

5 Was an adequate description provided of important characteristics of the subgroups?

6 Were design and statistical methods adequate for the subgroups being compared?

7 Were there any other important flaws?

QUALITY OF THE STUDY *Lowest score of standards 5-7*

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Appendix C

PRISMA-COSMIN for Measures Checklist

Section and Topic	#	Checklist item[a]	Location
TITLE			
Title	1	Identify the report as a systematic review and include as applicable the following (in any order): outcome domain of interest, population of interest, name/type of measures of interest, and measurement properties of interest.	Page 10
ABSTRACT			
OPEN SCIENCE			
Funding[b]	2.2	Specify the primary source of funding for the review.	N/A
Registration	2.3	Provide the register name and registration number.	Page 10
BACKGROUND			
Objectives	2.4	Provide an explicit statement of the main objective(s) or question(s) the review addresses.	Page 13
METHODS			
Eligibility criteria	2.5	Specify the inclusion and exclusion criteria for the review.	Page 14
Information sources	2.6	Specify the information sources (e.g., databases, registers) used to identify studies and the date when each was last searched.	Page 14
Risk of bias	2.7	Specify the methods used to assess risk of bias in the included studies.	Page 16
Measurement properties	2.8	Specify the methods used to rate the results of a measurement property.	Page 16
Synthesis methods	2.9	Specify the methods used to present and synthesise results.	Page 16
RESULTS			
Included studies	2.10	Give the total number of measures included and study reports.	Page 17
Synthesis of results	2.11	Present the syntheses of results of measures, indicating the certainty of the evidence.	Page 24
DISCUSSION			
Limitations of evidence	2.12	Provide a brief summary of the limitations of the evidence included in the review (e.g., study risk of bias, inconsistency, and imprecision).	Page 35
Interpretation	2.13	Provide a general interpretation of the results and important implications.	Page 35
Availability of data, code, and other materials	7	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	Page 24
INTRODUCTION			

Section and Topic	#	Checklist item[a]	Location
Rationale	8	Describe the rationale for the review in the context of existing knowledge.	Page 12
Objectives	9	Provide an explicit statement of the objective(s) or question(s) the review addresses and include as applicable the following (in any order): outcome domain of interest, population of interest, name/type of measures of interest, and measurement properties of interest.	Page 13
METHODS			
Followed guidelines	10	Specify, with references, the methodology and/or guidelines used to conduct the systematic review.	Page 13
Eligibility criteria	11	Specify the inclusion and exclusion criteria for the review.	Page 14
Information sources	12	Specify all databases, registers, preprint servers, websites, organizations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	Page 13
Search strategy	13	Present the full search strategies for all databases, registers, and websites, including any filters and limits used.	Page 14
Selection process	14	Specify the methods used to decide whether a study met the inclusion criteria of the review, e.g., including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools/AI used in the process.	Page 14
Data collection process	15	Specify the methods used to collect data from reports, e.g., including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools/AI used in the process.	Page 14
Data items	16	List and define which data were extracted (e.g., characteristics of study populations and measures, measurement properties' results, and aspects of feasibility and interpretability). Describe methods used to deal with any missing or unclear information.	Page 15
Study risk of bias assessment	17	Specify the methods used to assess risk of bias in the included studies, e.g., including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools/AI used in the process.	Page 16
Measurement properties	18	Specify the methods used to rate the results of a measurement property for each individual study and for the summarised or pooled results, e.g., including how many reviewers rated each study and whether they worked independently.	Page 16
Synthesis methods	19a	Describe the processes used to decide which studies were eligible for each synthesis.	Page 16
	19b	Describe any methods used to synthesise results.	Page 16
	19c	If applicable, describe any methods used to explore possible causes of	Page 16

Section and Topic	#	Checklist item[a]	Location
		inconsistency among study results (e.g., subgroup analysis).	
	19d	If applicable, describe any sensitivity analyses conducted to assess robustness of the synthesised results.	N/A
Certainty assessment	20	Describe any methods used to assess certainty (or confidence) in the body of evidence.	Page 17
Formulating recommendations	21	If appropriate, describe any methods used to formulate recommendations regarding the suitability of measures for a particular use.	Page 17
RESULTS			
Study selection	22a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies reports included in the review, ideally using a flow diagram. If applicable, also report the final number of measures included and the number of study reports relevant to each measure. [T]	Page 17
	22b	Cite study reports that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	N/A
OM characteristics	23a	Present characteristics of each included measure, with appropriate references. [T]	Page 21
	23b	If applicable, present interpretability aspects for each included measure. [T]	N/A
	23c	If applicable, present feasibility aspects for each included measure. [T]	N/A
Study characteristics	24	Cite each included study report evaluating one or more measurement properties and present its characteristics. [T]	Page 18
Risk of bias in studies	25	Present assessments of risk of bias for each included study. [T]	Page 144
Results of individual studies	26	For all measurement properties, present for each study: (a) the reported result and (b) the rating against quality criteria, ideally using structured tables or plots. [T]	Page 156
Results of syntheses	27a	Present results of all syntheses conducted. For each measurement property of an OM, present: (a) the summarised or pooled result and (b) the overall rating against quality criteria. [T]	Page 156
	27b	If applicable, present results of all investigations of possible causes of inconsistency among study results.	N/A
	27c	If applicable, present results of all sensitivity analyses conducted to assess the robustness of the synthesised results.	N/A
Certainty of evidence	28	Present assessments of certainty (or confidence) in the body of evidence for each measurement property of an measure assessed. [T]	Page 156
Recommendations	29	If appropriate, make recommendations for suitable measures for a particular use.	Page 32
DISCUSSION			
Discussion	30a	Provide a general interpretation of the results in the context of other	Page 33

Section and Topic	#	Checklist item[a]	Location
		evidence.	
	30b	Discuss any limitations of the evidence included in the review.	Page 33
	30c	Discuss any limitations of the review processes used.	Page 33
	30d	Discuss implications of the results for practice, policy, and future research.	Page 33

[a] If an item is marked with [T], a template for data visualisation is available. These templates can be downloaded from www.prisma-cosmin.ca.

[b] Item #2.1 in the PRISMA-COSMIN for measures 2024 Abstracts checklist refers to the title. Item #2.1 in the Abstracts checklist is identical to item #1 in the Full Report checklist.

From: Elsman EBM, Mokkink LB, Terwee CB, Beaton D, Gagnier JJ, Tricco AC, et al. Guideline for reporting systematic reviews of outcome measurement instruments: PRISMA-COSMIN for OMs 2024. *Quality of Life Research* (2024), doi: https://doi.org/10.1007/s11136-024-03634-y.

Appendix D

Criteria for Good Measurement Properties

Criteria for Evaluating Measurement Properties

OM Property	Rating	Criteria
Content Validity	+	Included items are relevant for the construct, target population, and context of use, and response options and recall period are appropriate AND no key concepts are missing AND measure items and response options are appropriately worded and measure instructions, items and response options understood by the population of interest as intended
	?	Not enough information reported
	-	Included items are not relevant for the construct or target population OR Key concepts are missing OR measure items and response options are not appropriately worded or not understood by the population of interest as intended
Structural Validity	+	CTT*: EFA/PCA*: factor loadings of each item on its factor ≥0.30 AND Maximum 10% of the items have factor loadings ≥0.30 on multiple factors AND Explained variance ≥50% and structure is in line with the theory about the construct to be measured OR results on scree plot or Kaiser criterion (Eigenvalues >1) are in line with the theory about the construct to be measured CFA*: CFI* or TLI* or comparable measure >0.95 OR RMSEA* <0.06 SRMR* <0.08
	?	Not enough information reported
	-	Criteria for '+' not met
Internal Consistency	+	At least low evidence for sufficient unidimensionality** AND Cronbach's alpha ≥0.70
	?	Not enough information reported
	-	At least low-quality evidence for sufficient unidimensionality AND Cronbach's alpha <0.70

OM Property	Rating	Criteria
Cross-cultural Validity\measurement invariance	+	No important differences found between group factors (such as age, gender, language) in multiple group factor analysis
	-	Important differences between group factors
	?	Not enough information reported
Reliability	+	ICC* or (weighted) kappa or Pearson/Spearman correlation ≥0.70
	?	Not enough information reported
	-	ICC or (weighted) kappa or Pearson/Spearman correlation <0.70
Criterion Validity	+	Correlation with gold standard ≥0.70 OR AUC* ≥0.70
	?	Not enough information reported
	-	Correlation with gold standard <0.70 OR AUC <0.70
Hypothesis Testing for Construct Validity	+	≥75% of the results is in accordance with predefined hypothesis
	?	No relevant results found
	-	≥75% of the results deviates from predefined hypothesis

Note. Used with permission. From COSMIN guideline for systematic reviews of patient-reported outcome measures version 2.0. Quality of Life Research (pg. 55). Mokkink, L.B., Elsman, E.B. & Terwee, C.B. COSMIN guideline for systematic reviews of patient-reported outcome measures version 2.0. *Qual Life Res* **33**, 2929–2939 (2024). https://doi.org/10.1007/s11136-024-03761-6

*AUC = area under the curve, CFA = confirmatory factor analysis, CFI = comparative fit index, CTT = classical test theory, EFA = exploratory factor analysis, ICC = intraclass correlation coefficient, PCA = principal component analyses, RMSEA: Root Mean Square Error of Approximation, SRMR: Standardised Root Mean Residuals, TLI = Tucker-Lewis index ** Unidimensionality was assessed based on whether the summarised results of the measures' structural validity were deemed sufficient (Mokkink et al. 2024)

Appendix E

COSMIN Hypothesis Testing for Construct Validity

Hypothesis Testing for Construct Validity

	Hypotheses	Rationale
Hypothesis 1	Wisdom scores will negatively correlate with depression scores ($r \leq -.40$).	Prior findings highlight an inverse relationship between these constructs (Ardelt, 2003; Webster, 2007). Wisdom is characterised by emotional regulation, reflective thinking, and adaptive coping, which are protective against depressive symptoms.
Hypothesis 2	The Wisdom measure will have a moderate positive correlation ($r \geq .40$) with psychological well-being scales.	Prior research (Glück et al., 2013; Webster, 2007) highlight that Wisdom encompasses reflective and prosocial qualities, which are closely linked to dimensions of well-being, such as life satisfaction, purpose in life, and self-acceptance.
Hypothesis 3	Wisdom measures will have a strong positive correlation ($r \geq .60$) with another established wisdom measure.	Prior studies (Ardelt, 2003; Glück et al., 2013) indicate that different Wisdom scales capture overlapping constructs, such as cognitive, reflective, and affective dimensions of wisdom.
Hypothesis 4	The Wisdom measure will have a moderate positive correlation ($r \geq .40$) with mastery/self-efficacy.	Wisdom's cognitive and reflective dimensions foster self-regulation, resilience, and problem-solving, which are integral to self-efficacy. This threshold aligns with findings from Glück et al. (2013).

Hypothesis Testing for Construct Validity Results

Reference	Results			Convergent Validity	
	OM	Comparator instrument	Construct measured	Observed correlation	Result (+ / -)
Ardelt (2003)	3D-WS	Center for Epidemiological Studies Depression Scale (CES-D)	Depression	-.59	+
Ardelt (2003)	3D-WS	Mastery Scale	Mastery/Self-efficacy	.63	+
Ardelt (2003)	3D-WS	General Well-Being Schedule (GWBS)	Psychological well-being	.45	+
Ardelt (2003)	3D-WS	Purpose in Life Test (PIL)	Psychological well-being (Purpose)	.61	+
Thomas et al. (2017)	3D-WS	SAWS	Wisdom	.33	-
Taylor et al. (2011)	3D-WS	Psychological Well-Being Scale (PWB)	Psychological well-being	.644	+
Taylor et al. (2011)	3D-WS	SAWS	Wisdom	.33	-
Glück et al. (2013)	3D-WS	PWB	Psychological well-being	.41	+
Glück et al. (2013)	3D-WS	Self-Efficacy Scale (SES)	Self-efficacy	.33	-
Glück et al. (2013)	3D-WS	Emotional Competence Questionnaire (ECQ)	Emotional competence (self/others)	.63 (self), .48 (others)	2 +
Number of results in accordance with hypotheses (e.g. 3+, 2-)					6+; 3-
Thomas et al. (2017)	3D-WS-12	Patient Health Questionnaire (PHQ-9)	Depression	-.37	-
Thomas et al. (2017)	3D-WS-12	Satisfaction with Life Scale (SLS)	Psychological well-being	.33	-
Thomas et al. (2017)	3D-WS-12	Personal Mastery Scale (PMS)	Mastery/Self-efficacy	.52	+
Thomas et al. (2019)	3D-WS-12	PHQ-9	Depression	Not specified	?
Thomas et al. (2019)	3D-WS-12	SF-36 Mental Component	Psychological Well-Being	Positive but not specified	?

Reference	Results			Convergent Validity	
	OM	Comparator instrument	Construct measured	Observed correlation	Result (+ / -)
Thomas et al. (2019)	3D-WS-12	CES-D Happiness Scale	Happiness	Positive but not specified	?
Thomas et al. (2019)	3D-WS-12	SLS	Life Satisfaction	Positive but not specified	?
Thomas et al. (2019)	3D-WS-12	SD-WISE	Wisdom	.45	+
Thomas et al. (2019)	3D-WS-12	SAWS-40	Wisdom	.44	+
Number of results in accordance with hypotheses (e.g. 3+, 2-)					3+; 2-
Boumpouli et al. (2021)	PWS	Personal Growth scale of Psychological Well-Being Scales	Personal Growth	.59	+
Boumpouli et al. (2021)	PWS	Parenting Self-Efficacy	Self-efficacy	.61	+
Boumpouli et al. (2021)	PWS	BWSS	Wisdom	.7	+
Number of results in accordance with hypotheses (e.g. 3+, 2-)					3+
Bushlack et al. (2018)	CWA	Depression and Stress (DASS 21)	Depression	-.48	+
Bushlack et al. (2018)	CWA	BWSS	Wisdom	-.42	-
Bushlack et al. (2018)	CWA	Freiburg Mindfulness Inventory	Mindfulness	-.55	-
Number of results in accordance with hypotheses (e.g. 3+, 2-)					1+; 2-
Taylor et al. (2011)	SAWS-40	PWB	Psychological well-being	.455	+
Thomas et al. (2019)	SAWS-40	PHQ-9	Depression	Not specified	?
Thomas et al. (2019)	SAWS-40	SF-36 Mental Component	Psychological Well-Being	Positive but not specified	?
Thomas et al. (2019)	SAWS-40	CES-D Happiness Scale	Happiness	Positive but not specified	?
Thomas et al. (2019)	SAWS-40	SLS	Life Satisfaction	Positive but not specified	?
Thomas et al. (2019)	SAWS-40	SD-WISE	Wisdom	.47	+
Thomas et al. (2019)	SAWS-40	3D-WS-12	Wisdom	.44	+

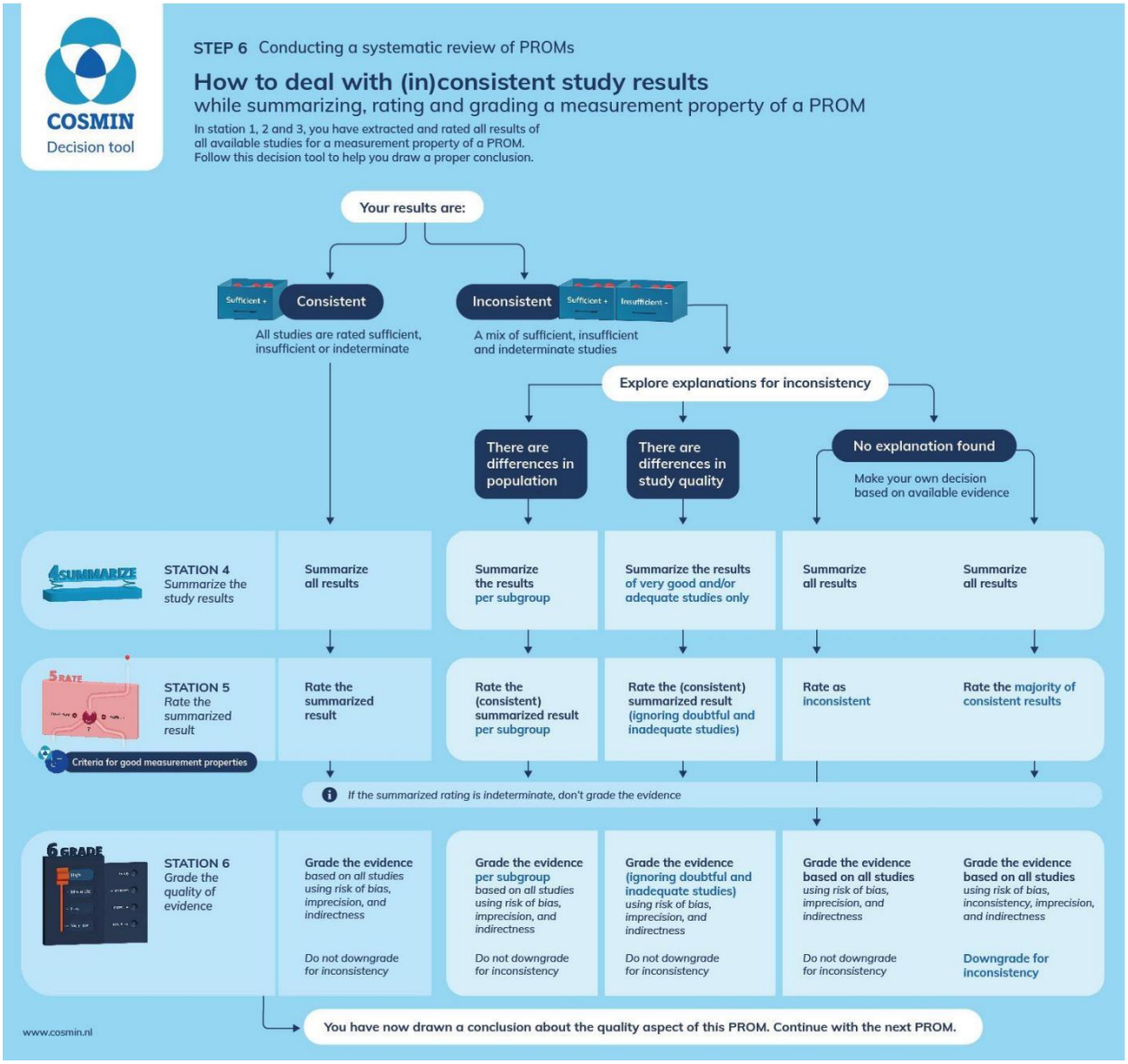
Reference		Results		Convergent Validity	
	OM	Comparator instrument	Construct measured	Observed correlation	Result (+ / -)
Glück et al. (2013)	SAWS-40	PWB	Psychological well-being	.28	-
Glück et al. (2013)	SAWS-40	SES	Self-efficacy	.38	-
Glück et al. (2013)	SAWS-40	ECQ	Emotional competence (self/others)	.31 (self) .45 (others)	1-;1+
Number of results in accordance with hypotheses (e.g. 3+, 2-)					3+; 3-
Thomas et al. (2019)	SD-WISE	PHQ-9	Depression	-.08	-
Thomas et al. (2019)	SD-WISE	SF-36 Mental Component	Psychological Well-Being	Positive but not specified	?
Thomas et al. (2019)	SD-WISE	CES-D Happiness Scale	Happiness	Positive but not specified	?
Thomas et al. (2019)	SD-WISE	SLS	Life Satisfaction	Positive but not specified	?
Thomas et al. (2019)	SD-WISE	SD-WISE	Wisdom	.47	+
Thomas et al. (2019)	SD-WISE	3D-WS-12	Wisdom	.45	+
Thomas et al. (2019)	SD-WISE	PMS	Mastery/Self-efficacy	.23	-
Number of results in accordance with hypotheses (e.g. 3+, 2-)					2+; 2-
Jeste et al. (2021)	JWTI	PHQ-2	Depression	-.488	+
Jeste et al. (2021)	JWTI	SF-12	Mental Well-being	.527	+
Jeste et al. (2021)	JWTI	Connor-Davidson Resilience Scale (CD-RISC)	Resilience	.617	+
Jeste et al. (2021)	JWTI	CES-D Happiness Scale	Happiness	.54	+
Jeste et al. (2021)	JWTI	CES-D Item 8	Hopefulness	.458	+
Thomas et al. (2022)	JWTI	PHQ-2	Depression	-.49	+
Thomas et al. (2022)	JWTI	MOS short form-12 (SF-12)	Psychological Well-being	.53	+
Thomas et al. (2022)	JWTI	CD-RISC	Mastery/self-efficacy	.6	+

Reference		Results		Convergent Validity	
	OM	Comparator instrument	Construct measured	Observed correlation	Result (+ / -)
Number of results in accordance with hypotheses (e.g. 3+, 2-)					8+
Thomas et al. (2022)	SD-WISE-7	PHQ-2	Depression	-.45	+
Thomas et al. (2022)	SD-WISE-7	SF-12	Psychological Well-being	.49	+
Thomas et al. (2022)	SD-WISE-7	CD-RISC	Mastery/self-efficacy	.56	+
Number of results in accordance with hypotheses (e.g. 3+, 2-)					3+
Fung et al. (2020a)	BSAWS	Geriatric Depression Scale (GDS)	Depression	−.345	-
Fung et al. (2020a)	BSAWS	Personal Well-being Index (PWI)	Well-being	.347	-
Fung et al. (2020a)	BSAWS	WDS	Self-esteem	.357	-
Fung et al. (2020a)	BSAWS	Rosenberg Self-Esteem (RSE) scale	Wisdom	.741	+
Number of results in accordance with hypotheses (e.g. 3+, 2-)					1+;3-
Fung et al. (2020b)	BWDS	GDS	Depression	-.43	+
Fung et al. (2020b)	BWDS	PWI	Well-being	.43	+
Fung et al. (2020b)	BWDS	RSE	Self-esteem	.45	+
Fung et al. (2020b)	BWDS	SAWS	Wisdom	.75	+
Number of results in accordance with hypotheses (e.g. 3+, 2-)					4+
Glück et al. (2013)	BWSS	PWB	Psychological Well-Being	.32	-
Glück et al. (2013)	BWSS	SAWS	Wisdom	.6	+
Glück et al. (2013)	BWSS	3D-WS	Wisdom	.75	+
Glück et al. (2013)	BWSS	SES	Mastery/Self-Efficacy	.44	+
Number of results in accordance with hypotheses (e.g. 3+, 2-)					3+;1-

Reference		Results		Convergent Validity	
	OM	Comparator instrument	Construct measured	Observed correlation	Result (+ / -)
Fung et al. (2020b)	WDS-2	GDS	Depression	-.44	+
Fung et al. (2020b)	WDS-2	PWI	Well-being	.46	+
Fung et al. (2020b)	WDS-2	RSE	Self-esteem	.47	+
Fung et al. (2020b)	WDS-2	SAWS	Wisdom	.76	+
Number of results in accordance with hypotheses (e.g. 3+, 2-)					4+
Flebus et al. (2021)	WADES	BWSS	Wisdom	.22	-
Flebus et al. (2021)	WADES	Post-Traumatic Growth Inventory (PTGI)	Post-traumatic growth	.3	-
Number of results in accordance with hypotheses (e.g. 3+, 2-)					2-
Jason et al. (2001)	FVS (Spirituality)	CES-D	Depression	.18	-
Number of results in accordance with hypotheses (e.g. 3+, 2-)					1-

Appendix F

COSMIN Guidelines to dealing with (In)consistent Study Results



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Appendix G

Study Populations and Risk of Bias Ratings

Characteristics of the Included Articles and Study Type and Risk of Bias Ratings

Measure / Study Type	Reference	Country	Setting	Sample Characteristics			RoB Rating*	Reason
				Mean Age	Gender (Male/Female)	Size		
Measure Development								
3D-WS	Ardelt (2003)	United States	Community	Not Reported		5	Inadequate	Study not performed in sample representing population
3D-WS-12	Ardelt (2003)	United States	Community	Not Reported		5	Inadequate	Study not performed in sample representing population
FVS	Jason et al. (2001)	United States	Not Reported	38	19% / 81%	43	Adequate	Only assumable that interviews were transcribed and analysed appropriately
WDS	Brown (2004)	United States	College	Not reported		10	Very Good	Meets all COSMIN criteria
WADES	Flebus et al. (2021)	Italy	University	Not reported	28% / 72%	212	Doubtful	Study not performed in sample representing population

Measure / Study Type	Reference	Country	Setting	Sample Characteristics			RoB Rating*	Reason
				Mean Age	Gender (Male/Female)	Size		
Pilot Test								
3D-WS	Ardelt (2003)	United States	Community	Not Reported		9	Doubtful	Unclear if skilled interviewers were used or if interview was based on a guide, transcribed and analysed appropriately
AWS	Perry et al. (2002)	United States	School	Not Reported		12	Doubtful	Only quantitative methods used, unclear if skilled interviewers were used & if analysed appropriately
PWS	Boumpouli et al. (2021)	Greece	Not reported	Not Reported		10	Doubtful	Only quantitative methods used, unclear if skilled interviewers were used & if analysed appropriately
CWA	Bushlack & Bock (2018)	United States	Not reported	Not reported	44% / 66%	18	Inadequate	Patients were not asked about the comprehensibility of all items & not clear if all items were tested in their final form

Measure / Study Type	Reference	Country	Setting	Sample Characteristics			RoB Rating*	Reason
				Mean Age	Gender (Male/Female)	Size		
MWS	Schmit et al. (2012)	United States	Not reported	Not Reported		3	Inadequate	Not performed in sample representing population, Patients were not asked about the comprehensibility of all items & not clear if all items were tested in their final form
Content Validity								
3D-WS	Ardelt (2003)	United States	Community	Not Reported		40	Inadequate	Patients not asked about the relevance of all items
3D-WS-12	Ardelt (2003)	United States	Community	Not Reported		40	Inadequate	Patients not asked about the relevance of all items
WDS	Brown et al. (2006)	United States	University	Not Reported		24	Very Good	Meets all COSMIN RoB criteria
Structural Validity								
3D-WS	Ardelt (2003)	United States	Community	71	27% / 73%	180	Inadequate	Sample size inadequate
3D-WS	Ardelt (2003)	United States	Community	Not reported		123	Inadequate	Sample size inadequate
3D-WS	Taylor et al. (2011)	Australia	Online	36.60	35% / 65%	176	Inadequate	Sample size inadequate
3D-WS	Thomas et al. (2017)	United States	Community	66	51% / 49%	1546	Very Good	Meets all COSMIN RoB criteria
3D-WS-12	Thomas et al. (2017)	United States	Community	66	51% / 49%	1546	Very Good	Meets all COSMIN RoB criteria

Measure / Study Type	Reference	Country	Setting	Sample Characteristics			RoB Rating*	Reason
				Mean Age	Gender (Male/Female)	Size		
AWS	Perry et al. (2002)	United States	School	17.9	47% / 53%	2027	Doubtful	Only PCA used
FVS	Jason et al. (2001)	United States	College	19	31% / 69%	243	Doubtful	Only PCA used
FVS-7	Jason et al. (2004)	United States	Community	24.02	Not reported	373	Doubtful	Only PCA used
FVS-16	DiGangi et al. (2013)	United States	Recovery Centres	38.8	100% female	194	Very Good	Meets all COSMIN RoB criteria
SD-WISE	Thomas et al. (2019)	United States	University	58	48.7% / 51.3%	524	Very Good	Meets all COSMIN RoB criteria
JWTI	Jeste et al. (2021)	United States	Online Survey	46.3	55% / 45%	1786	Very Good	Meets all COSMIN RoB criteria
SD-WISE-7	Thomas et al. (2022)	United States	Online Survey	46.3	45% / 55%	1786	Very Good	Meets all COSMIN RoB criteria
PWS	Boumpouli et al. (2021)	Greece	Community	46.63	30.7% / 69.3%	137	Inadequate	Sample size inadequate
PWS	Boumpouli et al. (2021)	Greece	Community	45.35	47.1% / 52.9%	312	Very Good	Meets all COSMIN RoB criteria
SAWS	Webster (2003)	Canada	College	28.5	32.7% / 67.3%	266	Doubtful	Only PCA used
SAWS-40	Webster (2007)	Canada	University	42.77	42.7% / 57.3%	171	Inadequate	Sample size inadequate

Measure / Study Type	Reference	Country	Setting	Sample Characteristics			RoB Rating*	Reason
				Mean Age	Gender (Male/Female)	Size		
SAWS-40	Taylor et al. (2011)	Australia	Online	36.60	35% / 65%	176	Inadequate	Sample size inadequate
SAWS-40	Leeman et al. (2022)	Australia	Online Survey	Not Reported	22.5% / 77.5%	356	Very Good	Meets all COSMIN Criteria
SAWS-40	Leeman et al. (2022)	Australia	Online Survey	Not Reported	21% / 79%	353	Adequate	EFA used
SAWS-15	Leeman et al. (2022)	Australia	Online Survey	Not Reported	22.5% / 77.5%	356	Very Good	Meets all COSMIN RoB criteria
BSAWS	Fung et al. (2020a)	China	Community	72.8	25.5% / 74.5%	157	Very Good	Meets all COSMIN RoB criteria
WDS	Brown et al. (2006)	United States	University	21.1	32.6% / 60.7%	1188	Very Good	Meets all COSMIN RoB criteria
WDS-2	Green & Brown (2009)	United States	University	34.1	32.9% / 66.8%	2715	Very Good	Meets all COSMIN RoB criteria
WDS-2	Green & Brown (2009)	United States	University	21.2	40.5% / 59.5%	338	Very Good	Meets all COSMIN RoB criteria
WDS-2	Green & Brown (2009)	United States	University	21.2	33.7% / 66.3%	3053	Very Good	Meets all COSMIN RoB criteria
BWDS	Fung et al. (2020b)	China	Community	72.55	25.5% / 74.5%	153	Very Good	Meets all COSMIN RoB criteria
MWS	Schmit et al. (2012)	United States	University	22.68	47% / 53%	289	Very Good	Meets all COSMIN RoB criteria
WADES	Flebus et al. (2021)	Italy	University	31.15	34.8% / 65.2%	1777	Adequate	EFA used

Measure / Study Type	Reference	Country	Setting	Sample Characteristics			RoB Rating*	Reason
				Mean Age	Gender (Male/Female)	Size		
Internal Consistency								
3D-WS	Ardelt (2003)	United States	Community	71	27% / 73%	180	Very Good	Meets all COSMIN Criteria
3D-WS	Ardelt (2003)	United States	Community	Not reported	Not reported	123	Very Good	Meets all COSMIN Criteria
3D-WS	Thomas et al. (2017)	United States	Community	66	51% / 49%	1546	Very Good	Meets all COSMIN Criteria
3D-WS	Thomas et al. (2017)	United States	Community	Not reported	Not reported	865	Very Good	Meets all COSMIN Criteria
3D-WS	Thomas et al. (2017)	United States	Community	Not reported	Not reported	681	Very Good	Meets all COSMIN Criteria
3D-WS	Benedikovičová & Ardelt (2008)	United States	University	20	24.8% / 75.2%	339	Very Good	Meets all COSMIN Criteria
3D-WS	Ardelt (2010)	United States	University	Not reported	31% / 69%	477	Very Good	Meets all COSMIN Criteria
3D-WS	Ardelt (2010)	United States	Social Groups	71	27% / 73%	178	Very Good	Meets all COSMIN Criteria
3D-WS-12	Thomas et al. (2017)	United States	Community	66	51% / 49%	1546	Very Good	Meets all COSMIN Criteria
3D-WS-12	Thomas et al. (2017)	United States	Community	Not reported		865	Very Good	Meets all COSMIN Criteria
3D-WS-12	Thomas et al. (2017)	United States	Community	Not reported		681	Very Good	Meets all COSMIN Criteria

Measure / Study Type	Reference	Country	Setting	Sample Characteristics			RoB Rating*	Reason
				Mean Age	Gender (Male/Female)	Size		
3D-WS-12	Thomas et al. (2019)	United States	Community	58	49% / 51%	524	Very Good	Meets all COSMIN Criteria
AWS	Perry et al. (2002)	United States	School	17.9	47% / 53%	2027	Very Good	Meets all COSMIN Criteria
FVS	Jason et al. (2001)	United States	College	19	31% / 69%	243	Very Good	Meets all COSMIN Criteria
FVS-7	Jason et al. (2004)	United States	Community	24.02	Not reported	373	Very Good	Meets all COSMIN Criteria
FVS-16	DiGangi et al. (2013)	United States	Recovery Centres	38.8	100% female	194	Very Good	Meets all COSMIN Criteria
SD-WISE	Thomas et al. (2019)	United States	University	58	48.7% / 51.3%	524	Very Good	Meets all COSMIN Criteria
JWTI	Jeste et al. (2021)	United States	Online Survey	46.3	55% / 45%	1786	Very Good	Meets all COSMIN Criteria
JWTI	Thomas et al. (2022)	United States	Online Survey	46.3	45% / 55%	1786	Very Good	Meets all COSMIN Criteria
SD-WISE-7	Thomas et al. (2022)	United States	Online Survey	46.3	45% / 55%	1786	Very Good	Meets all COSMIN Criteria
PWS	Boumpouli et al. (2021)	Greece	Community	46.63	30.6% / 69.4%	137	Very Good	Meets all COSMIN Criteria
PWS	Boumpouli et al. (2021)	Greece	Community	45.35	47.2% / 52.9%	312	Very Good	Meets all COSMIN Criteria
SAWS	Webster (2003)	Canada	College	28.5	32.7% / 67.3%	266	Very Good	Meets all COSMIN Criteria

Measure / Study Type	Reference	Country	Setting	Sample Characteristics			RoB Rating*	Reason
				Mean Age	Gender (Male/Female)	Size		
SAWS	Webster (2003)	Canada	College	28.5	45.9% / 54.1%	85	Very Good	Meets all COSMIN Criteria
SAWS-40	Webster (2007)	Canada	University	42.77	42.7% / 57.3%	171	Very Good	Meets all COSMIN Criteria
SAWS-40	Taylor et al. (2011)	Australia	Online	36.60	35% / 65%	176	Very Good	Meets all COSMIN Criteria
SAWS-40	Leeman et al. (2022)	Australia	Online Survey	35.67	22% / 78%	709	Very Good	Meets all COSMIN Criteria
SAWS-40	Thomas et al. (2019)	Australia	Community	58	49% / 51%	524	Very Good	Meets all COSMIN Criteria
SAWS-40	Webster (2010)	Canada	Community	22	31.1% / 68.9%	61	Very Good	Meets all COSMIN Criteria
SAWS-40	Webster (2010)	Canada	Community	21.7	46.8% / 53.2%	62	Very Good	Meets all COSMIN Criteria
SAWS-15	Leeman et al. (2022)	Australia	Online Survey	35.67	22% / 78%	709	Very Good	Meets all COSMIN Criteria
BSAWS	Fung et al. (2020a)	China	Community	72.8	25.5% / 75%	157	Very Good	Meets all COSMIN Criteria
WDS	Brown et al. (2006)	United States	University	21.1	32.6% / 60.7%	1188	Very Good	Meets all COSMIN Criteria
WDS-2	Green & Brown (2009)	United States	University	34.1	32.9% / 66.8%	2715	Very Good	Meets all COSMIN Criteria

Measure / Study Type	Reference	Country	Setting	Sample Characteristics			RoB Rating*	Reason
				Mean Age	Gender (Male/Female)	Size		
WDS-2	Green & Brown (2009)	United States	University	21.2	40.5% / 59.5%	338	Very Good	Meets all COSMIN Criteria
BWDS	Fung et al. (2020b)	China	Community	72.55	25.5% / 74.5%	153	Very Good	Meets all COSMIN Criteria
BWSS	Glück et al. (2013)	Austria	Wisdom NOMnee	60.9	51.1% / 49.9%	47	Very Good	Meets all COSMIN Criteria
BWSS	Glück et al. (2013)	Austria	Control Group	60	45.5% / 54.5%	123	Very Good	Meets all COSMIN Criteria
BWSS	Bushlack & Bock (2018)	United States	Online Survey	Not reported	62% / 38%	153	Very Good	Meets all COSMIN Criteria
CWA	Bushlack & Bock (2018)	United States	Online Survey	Not reported	62% / 38%	153	Very Good	Meets all COSMIN Criteria
CWA	Bushlack & Bock (2018)	United States	Online Survey	Not reported	62% / 38%	166	Very Good	Meets all COSMIN Criteria
MWS	Schmit et al. (2012)	United States	University	22.68	47% / 53%	289	Very Good	Meets all COSMIN Criteria
WADES	Flebus et al. (2021)	Italy	University	31.1	34.8% / 65.2%	1777	Very Good	Meets all COSMIN Criteria
Cross-cultural Validity/Measurement Invariance								
SAWS-15	Leeman et al. (2022)	Australia	Online Survey	Not reported		81	Doubtful	Significant difference in sample size across groups compared.

Measure / Study Type	Reference	Country	Setting	Sample Characteristics			RoB Rating*	Reason
				Mean Age	Gender (Male/Female)	Size		
SAWS-15	Leeman et al. (2022)	Australia	Online Survey	Not reported		396	Doubtful	Significant difference in sample size across groups compared.
SAWS-15	Leeman et al. (2022)	Australia	Online Survey	Not reported		190	Doubtful	Significant difference in sample size across groups compared.
SAWS-15	Leeman et al. (2022)	Australia	Online Survey	Not reported		42	Doubtful	Significant difference in sample size across groups compared.
WDS-2	Green & Brown (2009)	United States	University	34.1	32.9% / 66.8%	2715	Doubtful	Significant difference in sample size across groups compared.
WDS-2	Green & Brown (2009)	United States	University	21.2	40.5% / 59.5%	338	Doubtful	Significant difference in sample size across groups compared.
Reliability								
3D-WS	Ardelt (2003)	United States	Community	Not reported		123	Adequate	Only assumable that patients were stable
FVS	Jason et al. (2001)	United States	College (Psychology Class)	Not reported		44	Adequate	Only assumable that patients were stable
SAWS-40	Webster (2007)	Canada	University	42.77	42.7% / 57.3%	171	Adequate	Only assumable that patients were stable
Criterion Validity								
3D-WS-12	Thomas et al. (2017)	United States	Community	66	51% / 49%	1546	Very Good	Meets all COSMIN Criteria

Measure / Study Type	Reference	Country	Setting	Sample Characteristics			RoB Rating*	Reason
				Mean Age	Gender (Male/Female)	Size		
SD-WISE-7	Thomas et al. (2022)	United States	Online Survey	46.3	45% / 55%	1786	Very Good	Meets all COSMIN Criteria
Hypothesis Testing								
3D-WS	Ardelt (2003)	United States	Community	71	27% / 73%	167	Very Good	Meets all COSMIN Criteria
3D-WS	Thomas et al. (2017)	United States	Community	66	51% / 49%	1546	Very Good	Meets all COSMIN Criteria
3D-WS	Taylor et al. (2011)	Australia	Online	36.60	35% / 65%	176	Very Good	Meets all COSMIN Criteria
3D-WS	Glück et al. (2013)	Austria	Control Group Sample	60	45.5% / 54.45	123	Very Good	Meets all COSMIN Criteria
3D-WS-12	Thomas et al. (2017)	United States	Community	66	51% / 49%	1546	Very Good	Meets all COSMIN Criteria
3D-WS-12	Thomas et al. (2019)	United States	University	58	48.7% / 51.3%	524	Very Good	Meets all COSMIN Criteria
SD-WISE	Thomas et al. (2019)	United States	University	58	48.7% / 51.3%	524	Very Good	Meets all COSMIN Criteria
JWTI	Thomas et al. (2022)	United States	Online Survey	46.3	55% / 45%	1786	Very Good	Meets all COSMIN Criteria
JWTI	Jeste et al. (2021)	United States	Online Survey	46.3	45% / 55%	1786	Very Good	Meets all COSMIN Criteria
SD-WISE-7	Thomas et al. (2022)	United States	Online Survey	46.3	45% / 55%	1786	Very Good	Meets all COSMIN Criteria
SAWS-40	Taylor et al. (2011)	Australia	Online	36.60	35% / 65%	176	Very Good	Meets all COSMIN Criteria
SAWS-40	Glück et al. (2013)	Australia	Control Group Sample	60	45.5% 54.5%	123	Very Good	Meets all COSMIN Criteria

Measure / Study Type	Reference	Country	Setting	Sample Characteristics			RoB Rating*	Reason
				Mean Age	Gender (Male/Female)	Size		
PWS	Boumpouli et al. (2021)	Greece	Community	45.35	47.1% / 52.9%	312	Very Good	Meets all COSMIN Criteria
BWDS	Fung et al. (2020b)	China	Community	72.55	25.5% / 74.5%	153	Very Good	Meets all COSMIN Criteria
BSAWS	Fung et al. (2020a)	China	Community	72.8	25.5% / 74.5%	157	Very Good	Meets all COSMIN Criteria
BWSS	Glück et al. (2013)	Austria	Control Group Sample	60	45.5% / 54.5%	123	Very Good	Meets all COSMIN Criteria
WDS-2	Green & Brown (2009)	United States	University	21.2	33.7% / 66.3%	3053	Very Good	Meets all COSMIN Criteria
WDS-2	Fung et al. (2020b)	China	Community	72.55	25.5% / 74.5%	153	Very Good	Meets all COSMIN Criteria
CWA	Bushlack & Bock (2018)	United States	Online Survey	Not reported	62% / 38%	166	Very Good	Meets all COSMIN Criteria
WADES	Flebus et al. (2021)	Italy	University	31.15	34.8% / 65.2%	1777	Very Good	Meets all COSMIN Criteria
FVS	Jason et al. (2001)	United States	College	19	31% / 69%	243	Very Good	Meets all COSMIN Criteria

Note. *Very Good indicates that the study fully met all the criteria for quality, providing robust and conclusive evidence. Adequate suggests that the study met most of the quality criteria, with minor limitations that do not significantly affect the conclusions. Doubtful implies that there is insufficient or unclear evidence to determine whether the criteria for quality were met. Inadequate indicates that the study did not meet the minimum requirements for quality in the specified domain, with significant methodological concerns.

Appendix H

Synthesised Results and Quality of Evidence

Quality of the evidence for Content Validity, Structural Validity and Internal Consistency

Measure	Content Validity						Structural Validity			Internal Consistency Cronbach's Alpha		
	Relevance		Comprehensiveness		Comprehensibility							
	Rating	GRADE	Rating	GRADE	Rating	GRADE	Results	Rating	GRADE	Results	Rating	GRADE
3D-WS	+	Very Low	+	Very Low	+	Very Low	CFA: CFI, TLI < .95, RMSEA > .06	-	Moderate	.66-.85, no evidence unidimensionality	?	
3D-WS: Cognitive Scale	+	Very Low	+	Very Low	+	Very Low				.68-.87, no evidence unidimensionality	?	
3D-WS: Reflective Scale	+	Very Low	+	Very Low	+	Very Low				.68-.75, no evidence unidimensionality	?	
3D-WS: Affective Scale	+	Very Low	+	Very Low	+	Very Low				.68-.74, no evidence unidimensionality	?	
3D-WS-12	+	Very Low	+	Very Low	+	Very Low	CFA: CFI, TLI < .95, RMSEA > .06	-	High	.73-.74, evidence supports unidimensionality.	+	High

Measure	Content Validity						Structural Validity			Internal Consistency Cronbach's Alpha		
	Relevance		Comprehensiveness		Comprehensibility							
	Rating	GRADE	Rating	GRADE	Rating	GRADE	Results	Rating	GRADE	Results	Rating	GRADE
3D-WS-12: Cognitive Scale	+	Very Low	+	Very Low	+	Very Low				.62-.63, evidence supports unidimensionality.	-	High
3D-WS-12: Reflective Scale	+	Very Low	+	Very Low	+	Very Low				.62-.63, evidence supports unidimensionality.	-	High
3D-WS-12: Affective Scale	+	Very Low	+	Very Low	+	Very Low				.62-.63, evidence supports unidimensionality.	-	High
AWS: Total Scale	?		?		+	Low	PCA: loadings > .30, Explained Variance not reported.	?		.92, no evidence supporting unidimensionality	?	
AWS: Harmony Scale	+	Very Low	+	Very Low	+	Low				.87, no evidence supporting unidimensionality	?	
AWS: Intelligence Scale	+	Very Low	+	Very Low	+	Low				.83, no evidence supporting unidimensionality	?	
AWS: Spirituality Scale	+	Very Low	+	Very Low	+	Low				.79, no evidence supporting unidimensionality	?	

Measure	Content Validity						Structural Validity			Internal Consistency Cronbach's Alpha		
	Relevance		Comprehensiveness		Comprehensibility							
	Rating	GRADE	Rating	GRADE	Rating	GRADE	Results	Rating	GRADE	Results	Rating	GRADE
FVS: Total Scale	?		?		+	Very Low	PCA: Loadings > .30. Cross loadings: < 10%. Explained Variance: < 50%	-	Low	.86, no evidence supporting unidimensionality	?	
FVS: Harmony Subscale	+	Low	+	Low	+	Very Low				.78, no evidence supporting unidimensionality	?	
FVS: Warmth Subscale	+	Low	+	Low	+	Very Low				.62, no evidence supporting unidimensionality	?	
FVS: Intelligence Subscale	+	Low	+	Low	+	Very Low				.68, no evidence supporting unidimensionality	?	
FVS: Nature Subscale	+	Low	+	Low	+	Very Low				.69, no evidence supporting unidimensionality	?	
FVS: Spirituality Subscale	+	Low	+	Low	+	Very Low				.73, no evidence supporting unidimensionality	?	

Measure	Content Validity						Structural Validity			Internal Consistency Cronbach's Alpha		
	Relevance		Comprehensiveness		Comprehensibility							
	Rating	GRADE	Rating	GRADE	Rating	GRADE	Results	Rating	GRADE	Results	Rating	GRADE
FVS-7: Total Scale	?		?		+	Very Low	PCA: loadings: > .30. Crossloadings: not reported. Explained Variance: >50%	?				
FVS-7: Balance & Harmony Scale	+	Very Low	+	Very Low	+	Very Low				.77, no evidence supporting unidimensionality	?	
FVS-7: Flow Scale	+	Very Low	+	Very Low	+	Very Low				.60, no evidence supporting unidimensionality	?	
FVS-7: Spirituality Scale	+	Very Low	+	Very Low	+	Very Low				.72, no evidence supporting unidimensionality	?	
FVS-7: Warmth Scale	+	Very Low	+	Very Low	+	Very Low				.57, no evidence supporting unidimensionality	?	
FVS-7: Care for Environment Scale	?		?		+	Very Low				.82, no evidence supporting unidimensionality	?	

Measure	Content Validity						Structural Validity			Internal Consistency Cronbach's Alpha		
	Relevance		Comprehensiveness		Comprehensibility							
	Rating	GRADE	Rating	GRADE	Rating	GRADE	Results	Rating	GRADE	Results	Rating	GRADE
FVS-7: Appreciation Scale	?		?		+	Very Low				.63, no evidence supporting unidimensionality	?	
FVS-7: Intelligence Scale	+	Very Low	+	Very Low	+	Very Low				.50, no evidence supporting unidimensionality	?	
FVS-16: Total Scale	?		?		+	Very Low	CFA: CFI > .95, RMSEA < .06	+	High			
FVS-16: Spirituality Subscale	+	Very Low	+	Very Low	+	Very Low				.86, evidence supports unidimensionality.	+	High
FVS-16: Intelligence Subscale	+	Very Low	+	Very Low	+	Very Low				.8, evidence supports unidimensionality	+	High
FVS-16: Relational/Nature Subscale	+	Very Low	+	Very Low	+	Very Low				.75, evidence supports unidimensionality	+	High
SD-WISE: Total Scale	+	Very Low	+	Very Low	+	Very Low	CFA: CFI, TLI < .95, RMSEA > .06	-	High	.72, no evidence supporting unidimensionality	?	

Measure	Content Validity						Structural Validity			Internal Consistency Cronbach's Alpha		
	Relevance		Comprehensiveness		Comprehensibility							
	Rating	GRADE	Rating	GRADE	Rating	GRADE	Results	Rating	GRADE	Results	Rating	GRADE
SD-WISE: Social Advising Scale	+	Very Low	+	Very Low	+	Very Low				Not Reported		
SD-WISE: Emotional Regulation Scale	+	Very Low	+	Very Low	+	Very Low				Not Reported		
SD-WISE: Pro-social Behaviors Scale	+	Very Low	+	Very Low	+	Very Low				Not Reported		
SD-WISE: Insight Scale	+	Very Low	+	Very Low	+	Very Low				Not Reported		
SD-WISE: Tolerance for Divergent Values Scale	+	Very Low	+	Very Low	+	Very Low				Not Reported		
SD-WISE: Decisiveness Scale	+	Very Low	+	Very Low	+	Very Low				Not Reported		
JWTI: Total Scale	+	Very Low	+	Very Low	+	Very Low	CFA: CFI, TLI > .95	+	High			

Measure	Content Validity						Structural Validity			Internal Consistency Cronbach's Alpha		
	Relevance		Comprehensiveness		Comprehensibility							
	Rating	GRADE	Rating	GRADE	Rating	GRADE	Results	Rating	GRADE	Results	Rating	GRADE
JWTI: Social Advising Scale	+	Very Low	+	Very Low	+	Very Low				.74-.84, evidence supports unidimensionality	+	High
JWTI: Emotional Regulation Scale	+	Very Low	+	Very Low	+	Very Low				Not Reported		
JWTI: Pro-Social Behaviours Scale	+	Very Low	+	Very Low	+	Very Low				Not Reported		
JWTI: Self-reflection Scale	+	Very Low	+	Very Low	+	Very Low				Not Reported		
JWTI: Tolerance for Divergent Values Scale	+	Very Low	+	Very Low	+	Very Low				Not Reported		
JWTI: Decisiveness Scale	+	Very Low	+	Very Low	+	Very Low				Not Reported		
JWTI: Spirituality Scale	+	Very Low	+	Very Low	+	Very Low				Not Reported		

Measure	Content Validity						Structural Validity			Internal Consistency Cronbach's Alpha		
	Relevance		Comprehensiveness		Comprehensibility							
	Rating	GRADE	Rating	GRADE	Rating	GRADE	Results	Rating	GRADE	Results	Rating	GRADE
SD-WISE-7	+	Very Low	+	Very Low	+	Very Low	CFA: CFI, TLI < .95, RMSEA > .06	-	High	.74, no evidence supporting unidimensionality	?	
PWS: Total Scale	+	Very Low	+	Very Low	+	Low	CFA: GFI > .95	+	High	.87-.88, evidence supports unidimensionality	+	High
PWS: Reflection	+	Very Low	+	Very Low	+	Low				.87-.88, evidence supports unidimensionality	+	High
PWS: Perspective Change	+	Very Low	+	Very Low	+	Low				.87-.88, evidence supports unidimensionality	+	High
PWS: Emotion Regulation	+	Very Low	+	Very Low	+	Low				.85, evidence supports unidimensionality	+	High
PWS: Learning From Life Experiences	+	Very Low	+	Very Low	+	Low				.76-.81, evidence supports unidimensionality	+	High

Measure	Content Validity						Structural Validity			Internal Consistency Cronbach's Alpha		
	Relevance		Comprehensiveness		Comprehensibility							
	Rating	GRADE	Rating	GRADE	Rating	GRADE	Results	Rating	GRADE	Results	Rating	GRADE
SAWS: Total Scale	+	Very Low	+	Very Low	+	Very Low	PCA: loadings > .30, cross-loadings & explained variance not reported.	?		.78-.87, no evidence supporting unidimensionality	?	
SAWS: Experience Scale	+	Very Low	+	Very Low	+	Very Low				Not Reported		
SAWS: Emotional Regulation Scale	+	Very Low	+	Very Low	+	Very Low				Not Reported		
SAWS: Reminiscence/ Reflection Scale	+	Very Low	+	Very Low	+	Very Low				Not Reported		
SAWS: Humour Scale	+	Very Low	+	Very Low	+	Very Low				Not Reported		
SAWS: Openness Scale	+	Very Low	+	Very Low	+	Very Low				Not Reported		

Measure	Content Validity						Structural Validity			Internal Consistency Cronbach's Alpha		
	Relevance		Comprehensiveness		Comprehensibility							
	Rating	GRADE	Rating	GRADE	Rating	GRADE	Results	Rating	GRADE	Results	Rating	GRADE
SAWS-40: Total Scale	+	Very Low	+	Very Low	+	Very Low	CFA: CFI, GFI, TLI < .95 RMSEA > .05 SRMR > .08	-	High	.79-.94, no evidence supporting unidimensionality	?	
SAWS-40: Experience Scale	+	Very Low	+	Very Low	+	Very Low				.78-.79, no evidence supporting unidimensionality	?	
SAWS-40: Emotional Regulation Scale	+	Very Low	+	Very Low	+	Very Low				.78-.79, no evidence supporting unidimensionality	?	
SAWS-40: Reminiscence/Reflection Scale	+	Very Low	+	Very Low	+	Very Low				.78-.79, no evidence supporting unidimensionality	?	
SAWS-40: Humour Scale	+	Very Low	+	Very Low	+	Very Low				.78-.79, no evidence supporting unidimensionality	?	
SAWS-40: Openness Scale	+	Very Low	+	Very Low	+	Very Low				.78-.79, no evidence supporting unidimensionality	?	
SAWS-15: Total Scale	+	Very Low	+	Very Low	+	Very Low	CFA: CFI, GFI, TLI < .95 RMSEA > .06 SRMR > .08	-	High	.8, no evidence supporting unidimensionality	?	

Measure	Content Validity						Structural Validity			Internal Consistency Cronbach's Alpha		
	Relevance		Comprehensiveness		Comprehensibility							
	Rating	GRADE	Rating	GRADE	Rating	GRADE	Results	Rating	GRADE	Results	Rating	GRADE
SAWS-15: Experiences Scale	+	Very Low	+	Very Low	+	Very Low				.73, no evidence supporting unidimensionality	?	
SAWS-15: Emotional Regulation Scale	+	Very Low	+	Very Low	+	Very Low				0.85, no evidence supporting unidimensionality	?	
SAWS-15: Reminiscence/Reflection Scale	+	Very Low	+	Very Low	+	Very Low				.74, no evidence supporting unidimensionality	?	
SAWS-15: Humour Scale	+	Very Low	+	Very Low	+	Very Low				.72, no evidence supporting unidimensionality	?	
SAWS-15: Openness Scale	+	Very Low	+	Very Low	+	Very Low				.56, no evidence supporting unidimensionality	?	
BSAWS	+	Very Low	+	Very Low	+	Very Low	CFA: CFI, TLI > .95 RMSEA, SRMR < .08	+	High	.808, evidence supports unidimensionality	+	High

Measure	Content Validity						Structural Validity			Internal Consistency Cronbach's Alpha		
	Relevance		Comprehensiveness		Comprehensibility							
	Rating	GRADE	Rating	GRADE	Rating	GRADE	Results	Rating	GRADE	Results	Rating	GRADE
WDS: Total Scale	+	High	+	High	+	High	CFA: RMSEA < .06	+	High			
WDS: Self-knowledge Scale	+	High	+	High	+	High				.963, evidence supports unidimensionality	+	High
WDS: Altruism Scale	+	High	+	High	+	High				.874, evidence supports unidimensionality	+	High
WDS: Inspirational Engagement Scale	+	High	+	High	+	High				.877, evidence supports unidimensionality	+	High
WDS: Judgment Scale	+	High	+	High	+	High				.843, evidence supports unidimensionality	+	High
WDS: Life Knowledge Scale	+	High	+	High	+	High				.878, evidence supports unidimensionality	+	High
WDS: Life Skills Scale	+	High	+	High	+	High				.875, evidence supports unidimensionality	+	High

Measure	Content Validity						Structural Validity			Internal Consistency Cronbach's Alpha		
	Relevance		Comprehensiveness		Comprehensibility							
	Rating	GRADE	Rating	GRADE	Rating	GRADE	Results	Rating	GRADE	Results	Rating	GRADE
WDS: Emotional Management Scale	+	High	+	High	+	High				.843, evidence supports unidimensionality	+	High
WDS-2: Total Scale	+	Very Low	+	Very Low	+	Very Low	Older adults & Full population CFA: RMSEA < .06 / Student Population: CFA: <.95	+ / -	High	.928-.93, evidence supports unidimensionality	+	High
WDS-2: Self-knowledge Scale	+	Very Low	+	Very Low	+	Very Low				.93-.96, evidence supports unidimensionality	+	High
WDS-2: Altruism Scale	+	Very Low	+	Very Low	+	Very Low				.88-.92, evidence supports unidimensionality	+	High
WDS-2: Leadership Scale	+	Very Low	+	Very Low	+	Very Low				.86-.87, evidence supports unidimensionality	+	High
WDS-2: Judgment Scale	+	Very Low	+	Very Low	+	Very Low				.85-.88, evidence supports unidimensionality	+	High

Measure	Content Validity						Structural Validity			Internal Consistency Cronbach's Alpha		
	Relevance		Comprehensiveness		Comprehensibility							
	Rating	GRADE	Rating	GRADE	Rating	GRADE	Results	Rating	GRADE	Results	Rating	GRADE
WDS-2: Life Knowledge Scale	+	Very Low	+	Very Low	+	Very Low				.86-.87, evidence supports unidimensionality	+	High
WDS-2: Life Skills Scale	+	Very Low	+	Very Low	+	Very Low				.85-.86, evidence supports unidimensionality	+	High
WDS-2: Emotional Management Scale	+	Very Low	+	Very Low	+	Very Low				0.84-0.85, evidence supports unidimensionality	+	High
WDS-2: Willingness to Learn Scale	+	Very Low	+	Very Low	+	Very Low				.7-.73, evidence supports unidimensionality	+	High
BWDS: Total Scale	+	Very Low	+	Very Low	+	Very Low	CFA: CFI, TLI > .95	+	High	.93, evidence supports unidimensionality	+	High
BWDS: Self-knowledge Scale	+	Very Low	+	Very Low	+	Very Low				.77, evidence supports unidimensionality	+	High
BWDS: Interpersonal Understanding Scale	+	Very Low	+	Very Low	+	Very Low				.7, evidence supports unidimensionality	+	High

Measure	Content Validity						Structural Validity			Internal Consistency Cronbach's Alpha		
	Relevance		Comprehensiveness		Comprehensibility							
	Rating	GRADE	Rating	GRADE	Rating	GRADE	Results	Rating	GRADE	Results	Rating	GRADE
BWDS: Judgment Scale	+	Very Low	+	Very Low	+	Very Low				.82, evidence supports unidimensionality	+	High
BWDS: Life Knowledge Scale	+	Very Low	+	Very Low	+	Very Low				.82, evidence supports unidimensionality	+	High
BWDS: Life Skills Scale	+	Very Low	+	Very Low	+	Very Low				.74, evidence supports unidimensionality	+	High
BWDS: Willingness to Learn Scale	+	Very Low	+	Very Low	+	Very Low				.86, evidence supports unidimensionality	+	High
BWSS	?		+	Very Low	+	Very Low				.84-.87, no evidence supporting unidimensionality	?	
CWA: Total Scale	+	Very Low	+	Very Low	+	Very Low				.78, no evidence supporting unidimensionality	?	
CWA: Avoidance Scale	+	Very Low	+	Very Low	+	Very Low				.69, no evidence supporting unidimensionality	?	

Measure	Content Validity						Structural Validity			Internal Consistency Cronbach's Alpha		
	Relevance		Comprehensiveness		Comprehensibility							
	Rating	GRADE	Rating	GRADE	Rating	GRADE	Results	Rating	GRADE	Results	Rating	GRADE
CWA: Attachment Scale	+	Very Low	+	Very Low	+	Very Low				.69, no evidence supporting unidimensionality	?	
CWA: Pride Scale	+	Very Low	+	Very Low	+	Very Low				.70, no evidence supporting unidimensionality	?	
CWA: Shame Scale	+	Very Low	+	Very Low	+	Very Low				.73, no evidence supporting unidimensionality	?	
MWS: Reflective Scale	+	Very Low	+	Very Low	+	Very Low	CFA: RMSEA < .06	+	High	.78, evidence supports unidimensionality	+	High
MWS: Openness Scale	+	Very Low	+	Very Low	+	Very Low	CFA: RMSEA < .06	+	High	.79, evidence supports unidimensionality	+	High
MWS: Interactional Scale	+	Very Low	+	Very Low	+	Very Low	CFA: RMSEA < .06	+	High	.78, evidence supports unidimensionality	+	High
MWS: Practical Scale	+	Very Low	+	Very Low	+	Very Low	CFA: RMSEA < .06	+	High	.81, evidence supports unidimensionality	+	High

Measure	Content Validity						Structural Validity			Internal Consistency Cronbach's Alpha		
	Relevance		Comprehensiveness		Comprehensibility							
	Rating	GRADE	Rating	GRADE	Rating	GRADE	Results	Rating	GRADE	Results	Rating	GRADE
MWS: Paradoxical Tolerance Scale	+	Very Low	+	Very Low	+	Very Low	Formative Scale, therefore, not applicable			Formative Scale, see Note		
MWS: Experience Scale	+	Very Low	+	Very Low	+	Very Low	Formative Scale, therefore, not applicable			Formative Scale, see Note		
WADES	+	Very Low	+	Very Low	+	Very Low	EFA: 1st factor: eigenvalue large, item loadings: min .307, max .496, mean .397; scree plot supports 1 factor solution.	+	Moderate	.827, evidence supports unidimensionality	+	High

Quality of the evidence for Cross-cultural Validity, Reliability, Criterion Validity and Hypothesis Testing for Construct Validity

	Cross-cultural Validity			Reliability			Criterion Validity			Hypothesis Testing		
Measure	**Results**	**Rating**	**GRADE**	**Results**	**Rating**	**GRADE**	**Results**	**Rating**	**GRADE**	**Results**	**Rating**	**GRADE**
3D-WS				0.7	+	Moderate				54.54% aligned	±	High
3D-WS-12				0.7	+	High				60% aligned	±	High
3D-WS-12: Cognitive Scale				0.52	-	High						
3D-WS-12: Reflective Scale				0.57	-	High						
3D-WS-12: Affective Scale				0.53	-	High						
FVS: Total Scale				0.62	-	Moderate						
FVS: Spirituality Subscale										0% aligned	-	High
SD-WISE: Total Scale										50% aligned	±	High
JWTI: Total Scale										100% aligned	+	High
SD-WISE-7				0.92	+	High				100% aligned	+	High
PWS: Total Scale										100% aligned	+	High

	Cross-cultural Validity			Reliability			Criterion Validity			Hypothesis Testing		
Measure	**Results**	**Rating**	**GRADE**	**Results**	**Rating**	**GRADE**	**Results**	**Rating**	**GRADE**	**Results**	**Rating**	**GRADE**
SAWS-40: Total Scale				0.838 – 0.84	+	High				50% aligned	±	High
SAWS-15: Total Scale	No differences between groups	+	High									
BSAWS										25% aligned	-	High
WDS-2: Total Scale	No differences between groups	+	High							100% aligned	+	High
BWDS: Total Scale										100% aligned	+	High
BWSS										75% aligned	+	High
CWA: Total Scale										33.33% aligned	-	High
WADES										0% aligned	-	High

Appendix I

Empirical Paper SCRIBE Checklist

Item number	Topic	Item description	Page
		TITLE and ABSTRACT	
1	Title	Identify the research as a single-case experimental design in the title	48
2	Abstract	Summarise the research question, population, design, methods including intervention/s (independent variable/s) and target behaviour/s and any other outcome/s (dependent variable/s), results, and conclusions	49
		INTRODUCTION	
3	Scientific Background	Describe the scientific background to identify issue/s under analysis, current scientific knowledge, and gaps in that knowledge base	53
4	Aims	State the purpose/aims of the study, research question/s, and, if applicable, hypotheses	53
		METHODS	
		DESIGN	
5	Design	Identify the design (e.g., withdrawal/reversal, multiple-baseline, alternating-treatments, changing-criterion, some combination thereof, or adaptive design) and describe the phases and phase sequence (whether determined a priori or data-driven) and, if applicable, criteria for phase change	53
6	Procedural changes	Describe any procedural changes that occurred during the course of the investigation after the start of the study	53
7	Replication	Describe any planned replication	N/A
8	Randomisation	State whether randomisation was used, and if so, describe the randomisation method and the elements of the study that were randomised.	56
9	Blinding	State whether blinding/masking was used, and if so, describe who was blinded/masked	56
		PARTICIPANT/S or UNIT/S	
10	Selection criteria	State the inclusion and exclusion criteria, if applicable, and the method of recruitment	54
11	Participant characteristics	For each participant, describe the demographic characteristics and clinical (or other) features relevant to the research question, such that anonymity is ensured	59
		CONTEXT	

12	Setting	Describe characteristics of the setting and location where the study was conducted	56
	APPROVAL		
13	Ethics	State whether ethics approval was obtained and indicate if and how informed consent and/or assent were obtained	56
		MEASURES and MATERIALS	
14	Measures	Operationally define all target behaviours and outcome measures, describe reliability and validity, state how they were selected, and how and when they were measured	54
15	Equipment	Clearly describe any equipment and/or materials (e.g., technological aids, biofeedback, computer programs, intervention manuals or other material resources) used to measure target behaviour/s and other outcome/s or deliver the interventions	56
		INTERVENTIONS	
16	Intervention	Describe intervention and control condition in each phase, including how and when they were actually administered, with as much detail as possible to facilitate attempts at replication	55
17	Procedural fidelity	Describe how procedural fidelity was evaluated in each phase	55
		ANALYSIS	
18	Analyses	Describe and justify all methods used to analyse data	57
		RESULTS	
19	Sequence completed	For each participant, report the sequence actually completed, including the number of trials for each session for each case. For participant/s who did not complete, state when they stopped and the reasons	58
20	Outcomes and estimation	For each participant, report results, including raw data, for each target behaviour and other outcome/s	60
21	Adverse events	State whether or not any adverse events occurred for any participant and the phase in which they occurred	60
		DISCUSSION	
22	Interpretation	Summarise findings and interpret the results in the context of current evidence	67
23	Limitations	Discuss limitations, addressing sources of potential bias and imprecision	70
24	Applicability	Discuss applicability and implications of the study findings	71

Appendix J

HRA Approval Letter

Mr Ercan Hassan
Trainee Clinical Psychologist
Cambridgeshire and Peterborough NHS Foundation
Trust
Elizabeth House
Fulbourn Hospital, Cambridge Road
Cambridge
CB21 5EF

Email: approvals@hra.nhs.uk
HCRW.approvals@wales.nhs.uk

Dear Mr Hassan

HRA and Health and Care Research Wales (HCRW) Approval Letter

Study title:	**A Single Case Experiment Design Investigating Wisdom Enhancement to Augment CBT Outcomes for Depression in Post-Stroke Populations**
IRAS project ID:	**335191**
Protocol number:	**n/a**
REC reference:	**24/YH/0055**
Sponsor	**UEA Research Sponsor**

I am pleased to confirm that **HRA and Health and Care Research Wales (HCRW) Approval** has been given for the above referenced study, on the basis described in the application form, protocol, supporting documentation and any clarifications received. You should not expect to receive anything further relating to this application.

Please now work with participating NHS organisations to confirm capacity and capability, in line with the instructions provided in the "Information to support study set up" section towards the end of this letter.

How should I work with participating NHS/HSC organisations in Northern Ireland and Scotland?

HRA and HCRW Approval does not apply to NHS/HSC organisations within Northern Ireland and Scotland.

If you indicated in your IRAS form that you do have participating organisations in either of these devolved administrations, the final document set and the study wide governance report (including this letter) have been sent to the coordinating centre of each participating nation. The relevant national coordinating function/s will contact you as appropriate.

Please see IRAS Help for information on working with NHS/HSC organisations in Northern Ireland and Scotland.

How should I work with participating non-NHS organisations?

HRA and HCRW Approval does not apply to non-NHS organisations. You should work with your non-NHS organisations to obtain local agreement in accordance with their procedures.

What are my notification responsibilities during the study?

The standard conditions document "*After Ethical Review – guidance for sponsors and investigators*", issued with your REC favourable opinion, gives detailed guidance on reporting expectations for studies, including:

- Registration of research •

Notifying amendments

- Notifying the end of the study

The HRA website also provides guidance on these topics, and is updated in the light of changes in reporting expectations or procedures.

Who should I contact for further information?

Please do not hesitate to contact me for assistance with this application. My contact details are below.

Your IRAS project ID is **335191**. Please quote this on all correspondence.

Yours sincerely,
Anna Bannister

Approvals Specialist

Email: approvals@hra.nhs.uk

Copy to: *Ms Lindsey Harding*

List of Documents

The final document set assessed and approved by HRA and HCRW Approval is listed below.

Document	*Version*	*Date*
Evidence of Sponsor insurance or indemnity (non NHS Sponsors only) [Indemnity Insurance Cover Letter]	1.0	12 February 2024
GP/consultant information sheets or letters [GP Letter informing of Participant participation]	1.0	30 September 2023
Interview schedules or topic guides for participants [Study Procedure - Checklist]	1.0	19 March 2024
IRAS Application Form [IRAS_Form_15022024]		15 February 2024
IRAS Checklist XML [Checklist_09042024]		09 April 2024
Laboratory Manual [Wisdom Enhancement Timeline Technique Workbook]	3.0	21 November 2023
Non-validated questionnaire [Measure Pack - 2week baseline - horizontal]	2.0	26 March 2024
Non-validated questionnaire [Measure Pack - 2week baseline - Vertical]	2.0	26 March 2024
Non-validated questionnaire [Measure Pack - 3week baseline - horizontal]	3.0	26 March 2024
Non-validated questionnaire [Measure Pack - 3week baseline - vertical]	3.0	26 March 2024
Non-validated questionnaire [Measure Pack - 4week baseline - horizontal]	3.0	26 March 2024
Non-validated questionnaire [Measure Pack - 4week baseline - vertical]	3.0	26 March 2024
Non-validated questionnaire [Visual Analogue Scale]		30 September 2023
Organisation Information Document	3.0	
Other [Response Incomplete Response Email]		
Other [Participant Demographic Information]		23 April 2024
Other [Participant Identification Sheet]		26 March 2024
Other [Consent to Contact Form]	1.0	26 March 2024
Participant consent form [Participant Consent Form]	2	19 March 2024
Participant information sheet (PIS) [Participant Information Sheet]	2.0	04 April 2024
Referee's report or other scientific critique report [Thesis Proposal Feedback]	4.0 5.0	04 April 2024 12 July 2023
Research protocol or project proposal [Research Protocal]	1.0	26 March 2024
	3.0	
Response to Request for Further Information [Response to Request for Further Information]		08 April 2024
Schedule of Events or SoECAT [Schedule of Events]	1.1	13 February 2024
Summary CV for Chief Investigator (CI) [Chief Research CV]	2.0	09 February 2024
Summary CV for supervisor (student research) [Supervisor CV]	1.0	30 September 2023
Summary CV for supervisor (student research) [Supervisor CV]	1.0	01 December 2023
Summary of any applicable exclusions to sponsor insurance (non-NHS sponsors only) [UEA EL&PL]	1.0	12 February 2024
Validated questionnaire [PHQ-9]	1.0	30 September 2023

IRAS project ID	335191

Information to support study set up

The below provides all parties with information to support the arranging and confirming of capacity and capability with participating NHS organisations in England and Wales. This is intended to be an accurate reflection of the study at the time of issue of this letter.

Types of participating NHS	Expectations related to confirmation of capacity and capability	Agreement to be used	Funding arrangements	Oversight expectations	HR Good Practice Resource Pack expectations
organisation Research activities and procedures as per the protocol and other study documents will take place at participating NHS organisations.	Research activities should not commence at participating NHS organisations in England or Wales prior to their formal confirmation of capacity and capability to deliver the study in accordance with the contracting expectations detailed. Due to the nature of the activities involved, organisations will be expected to provide that confirmation to the sponsor Within **35 days** of receipt of the local information pack After	An Organisation Information Document has been submitted and the sponsor is not requesting and does not expect any other agreement to be used with participating NHS organisations of this type.	Study funding arrangements are detailed in the Organisation Information Document.	A Local Collaborator should be appointed at participating NHS organisations.	Where an external individual who does not already hold an NHS employment contract will be conducting any of the research activities that will be undertaken at this site type then they would be expected to hold an Honorary Research Contract. External staff holding pre-existing NHS employment contracts should obtain a Letter of Access. These should confirm Occupational Health Clearance. These should confirm standard DBS checks and appropriate barred list checks

Outlook

IRAS PROJECT ID 335191, REC Reference 24/YH/0055 Confirmation of favourable opinion for substantial amendment

From southyorks.rec@hra.nhs.uk <noreply@harp.org.uk>
Date Tue 24/09/2024 16:26
To Jason Hassan (MED - Postgraduate Researcher) <Ercan.Hassan@uea.ac.uk>; Research Sponsor <researchsponsor@uea.ac.uk>
Cc southyorks.rec@hra.nhs.uk <southyorks.rec@hra.nhs.uk>

1 attachment (126 KB)
IRAS 335191 Favourable opinion of a substantial amendment 24Sep2024.pdf;

Dear Mr Hassan

IRAS project ID:	335191
REC reference:	24/YH/0055
Short Study title:	Wisdom Enhancement to Augment CBT for Post-Stroke Depression
Date complete amendment submission received:	02 September 2024
Amendment No./ Sponsor Ref:	SA 01
Amendment Date:	02 September 2024
Amendment Type:	**Substantial**
Outcome of HRA Assessment	**This email also constitutes HRA and HCRW Approval for the amendment, and you should not expect anything further.**

I am pleased to confirm that this amendment has been reviewed by the Research Ethics Committee and has received a Favourable Opinion. Please find attached a copy of the Favourable Opinion letter.

HRA and HCRW Approval Status

As detailed above, **this email also constitutes HRA and HCRW Approval for the amendment**. No separate confirmation of HRA and HCRW Approval will be issued.

User Feedback

The Health Research Authority is continually striving to provide a high quality service to all applicants and sponsors. You are invited to give your view of the service you have received and the application procedure. If you wish to make your views known please use the feedback form available on the HRA website: http://www.hra.nhs.uk/about-the-hra/governance/quality-assurance/.

If you require further information, please contact me.

Kind regards

Nicki Allott
NHSBT Newcastle Blood Donor Centre | Holland Drive | HRA Newcastle | NE2 4NQ
E. southyorks.rec@hra.nhs.uk
W. www.hra.nhs.uk

Sign up to receive our newsletter HRA Latest.

Appendix K

REC Approval Letter

NHS
Health Research Authority

NHSBT Newcastle Blood Donor Centre
Holland Drive Newcastle upon Tyne NE2
4NQ

Yorkshire & The Humber - South Yorkshire Research Ethics Committee

Please note: This is the favourable opinion of the REC only and does not allow you to start your study at NHS sites in England until you receive HRA Approval

02 May 2024

Mr Ercan Hassan
Trainee Clinical Psychologist
Cambridgeshire and Peterborough NHS Foundation
Trust Elizabeth House
Fulbourn Hospital, Cambridge
Road Cambridge
CB21 5EF

Dear Mr Hassan

Study title:	**A Single Case Experiment Design Investigating Wisdom Enhancement to Augment CBT Outcomes for Depression in Post-Stroke Populations**
REC reference:	**24/YH/**
Protocol number:	**0055**
IRAS project ID:	**n/a**
	335191

Good practice principles and responsibilities

The UK Policy Framework for Health and Social Care Research sets out principles of good practice in the management and conduct of health and social care research. It also outlines the responsibilities of individuals and organisations, including those related to the four elements of research transparency:

1. registering research studies 2. reporting results
3. informing participants
4. sharing study data and tissue

Conditions of the favourable opinion

The REC favourable opinion is subject to the following conditions being met prior to the start of the study.

Confirmation of Capacity and Capability (in England, Northern Ireland and Wales) or NHS management permission (in Scotland) should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements. Each NHS organisation must confirm through the signing of agreements and/or other documents that it has given permission for the research to proceed (except where explicitly specified otherwise).

Guidance on applying for HRA and HCRW Approval (England and Wales)/ NHS permission for research is available in the Integrated Research Application System.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of management permissions from host organisations

Registration of Clinical Trials

All research should be registered in a publicly accessible database and we expect all researchers, research sponsors and others to meet this fundamental best practice standard.

It is a condition of the REC favourable opinion that **all clinical trials are registered** on a public registry before the first participant is recruited and no later than six weeks after. For this purpose, 'clinical trials' are defined as:

- clinical trial of an investigational medicinal product
- clinical investigation or other study of a medical device
- combined trial of an investigational medicinal product and an investigational medical device
- other clinical trial to study a novel intervention or randomised clinical trial to compare interventions in clinical practice.

A 'public registry' means any registry on the WHO list of primary registries or the ICMJE list of registries provided the registry facilitates public access to information about the UK trial.

Failure to register a clinical trial is a breach of these approval conditions, unless a deferral has been agreed by the HRA (for more information on registration and requesting a deferral see: Research registration and research project identifiers).

Where a deferral is agreed we expect the sponsor to publish a minimal record on a publicly accessible registry. When the deferral period ends, the sponsor should publish the full record on the same registry, to fulfil the condition of the REC favourable opinion.

If you have not already included registration details in your IRAS application form you should notify the REC of the registration details as soon as possible.

Where the study is registered on ClinicalTrials.gov, please inform deferrals@hra.nhs.uk and the Research Ethics Committee (REC) which issued the final ethical opinion so that our records can be updated.

Publication of Your Research Summary

We will publish your research summary for the above study on the research summaries section of our website, together with your contact details, no earlier than three months from the date of this favourable opinion letter. Where a deferral is agreed, a minimum research summary will still be published in the research summaries database. At the end of the deferral period, we will publish the full research summary.

Should you wish to provide a substitute contact point, make a request to defer, or require further information, please visit: Research summaries - Health Research Authority (hra.nhs.uk)

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

After ethical review: Reporting requirements

The attached document "After ethical review – guidance for researchers" gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol • Progress and safety reports
- Notifying the end of the study, including early termination of the study • Final report
- Reporting results

The latest guidance on these topics can be found at Managing your approval - Health Research Authority (hra.nhs.uk)

Ethical review of research sites

NHS/HSC sites

The favourable opinion applies to all NHS/HSC sites taking part in the study, subject to confirmation of Capacity and Capability (in England, Northern Ireland and Wales) or management permission (in Scotland) being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	*Version*	*Date*
Evidence of Sponsor insurance or indemnity (non NHS Sponsors only) [Indemnity Insurance Cover Letter]	1.0	12 February 2024
GP/consultant information sheets or letters [GP Letter informing of Participant participation]	1.0	30 September 2023
Interview schedules or topic guides for participants [Study Procedure - Checklist]	1.0	19 March 2024
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Summary CV for supervisor (student research) [Supervisor CV]	1.0	01 December 2023
Summary of any applicable exclusions to sponsor insurance 1.0 (non-NHS sponsors only) [UEA EL&PL]	1.0	12 February 2024
Validated questionnaire [PHQ-9]	1.0	30 September 2023

Statement of compliance

The Committee is fully compliant with the Regulations as they relate to ethics committees and the conditions and principles of good clinical practice.

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

User Feedback

The Health Research Authority is continually striving to provide a high quality service to all applicants and sponsors. You are invited to give your view of the service you have received and the application procedure. If you wish to make your views known please use the feedback form available on the HRA website: Quality assurance - Health Research Authority (hra.nhs.uk)

HRA Learning

We are pleased to welcome researchers and research staff to our HRA Learning Events and online learning opportunities– see details at: Learning - Health Research Authority (hra.nhs.uk)

IRAS project ID: 335191	**Please quote this number on all correspondence**

With the Committee's best wishes for the success of this project.

Yours sincerely

Dr Louise
Taylor Chair

Email:southyorks.rec@hra.nhs.uk

Enclosures: **After ethical review guidance for sponsors and investigators – Non CTIMP Standard Conditions of Approval]**

Copy to: Ms Lindsey Harding

NHSBT Newcastle Blood Donor Centre Holland Drive
Newcastle upon Tyne NE2 4NQ

Yorkshire & The Humber - South Yorkshire Research Ethics Committee

Please note: This is the favourable opinion of the REC only and does not allow the amendment to be implemented at NHS sites in England until the outcome of the HRA assessment has been confirmed.

24 September 2024

Mr Ercan Hassan
Trainee Clinical Psychologist
Cambridgeshire and Peterborough NHS Foundation Trust
Elizabeth House
Fulbourn Hospital
Cambridge Road
Cambridge
CB21 5EF

Dear Mr Hassan

Study title:	**A Single Case Experiment Design Investigating Wisdom Enhancement to Augment CBT Outcomes for Depression in Post-Stroke Populations**
REC reference:	**24/YH/0055**
Protocol number:	**n/a**
Amendment number:	**SA 01**
Amendment date:	**02 September 2024**
IRAS project ID:	**335191**

The above amendment was reviewed by the Sub-Committee in correspondence.

Ethical opinion

The members of the Committee taking part in the review gave a favourable ethical opinion of the amendment on the basis described in the notice of amendment form and supporting documentation.

Approved documents

The documents reviewed and approved at the meeting were:

Document	*Version*	*Date*
Completed Amendment Tool [Ammendment Tool]	1.0	02 September 2024
Non-validated questionnaire [Measure+Pack+-+4week+baseline+-+horizontal TC.docx]	3.0	30 August 2024
Non-validated questionnaire [Measure Pack - 2week baseline - horizontal]	3.0	30 August 2024
Non-validated questionnaire [Measure Pack - 2week baseline - vertical]	3.0	30 August 2024
Non-validated questionnaire [Measure Pack - 3week baseline - horizontal]	3.0	30 August 2024
Non-validated questionnaire [Measure+Pack+-+4week+baseline+-+vertical TC.docx]	3.0	30 August 2024
Non-validated questionnaire [Measure+Pack+-+2week+baseline+-+horizontal TC.docx]	3.0	30 August 2024
Non-validated questionnaire [Measure+Pack+-+2week+baseline+-+vertical TC.docx]	3.0	30 August 2024
Non-validated questionnaire [Measure+Pack+-+3week+baseline+-+horizontal TC.docx]	3.0	30 August 2024
Non-validated questionnaire [Measure+Pack+-+3week+baseline+-+vertical TC.docx]	3.0	30 August 2024
Non-validated questionnaire [Measure Pack - 3week baseline - vertical]	3.0	30 August 2024
Non-validated questionnaire [Measure Pack - 4week baseline - horizontal]	3.0	30 August 2024
Non-validated questionnaire [Measure Pack - 4week baseline - vertical]	3.0	30 August 2024
Participant information sheet (PIS) [Participant Information Sheet]	6.0	30 August 2024
Participant information sheet (PIS) [Participant+Information+Sheet TC.docx]	6.0	19 March 2024
Research protocol or project proposal [Thesis+Protocol+JH TC v4 30Aug2024.docx]	4.0	30 August 2024
Research protocol or project proposal [Protocol]	4.0	30 August 2024

Membership of the Committee

The members of the Committee who took part in the review are listed on the attached sheet.

Working with NHS Care Organisations

Sponsors should ensure that they notify the R&D office for the relevant NHS care organisation of this amendment in line with the terms detailed in the categorisation email issued by the lead nation for the study.

Amendments related to COVID-19

We will update your research summary for the above study on the research summaries section of our website. During this public health emergency, it is vital that everyone can promptly identify all relevant research related to COVID-19 that is taking place globally. If you have not already done so, please register your study on a public registry as soon as possible and provide the HRA with the registration detail, which will be posted alongside other information relating to your project.

Statement of compliance

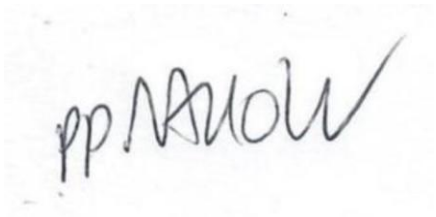
The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

HRA Learning

We are pleased to welcome researchers and research staff to our HRA Learning Events and online learning opportunities– see details at: https://www.hra.nhs.uk/planning-and-improving-research/learning/

IRAS Project ID - 335191:	**Please quote this number on all correspondence**

Yours sincerely



Dr Simon Baudouin
Chair

E-mail: southyorks.rec@hra.nhs.uk

Enclosures: List of names and professions of members who took part in the review

Yorkshire & The Humber - South Yorkshire Research Ethics Committee

Attendance at Sub-Committee of the REC meeting in Correspondence

Committee Members:

Name	*Profession*	*Present*	*Notes*
Dr Simon Baudouin (Chair)	Retired Medical Doctor	Yes	
Mr Edmund Breckin	Effectiveness and Improvement Facilitator	Yes	

Also in attendance:

Name	*Position (or reason for attending)*
Mrs Nicki Allott	Approvals Administrator

Appendix L

NCHC Letter of Access

Norfolk Community Health and Care NHS Trust

Ref: 2024GC06 (335191)

Research and Evaluation Team
NHS Norfolk and Waveney Integrated Care Board
Norfolk County Hall
Martineau Lane
Norwich
NR1 2DH

Jason (Ercan) Hassan
University of East Anglia
Norwich Research Park
Norwich
NR4 7TJ

21 June 2024

E-mail: nwicb.randdoffice@nhs.net

Dear Jason,

Letter of access for research

Re: A Single Case Experiment Design Investigating Wisdom Enhancement to Augment CBT Outcomes for Depression in Post-Stroke Populations

As an existing NHS employee you do not require an additional honorary research contract with this NHS organisation. We are satisfied that the research activities that you will undertake in this NHS organisation are commensurate with the activities you undertake for your employer. Your employer is fully responsible for ensuring such checks as are necessary have been carried out. Your employer has confirmed in writing to this NHS organisation that the necessary pre-engagement check are in place in accordance with the role you plan to carry out in this organisation. This letter confirms your right of access to conduct research through **Norfolk Community Health & Care NHS Trust** for the purpose and on the terms and conditions set out below. This right of access commences on **19/06/2024** and ends on **25/09/2025** unless terminated earlier in accordance with the clauses below.

Please note that you cannot start the research until the Principal Investigator for the research project has received the Health Research Authority (HRA) Approval letter giving permission to conduct the project and this NHS organisation has confirmed their capacity and capability (if required, as stated in the HRA Approval letter) to undertake this research.

You are considered to be a legal visitor to **Norfolk Community Health & Care NHS Trust** premises. You are not entitled to any form of payment or access to other benefits provided by this organisation to employees and this letter does not give rise to any other relationship between you and this NHS organisation, in particular that of an employee.

While undertaking research through **Norfolk Community Health & Care NHS Trust**, you will remain accountable to your employer **CPFT** but you are required to follow the reasonable instructions of your nominated manager, **the head of the research department** in this NHS organisation or those given on her/his behalf in relation to the terms of this right of access.

Where any third party claim is made, whether or not legal proceedings are issued, arising out of or in connection with your right of access, you are required to co-operate fully with any investigation by this NHS organisation in connection with any such claim and to give all such assistance as may reasonably be required regarding the conduct of any legal proceedings.

You must act in accordance with **Norfolk Community Health & Care NHS Trust** policies and procedures, which are available to you upon request, and the UK Policy Framework Framework for Health and Social Care Research.

You are required to co-operate with **Norfolk Community Health & Care NHS Trust** in discharging its duties under the Health and Safety at Work etc Act 1974 and other health and safety legislation and to take reasonable care for the health and safety of yourself and others while on **Norfolk Community Health & Care NHS Trust** premises. Although you are not a contract holder, you must observe the same standards of care and propriety in dealing with patients, staff, visitors, equipment and premises as is expected of a contract holder and you must act appropriately, responsibly and professionally at all times.

If you have a physical or mental health condition or disability which may affect your research role and which might require special adjustments to your role, if you have not already done so, you must notify your employer and the Trust (please inform your nominated manager as named above) prior to commencing your research role at the Trust.

You are required to ensure that all information regarding patients or staff remains secure and *strictly confidential* at all times. You must ensure that you understand and comply with the requirements of the NHS Confidentiality Code of Practice and the Data Protection Act 2018. Furthermore you should be aware that under the Act, unauthorised disclosure of information is an offence and such disclosures may lead to prosecution.

Norfolk Community Health & Care NHS Trust will not indemnify you against any liability incurred as a result of any breach of confidentiality or breach of the Data Protection Act 2018. Any breach of the Data Protection Act 2018 may result in legal action against you and/or your substantive employer.

You should ensure that, where you are issued with an identity or security card, a bleep number, email or library account, keys or protective clothing, these are returned upon termination of this arrangement. Please also ensure that while on the premises you wear your ID badge at all times, or are able to prove your identity if challenged. Please note that this NHS organisation accepts no responsibility for damage to or loss of personal property.

We may terminate your right to attend at any time either by giving seven days' written notice to you or immediately without any notice if you are in breach of any of the terms or conditions described in this letter or if you commit any act that we reasonably consider to amount to serious misconduct or to be disruptive and/or prejudicial to the interests and/or business of this NHS organisation or if you are convicted of any criminal offence. You must not undertake regulated activity if you are barred from such work. If you are barred from working with adults or children this letter of access is immediately terminated. Your employer will immediately withdraw you from undertaking this or any other regulated activity and you MUST stop undertaking any regulated activity immediately.

Your substantive employer is responsible for your conduct during this research project and may in the circumstances described above instigate disciplinary action against you.

If your circumstances change in relation to your health, criminal record, professional registration or suitability to work with adults or children, or any other aspect that may impact on your suitability to conduct research, or your role in research changes, you must inform the NHS organisation that employs you through its normal procedures. You must also inform your nominated manager in this NHS organisation.

Yours sincerely

Elizabeth Cooke
Director of HR and OD, Norfolk Community Health & Care NHS Trust

cc: Dr Nick Oliver, Director of Psychological Services: nick.oliver@cpft.nhs.uk

Appendix M

Substantial Amendment Tool

Amendment Tool v1.6 06 December 2021	For office use QC: No

Section 1: Project information

Short project title*:	Wisdom Enhancement to Augment CBT for Post-Stroke Depression
IRAS project ID* (or REC reference if no IRAS project ID is available):	335191
Sponsor amendment reference number*:	SA 01
Sponsor amendment date* (enter as DD/MM/YY):	02 September 2024
Briefly summarise in lay language the main changes proposed in this amendment. Explain the purpose of the changes and their significance for the study. If the amendment significantly alters the research design or methodology, or could otherwise affect the scientific value of the study, supporting scientific information should be given (or enclosed separately). Indicate whether or not additional scientific critique has been obtained (note: this field will adapt to the amount of text entered)*:	We are requesting a change to the duration of the study. Due to time restrictions on my doctoral thesis, my supervisors and I have agreed to shorten the duration of the study trial from 14 weeks to 10 weeks. This means we have removed the one-month follow-up review in the study. Therefore, the study will only include the baseline phase (2, 3, 4 weeks. Randomly allocated) and the treatment phase (6 weeks). Given the nature of our Single N design, our cost/benefit analysis has determined that this change will not hinder the scientific accuracy of our study to a detrimental degree. The study aims, our hypothesis and our methodology do not require a one-month follow-up. An additional benefit to this change is that the shorter duration will also reduce the participant burden.

Project type (select):	**Specific study**			
	Research tissue bank			
	Research database			
Has the study been reviewed by a UKECA-recognised Research Ethics Committee (REC) prior to this amendment?:	**Yes**		No	
What type of UKECA-recognised Research Ethics Committee (REC) review is applicable? (select):	**NHS/HSC REC**			
	Ministry of Defence (MoDREC)			
Is all or part of this amendment being resubmitted to the Research Ethics Committee (REC) as a **modified amendment** (i.e. a substantial amendment previously given an unfavourable opinion)?	Yes		**No**	
Where is the NHS/HSC Research Ethics Committee (REC) that reviewed the study based?:	England	Wales	Scotland	Northern Ireland
	Yes	No	No	No
Was the study a clinical trial of an investigational medicinal product (CTIMP) OR does the amendment make it one?:	Yes		**No**	
Was the study a clinical investigation or other study of a medical device OR does the amendment make it one?:	Yes		**No**	
Did the study involve the administration of radioactive substances, therefore requiring ARSAC review, OR does the amendment introduce this?:	Yes		**No**	
Did the study involve the use of research exposures to ionising radiation (not involving the administration of radioactive substances) OR does the amendment introduce this?:	Yes		**No**	
Did the study involve adults lacking capacity OR does the amendment introduce this?:	Yes		**No**	
Did the study involve access to confidential patient information outside the direct care team without consent OR does the amendment introduce this?:	Yes		**No**	
Did the study involve prisoners or young offenders who are in custody or supervised by the probation service OR does the amendment introduce this?:	Yes		**No**	
Did the study involve children OR does the amendment introduce this?:	Yes		**No**	
Did the study involve NHS/HSC organisations prior to this amendment?:	**Yes**		No	
Did the study involve non-NHS/HSC organisations OR does the amendment introduce them?:	Yes		**No**	
	England	Wales	Scotland	Northern Ireland
Lead nation for the study:	**Yes**	No	No	No
Which nations had participating NHS/HSC organisations prior to this amendment?	**Yes**	No	No	No
Which nations will have participating NHS/HSC organisations after this amendment?	**Yes**	No	No	No
Was this a "single site, self sponsored" study in England or Wales prior to this amendment?	Yes		**No**	

Section 2: Summary of change(s)

Please note: Each change being made as part of the amendment must be entered separately. For example, if an amendment to a clinical trial of an investigational medicinal product (CTIMP) involves an update to the Investigator's Brochure (IB), affecting the Reference Safety Information (RSI) and so the information documents to be given to participants, these should be entered into the Amendment Tool as three separate changes. A list of all possible changes is available on the "Glossary of Amendment Options" tab. To add another change, click the "Add another change" box.

Appendix N

Consent-to-contact Form

Consent to Contact Form

Title of Research Project: A Single Case Experiment Design investigating Wisdom Enhancement to Augment CBT Outcomes for Depression in Post-Stroke Populations.

Chief Researcher: Jason (Ercan) Hassan (Trainee Clinical Psychologist, UEA)

Research Supervisors: Dr Joshua Blake (Clinical Psychologist, UEA) & Dr Fergus Gracey (Clinical Psychologist, UEA)

Please initial both boxes

1. I would like to register my interest in the above study. I consent that the chief researcher may contact me to provide further information. I understand that I am not committing to taking part and can choose to withdraw at any time. ☐

2. I understand that my contact details will be kept confidential and handled in line with the Data Protection Act 2019. My details will not be shared elsewhere. ☐

Your Contact Details:

Name	
Phone	
Email	
Other information (e.g., best contact method, best times to contact)	

Appendix O

Participant Information Sheet

Participant Information Sheet

Study Title

A Single Case Experiment Design Investigating Wisdom Enhancement to Augment CBT Outcomes for Depression in Post-Stroke Populations.

Invitation

Study Aims

In this study, we have two goals. First, we want to see if the wisdom enhancement timeline technique can reduce depression in stroke survivors. Second, we aim to discover how this technique brings positive mood changes.

The main question we want to answer is whether using this technique can reduce feelings of depression in people who have had a stroke. We expect a positive change in how stroke survivors rate their mood before and after using the technique. We also hope that as their mood improves, other aspects, such as their sense of identity, self-esteem, and wisdom, will also improve.

To carry out this study, we will work with nine stroke survivors receiving care from the National Health Service (NHS). By focusing on this smaller group, we hope to gain insights into the effectiveness of the technique in reducing depression and enhancing the lives of stroke survivors. This study is essential as it could help us understand the best way to support those with post-stroke depression.

Why have I been invited?

One-third of stroke survivors have post-stroke depression. Finding ways to help them feel more positive after such a challenging event can be tricky. Right now, there are no official guidelines on the best way to support post-stroke depression, and research into this is still growing. That is why we want to see if the wisdom enhancement timeline can improve the mood and overall well-being of people who have had a stroke.

Participant Inclusion/Exclusion Criteria:

We are looking for anyone who:

- Above the age of **18.**
- Has had a stroke more than **3 months** ago.
- Able to **consent** to taking part in the study.
- Experiencing **low mood or depression.**
- Able to **engage** with the **session** and **homework tasks.**
- **No current drug** or **alcohol dependence.**
- **Not currently** involved in other studies.

- **Either**: **Not** taking prescribed medication for mood **or** been prescribed and taking medication for mood for **more** than **3 months.**

What taking part will involve

If you choose to participate in this study, you will be asked to partake in up to 10 weeks of study. 6 of those 10 weeks will ask you to attend an hour-long therapy session once a week. Before you do this, we invite you to a phone conversation or via Microsoft Teams.

Questionnaire

You will also be asked to complete a 4-question questionnaire every day until the end of the study and a 9-question questionnaire at the start and end. This questionnaire will measure your mood and will be a helpful way of displaying your progress.

Brief Conversation

The process begins with an initial phone call from the researcher, who will ask questions to ensure that the study suits your needs and background. The researcher will also be able to answer any additional questions. If it is agreed that the study would not be suitable for you, the researcher will provide a summary of the reasons for this.

Baseline Phase

If the study is suitable and you agree to participate, you will be asked to sign a form consenting to your participation. You will be randomly allocated to a baseline phase (2, 3 or 4 weeks). During this time, you will be asked to complete the 4-question questionnaire daily and once a week, answer questions regarding changes in medication and side effects and whether there have been any adverse events since participating in the study. During this phase, the chief investigator will check in to see how you are getting on in completing these questions. This can be done via phone or email, depending on your preference.

Therapy Phase

Once you are invited to attend the therapy sessions, you will be asked to complete the 9-question questionnaire. The therapy sessions will span six weeks and occur at the NHS facility or online via MSTEAMs. Between the weekly sessions, you will be asked to continue completing the 4-question questionnaire every day throughout the therapy and, complete weekly questions regarding any changes with your medication and whether there have been any adverse events since taking part in the study.

Therapy will be adapted from existing guidelines for cognitive behavioural therapy (CBT). The aim is to enhance your self-perception and overall well-being. You will be provided with a booklet created for this study. This will contain resources for use during and between the therapy sessions.

Between sessions, you will be asked to complete session tasks, which will be outlined in the booklet. The therapist will provide appropriate guidance and support to overcome any individual barriers.

If you choose to participate, it is essential to note that you will need to commit to attending all therapy sessions and completing the short daily questionnaires (5 minutes per day). The questionnaires require only a basic level of literacy.

What happens after the therapy sessions?

During the final session (session 6), the researcher will ask questions about your mood post-therapy and ask you to complete a 9-question questionnaire. Once the researcher has analysed the data, a

final meeting will be arranged between all participants to discuss the outcomes. Please note that no confidential information or data will be discussed or shared.

How the research will benefit people affected by Stroke

While we cannot guarantee that the study will help you personally, we hope that engaging in the therapy sessions will improve your mood and enhance your ability to cope with your present challenges. The study's insights will also contribute to advancing methods to support and assist others in similar situations.

Do I have to take part?

No. It is up to you to decide whether to take part, and your involvement with the service will not be affected by your decision. If you choose to participate, you are free to withdraw at any time without giving a reason.

Reimbursement

Should you attend the sessions in person, refreshments will be offered. Unfortunately, we cannot reimburse you for any travel expenses; however, sessions will also be offered remotely via Microsoft Teams if you prefer.

As a thank you, a token of gratitude valued at £10 in vouchers will be offered to all those who participate.

Will taking part in the study affect my current treatment?

No, participation in this study will be completely independent of your healthcare and will not impact the treatment you would otherwise receive. If you decide to participate, we kindly request that you refrain from initiating any new therapies to improve your mood during the study period. This means refraining from starting any NHS-provided talking therapy or medication explicitly addressing low mood or depression.

This guideline aims to isolate the study's potential effects, separate from any other treatments you may receive. You will remain on your current waiting list for any other therapies throughout this period. Once you have completed the study, you will be able to resume any additional treatments that are offered to you. If you have any concerns or questions regarding this matter, we encourage you to discuss them with the researcher and your healthcare service provider.

What are the possible disadvantages and risks of taking part?

No distress is anticipated for taking part in this study. However, it is possible that discussing aspects of your life may evoke challenging emotions. If you experience any problematic feelings during the study, the trainee clinical psychologist, trained and experienced in assisting individuals in such situations, will be available to discuss these emotions. They can also guide you towards additional sources of support if you feel it is necessary. Engaging in conversations about these difficulties is found to be beneficial. Nevertheless, you will never be compelled to discuss any topics that you are uncomfortable with. You have the freedom to withdraw from the study at any point if you wish to do so. Your mental health service provider will be informed of your participation in the study.

What if something goes wrong?

If you are concerned about any aspect of this study, you should ask to speak to the researchers, who will do their best to answer your questions. They can be contacted at 01603593061.

If you remain unhappy and wish to complain formally, you can contact Dr. Sian Coker, Professor of Clinical Psychology, Norwich Medical School. Dr. Sian Coker is independent from this study. You can contact them by:

- Post to: Norwich Research Park, Norwich NR4 7TJ

- By email: S.Coker@uea.ac.uk
- By telephone: 01603 593544

Privacy

What personal information will I be asked to give?
If you are happy to participate in the study, we will ask you to give us the following information:

- Name
- NHS Number
- Contact details (phone number and email address)
- Home Address
- Age
- Employment status (only if you are employed, unemployed or retired; we will not ask you for your job title or employment history).
- Ethnicity
- Gender
- Stroke location,
- Stroke type (Ischaemic or Haemorrhagic)
- Time since stroke.

The NHS will collect information from you and your medical records as instructed for this research study.

Please note that only the following will be retained once the study has ended:

- Age
- Gender
- Employment status
- Ethnicity
- Stroke location, type (Ischaemic or Haemorrhagic) and time since stroke.

Your name, home address, NHS number, and contact details will be confidential and not shared. The NHS will utilise this information to communicate with you about the research study, record pertinent details for your care, and ensure the study's quality oversight. Specific individuals from the University of East Anglia (UEA) and regulatory organisations may review your medical and research records to verify the study's accuracy. However, UEA will only receive information without any identifiable details. The individuals analysing the data cannot identify or access your name, NHS number, address or contact details.

Collecting this information for this study offers several benefits:

- Understanding Individual Characteristics: Your demographic information provides important insights into your individual characteristics, which can influence how you respond to interventions following a stroke. For example, age can affect the recovery rate, while employment status may impact access to resources for rehabilitation.

- Tailoring Interventions: By understanding your demographic profile, we can effectively tailor interventions and treatments to address your needs and challenges.

- Assessing Disparities: Your demographic information allows us to assess potential disparities in outcomes across different population groups. This knowledge is essential for developing equitable healthcare strategies and addressing disparities in stroke care.

- Generalising Findings: Understanding the demographic characteristics of participants like yourself helps us draw broader conclusions and generalize study findings to larger populations. This contributes to the overall advancement of stroke research and informs clinical practice.

Audio Recordings

We will request that the researcher audio-record the six therapy sessions to ensure consistency in the treatment provided to all participants. These audio recordings will be securely stored on a password-protected memory stick and accessed only by the research team. The chief investigator will transcribe the recordings onto a secure password-protected system at the University of East Anglia (UEA). Once transcribed, your audio recording will be deleted from the device. The transcription will be reviewed by the chief investigator's supervisor, a qualified clinical psychologist. This is to ensure that the researcher is adhering to the therapy guidelines. Once reviewed, the transcriptions will be immediately deleted.

Safeguarding

Your mental healthcare provider and GP will be informed of your involvement. Your involvement will be maintained in your healthcare records.

It is important to note that if the researcher has significant concerns about your well-being or the possibility of harm to yourself or others, this will be escalated. Confidentiality may need to be breached, and relevant information may be shared with appropriate individuals. However, the researcher will always strive to discuss such matters with you beforehand, if possible.

What will happen to the results of the research study?

We intend to publish the results of this study in a reputable journal and potentially present them at a conference. If you express interest, kindly inform the researcher, and we will gladly provide you with copies of any publications once they are available. Please be assured that your identity will not be disclosed in any report or publication.

It is important to note that certain information gathered during this study may also be utilised in future research studies but rest assured that all data will be anonymised to ensure confidentiality.

Who has reviewed the study?

The ethical conduct of this study has been approved by a National Healthcare Service (NHS) Research Ethics Committee.

Who is overseeing and funding this research?

This research by the University of East Anglia.

What do I do next?

If you are interested in participating in the study or have additional questions, please email the primary researcher, Jason Hassan (NUE22CYU@uea.ac.uk).

Thank you very much for your time.

Lead Investigator:

Jason (Ercan) Hassan, Trainee Clinical Psychologist,

UEA, Norwich Research Park, Norwich NR4 7TJ

Email: NUE22CYU@uea.ac.uk

Chief Investigator	
Jason (Ercan) Hassan	Trainee Clinical Psychologist
UEA	Norwich Research Park, Norwich NR4 7TJ

Email	NUE22CYU@uea.ac.uk
Contact Number	01603593061
Research Supervisor 1	
Dr. Joshua Blake	Clinical Psychologist
UEA	Norwich Research Park, Norwich NR4 7TJ
Email	joshua.blake@uea.ac.uk
Contact Number	01603593061
Research Supervisor 2	
Dr. Fergus Gracey	Clinical Psychologist
UEA	Norwich Research Park, Norwich NR4 7TJ
Email	f.gracey@uea.ac.uk
Contact Number	01603593061

Appendix P

Consent Form

Participant Identification Number for this study:

Consent Form

Title of Research Project: A Single Case Experiment Design investigating Wisdom Enhancement to Augment CBT Outcomes for Depression in Post-Stroke Populations.

Chief Researcher: Jason (Ercan) Hassan (Trainee Clinical Psychologist, UEA)

Research Supervisors: Dr Joshua Blake (Clinical Psychologist, UEA) & Dr Fergus Gracey (Clinical Psychologist, UEA)

1. I confirm that I have read the information sheet dated…….. (version……..) for the above study. I have had the opportunity to consider the information, ask questions and have these answered satisfactorily. ☐

2. I understand that my participation is voluntary and that I can withdraw anytime without giving any reason and without my medical care or legal rights being affected. ☐

3. I agree for therapy sessions to be audio recorded. I understand that recordings will be kept on secure encrypted devices and only listened to by the research team. ☐

4. I understand that I will not be named in any research reports, and my personal information will remain confidential. ☐

5. I understand that if the researcher thinks that I, or someone else, might be at risk of harm, they will have to contact the relevant authorities; however, they will try and talk to me first about the best course of action. ☐

6. I agree to my General Practitioner (GP) being informed of my participation in this study. ☐

7. I understand that relevant sections of my medical notes and data collected during the study may be looked at by individuals from the study team (UEA), from regulatory authorities or from the NHS Trust, where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records. ☐

8. Should I withdraw from participating in the study once data has been sent, I agree for my data to be used anonymously. ☐

9. I agree to take part in the above study. ☐

Name of Participant:	Signature:
Date:	
Name of Person seeking consent:	Signature:
Date:	

Appendix Q

Measure Pack

Patient Health Questionnaire (PHQ-9)

Over the last two weeks, how often have you been bothered by any of the following problems?

		Not at all	Several days	More than half the days	Nearly every day
1.	Little interest or pleasure in doing things	0	1	2	*3*
2.	Feeling down, **depressed,** or hopeless	0	1	2	*3*
3.	Trouble falling or staying asleep, or sleeping too much	0	1	2	*3*
4.	Feeling tired or having little energy	0	1	2	*3*
5.	Poor appetite/overeating	0	1	2	*3*
6.	Feeling bad about yourself – or that you are a failure or have let yourself or your family down	0	1	2	*3*
7.	Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	*3*
8.	Moving or speaking so slowly that other people could have noticed? Or the opposite – being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	*3*
9.	Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	*3*

A2663B 10-04-2005

List of prescribed medication	
If you are taking prescribed medication, have you noticed any changes to your mood? Or any side effects?	**Yes/No**
If yes, please write what changes or side affects you have noticed	

Horizontal Visual Analogue Scale (VAS)

Instructions: Please mark with an X how much you agree with the corresponding statements on the lines below.

1. MOOD: **Today, my mood is good.**

Strongly Disagree Strongly Agree

2. Adapting to life post-stroke: **Today, I feel able to accept the person I am/Today, I feel like I am adapting to life after my stroke.**

Strongly Disagree Strongly Agree

3. Self-esteem: **Today, I feel good about myself.**

Strongly Disagree Strongly Agree

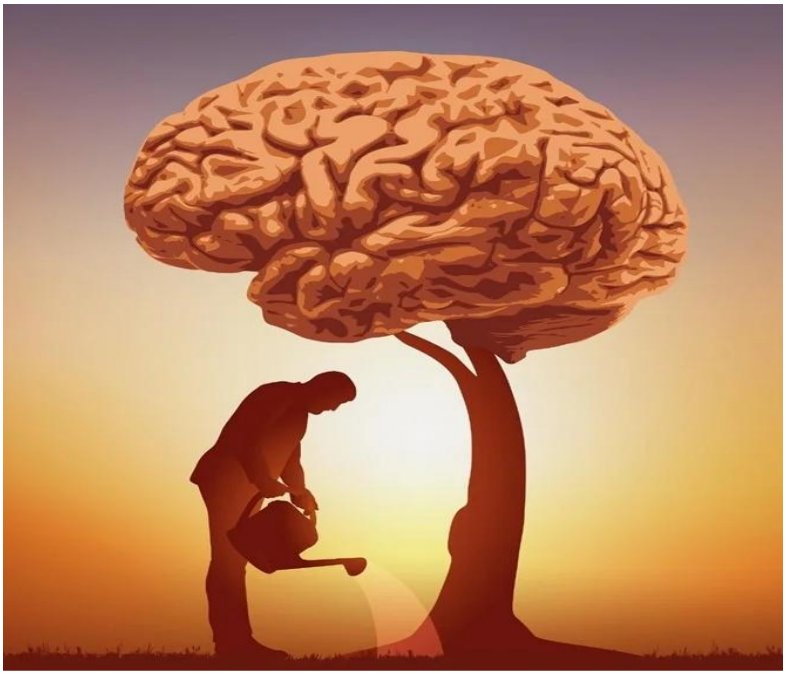
4. Wisdom: **Today, I feel that I can use the wisdom of my life to help me deal with my current problems.**

Strongly Disagree Strongly Agree

Appendix R

Wisdom Enhancement Timeline Technique Workbook

Wisdom Enhancement Timeline Technique Workbook



Created by: Jason (Ercan) Hassan (Trainee Clinical Psychologist, UEA)
Supervisors: Dr Joshua Blake & Dr Fergus Gracey

With special thanks to Dr. Ken Laidlaw (Developer of the Wisdom Enhancement Intervention)
With special thanks to Dr. Adam Kadri for permission to adapt his materials.

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Sandra Ross, Phyllis Windsor and Chris Liston.

Session 1: Understanding Your Difficulties & Goals

Aims of Session 1:

By the end of the session, you will:

- Have a shared understanding of your current difficulties with the researcher.
- Identify some of your goals.

Welcome to the **first session** of Wisdom Enhancement. These sessions will run for **six (6) weeks (about one and a half months)** and help you learn and practice skills to improve your feelings.

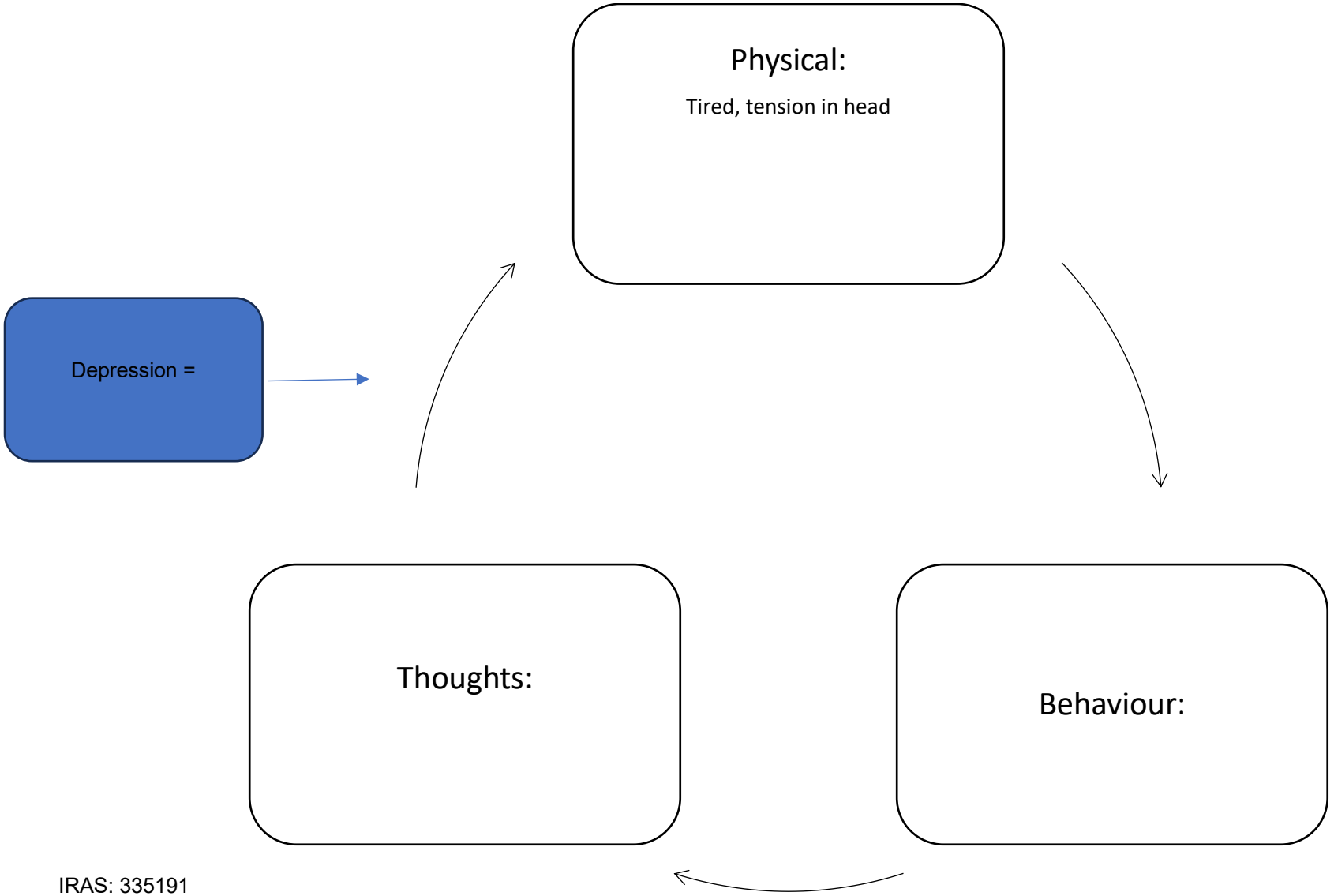
Worksheet 1: Your Difficulties

In the table below, write a list of your current difficulties in terms of their priority.

Priority	Difficulty
1	
2	
3	
4	
5	

On the next page, consider how depression keeps you in a vicious cycle regarding how you think, feel, physically and behave.

Worksheet 2: Your Vicious Cycle



Meet Frankie:

Frankie is a 63-year-old retired teacher who has always been active and sociable. He lives at home with his wife and enjoys gardening with his grandchildren. His life took a significant turn when he suffered a stroke six months ago. The stroke affected the left side of his brain, causing speech problems and partial paralysis on the right side of his body. His initial rehabilitation progress was slow but promising, as he experienced gradual improvements in his speech and mobility. However, as time passed, Frankie began experiencing symptoms of depression that impacted his well-being and recovery.

Frankie often expressed feelings of sadness and hopelessness. He frequently mentioned his frustration with his ability to communicate, making him feel helpless. He lost interest in all these activities after the stroke. He withdrew from his friends and family. Frankie reported constant fatigue and disrupted sleep patterns. He frequently woke up during the night, thinking about his stroke-related challenges, which left him feeling exhausted during the day. He had trouble focusing and concentrating on tasks. This was incredibly frustrating for him, as he was an avid reader and loved engaging in intellectual pursuits. Frankie often felt guilty about becoming a burden to his family and worthless because he could no longer contribute as much as before. In addition to his emotional struggles, Frankie often felt tense and reported physical symptoms like headaches and joint pain. These symptoms intensified his overall distress.

Looking at the table below, you can see Frankie's difficulties written out concretely. There can sometimes be multiple issues, some unconnected. It can be helpful to take a moment to write these down and think about which problems are most important for you to deal with first.

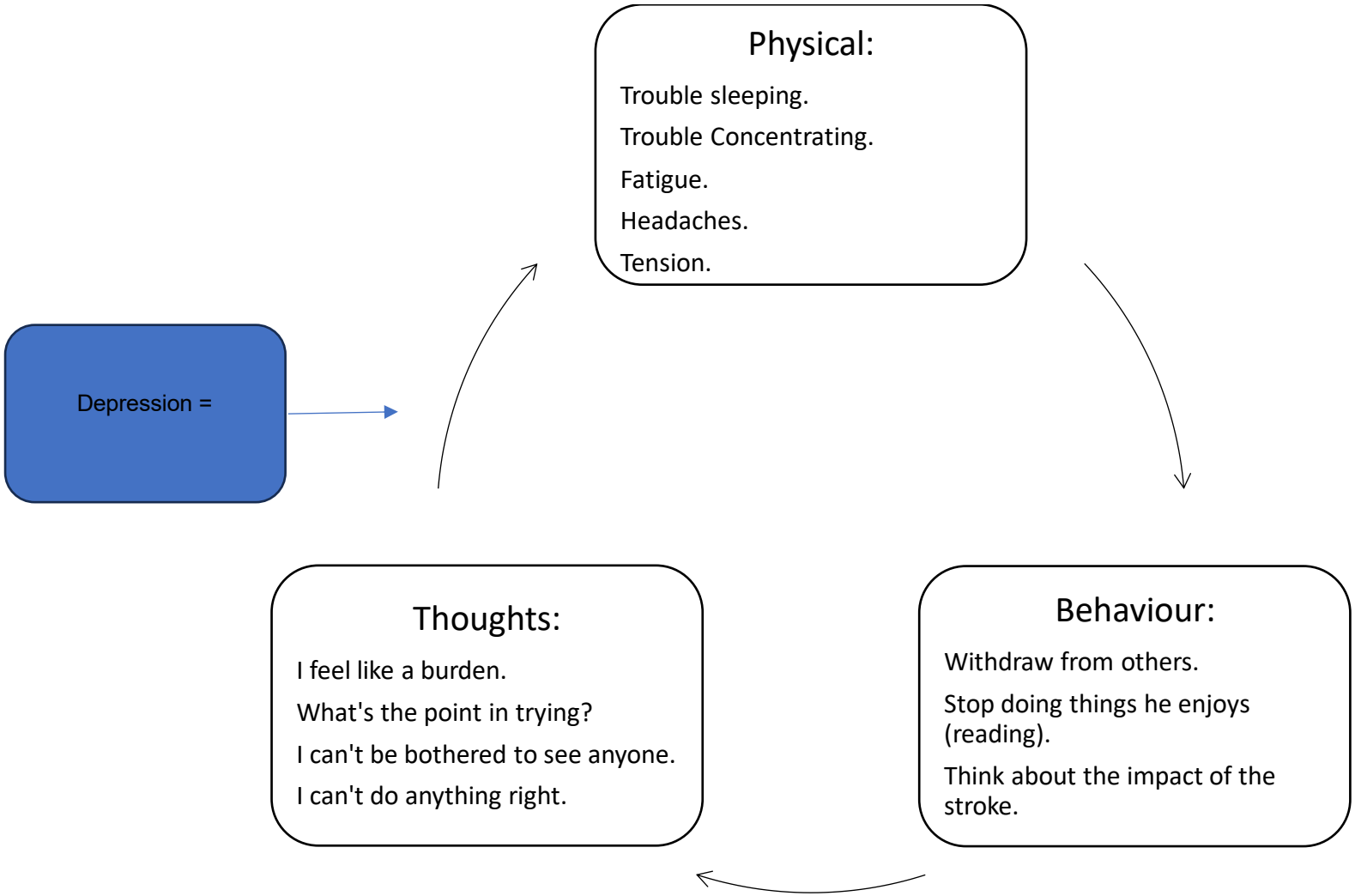
Frankie's Difficulties:

Priority	Difficulty
1	
2	
3	

How these changes can keep people stuck:

Strokes can **impact** everyone in different ways. A common difficulty is depression. Understandably, this can make them feel as if they are stuck in an endless cycle. This cycle keeps going around **viciously** and can affect your life in various ways. Take a look on the next page to see Frankie's vicious cycle.

Frankie's Vicious Cycle:



Worksheet 3: Identifying your Goals:

Imagine that the problems with your difficult thoughts or emotions improved. What will life be like for you? What things that are important in your life will you be doing again? Answer the questions below to help you set your goals.

Q? How would you see your life progressing?
Q? What would you be doing?
Q? Who would you be spending time with?

Homework:

Reflecting on the worksheet you completed:

- Start writing down some goals on the next page. Try to make sure they are realistic and achievable.
- Keep completing your daily mood measures.

Number	Goal
1	
2	
3	
4	

Session 2: Understanding Stroke and the Wisdom Timeline

Changes after a Stroke

Why do I feel different?

A **Stroke** is an abrupt and startling event that has the potential to impact every aspect of your existence. It encompasses a **significant** challenge to manage, and many find that it affects their emotional health.

Although each person encounters a stroke differently, many express a sensation of **losing** the life they once knew. Experiencing astonishment, refusal, anger, sorrow, and guilt is common when confronted with such a profound transformation. Coping with these emotions can be challenging, and people tend to navigate this challenge in many different ways.

A stroke can impact your **emotions** by disrupting the intricate web of brain regions that govern your physical functions and emotional well-being. If the part of your brain responsible for managing emotions is harmed, it can significantly change how you feel.

Feeling low or depressed

For some people, feeling **sad** after a stroke and the ensuing life changes is something many people go through. You might also find yourself in a **low mood**, which can encompass feelings of sadness, anger, a sense of being overwhelmed, and a lack of enjoyment in things that used to please you.

It is expected to feel **down** from time to time. However, if this emotional state persists for an extended period and starts to affect your ability to find happiness seriously, it might be a sign of **depression**.

Depression is a common experience following a stroke, and research suggests that at least one-third of stroke survivors will grapple with some form of depression within the first year. However, depression might not surface immediately; it could appear months or even years later.

Exploring the Link Between Self-esteem and Post-Stroke Depression

Strokes can significantly impact how we feel about **ourselves**, often leading to negative thoughts, feelings of low self-worth, and self-criticism. These thoughts can affect our self-esteem, and our **self-esteem** can put us at higher risk of experiencing depression.

People with **lower self-esteem** often struggle to cope **emotionally**, which is common for stroke survivors. This emotional struggle can affect different parts of our recovery process, like how we come to terms with the stroke and any changes it brings.

Exploring Your Identity After a Stroke

A stroke can shake up a person's life. Many people feel like they've **lost** their old selves and believe that rebuilding their **identity** is vital to their recovery.

As Erikson (1968) puts it, “Identity is like a **reassuring** thread that keeps us grounded when life changes around us”. For stroke survivors, the changes they go through can make them feel like they're no longer the person they used to be.

This shift in how they see themselves can sometimes be linked to **mood problems** and is a common sign of depression. It's like a **loss** of self, feeling **distant** from their new identity, and it tends to lead to higher levels of depression.

This process of losing the old identity and trying to **reconnect** with it can be really tough. When reconnecting isn't possible, it can trigger feelings of loss, grief, loneliness, and pessimism about the future.

On the flip side, maintaining a social identity — feeling **connected** to others and a sense of who you were before — leads to a better quality of life and more overall well-being after a stroke.

Protecting against depression after stroke: Exploring wisdom and Recovery After a Stroke

Wisdom is a concept that might resonate with the experiences of stroke survivors. There are lots of ways of defining wisdom, but most agree that it includes making good decisions, having practical life knowledge, valuing others, self-reflection, emotional control, dealing with uncertainty, and understanding oneself. Wisdom helps us recognise that it is impossible to live a life free of mistakes, difficulties, and compromises.

Wisdom comes from **learning** from our experiences. We can tap into our own wisdom to navigate our journey, which can promote resilience and well-being. The use of wisdom as a guiding principle for facing and reflecting on our difficulties seems to connect with the experiences of stroke survivors. Wisdom has been linked to positive attributes like personal growth, well-being, adjustment, better health, and resilience. Studies have shown that those who think wisely report higher self-esteem, more positive emotions, and fewer negative ones. Wisdom is believed to develop by going through **challenging** life experiences and self-reflection. Boosting wisdom could help reduce distress by easing depressive symptoms, enhancing self-esteem, and restoring a sense of identity in stroke survivors.

Examining the timeline and psychoeducation:

The first step to **enhancing** wisdom requires us to develop a **timeline**. This is a valuable tool to summarise all the **notable** events from your life that you feel were important in developing your identity and made you wiser. Starting from birth, it can include overall life events, adverse life events, turning points (high or low) or a combination of all three.

The timeline **does not** require you to go into all the details about the events. This session aims to get a **bird’s eye view** of your life, a road map with few details. Don’t worry if you can’t get the timing right. For now, focus on adding:

1. Roughly when it happened

2. What happened

3. What characteristics or strengths did this event demonstrate about you

Worksheet 4: Timeline

Timeline	Summary of the event
	-
	-

Homework

- Continue **adding** to your timeline.
- Keep completing your daily mood measures.

Session 3: Reflecting Your Past Experiences

Worksheet 5: Reflecting on Wisdom and Resilience

Well done for taking the time to write down some of your life experiences on the timeline. Now we will want to practice looking at specific events from our past and learn to unpick them. This will involve understanding what happened, what we did, what the outcome was, what we have learned, and how this makes us feel about ourselves. We want to make sure the following rules are applied:

1. Examine the event as objectively as possible,
2. Reflection rather than blame,
3. Assess what was known then (no hindsight bias).

Looking at your Timeline, select a specific event you found challenging.
Q? What was the situation?
Q? What was the outcome? How well did I cope, and what did I do to help cope?
Q? How do I feel about the choice I made to cope? What could I have done differently if I am unhappy with my choice or how I coped?
Q? What did I know at the time? What options were available to me at the time?
Q? If someone I cared about were the one who made this choice/coped in this way, what would I say to them? Or what do I think the person I care about would say to me?
Q? What does this say about me? What does that say about my future?
Q? What possibilities does that bring? If that person from then was here now, how would they be approaching life post-stroke/this particular challenge?

Homework:

- Now that you have had a go reflecting on an experience in session, have a go using a different example from your timeline using worksheet 6 below.
- Keep completing your daily mood measures.

Worksheet 6: Reflecting on Wisdom and Resilience

Looking at your Timeline, select a specific event you found challenging.
Q? What was the situation?
Q? What was the outcome? How well did I cope, and what did I do to help cope?
Q? How do I feel about the choice I made to cope? What could I have done differently if I am unhappy with your choice or how you coped?
Q? What did I know at the time? What options were available to me at the time? If someone I cared about were the one who made this choice/coped in this way, what would I say to them? Or what do I think the person I care about would say to me?
Q? What can I learn from this experience that I can apply to current and future challenges in my life?
Q? What does this say about me? What does that say about my future?
Q? What possibilities does that bring? If that person from then was here now, how would they be approaching life post-stroke/this particular challenge?

Session 4: Drawing on my Wisdom

Worksheet 7: Using my wisdom to cope in the here and now.

Now that you have practiced reflecting on specific events from the past, let's try to use that knowledge and see how we can apply it to current difficulties or challenges. When examining this event from the past, we agree that certain principles apply:

1. Examine the event as objectively as possible,
2. Reflection rather than blame,
3. Assess what was known then (no hindsight bias).

Choose a difficulty you are currently facing.
Q? What current difficulty am I facing? **Q?** How does it make me: • Feel? • Think? • Act?
Q? Have I been in a similar position in the past? If so, how did that turn out? Is there any wisdom I can take from this experience that would be helpful to apply now?
Q? What sort of person was I at the time when I faced this difficulty from the past? **Q?** How did I feel after overcoming this difficulty?
Q? If that person from then was here now, how would they be approaching life post-stroke/this particular challenge?

Homework:

- Put the above worksheet into practice.
- Keep completing your daily mood measures.

Session 5: Drawing on my Wisdom 2

Worksheet 8: Reflections and Learning

It can be helpful to take a moment to reflect on your experiences from your homework. When it comes to therapy, there is no such thing as failure, only opportunities to learn and grow. Look at the worksheet below and reflect on the outcomes from worksheet 6.

Reflections
Q? What was the outcome?
Q? What went well? **Q?** What went not so well?
Q? If I was not able to do it, why? What got in the way? What can I do differently?
Q? Have I gone through a similar situation before? If so, what did I learn from this situation, and how can I use that now?
Q? What have I learnt?
Q? How do I view myself now?

Worksheet 9: Using my wisdom to cope in the here and now.

Now that you have practiced reflecting on specific events from the past, let's try to use that knowledge and see how we can apply it to current difficulties or challenges. When examining this event from the past, we agree that certain principles apply:

1. Examine the event as objectively as possible,
2. Reflection rather than blame,
3. Assess what was known then (no hindsight bias).

Choose a difficulty you are currently facing.
Q? What current difficulty am I facing? **Q?** How does it make me: • Feel? • Think? • Act?
Q? Have I been in a similar position in the past? If so, how did that turn out? Is there any wisdom I can take from this experience that would be helpful to apply now?
Q? What sort of person was I at the time when I faced this difficulty from the past? **Q?** How did I feel after overcoming this difficulty?
Q? If that person from then was here now, how would they be approaching life post-stroke/this particular challenge?

Homework:

- Put the above worksheet into practice.
- Reflect on the outcomes using worksheet 9 below.
- If you can, try completing worksheet 10 alone and reflect on its outcome on worksheet 10.
- Keep completing your daily mood measures.

Worksheet 10: Reflections and Learning

When reviewing the outcomes from Worksheet 9, we agree that certain principles apply:

1. Examine the event as objectively as possible,
2. Reflection rather than blame,
3. Assess what was known then (no hindsight bias).

Reflect on the outcomes from worksheet 9.
Q? What was the outcome?
Q? What went well? **Q?** What went not so well?
Q? If I was not able to do it, why? What got in the way? What can I do differently?
Q? Have I gone through a similar situation before? What did I learn from this situation? How can I use that now in this situation?
Q? What have I learnt?
Q? How do I view myself now?

Worksheet 11: Using my wisdom to cope in the here and now.

When examining this event from the past, we agree that certain principles apply:

1. Examine the event as objectively as possible,
2. Reflection rather than blame,
3. Assess what was known then (no hindsight bias).

Choose a difficulty you are currently facing.
Q? What current difficulty am I facing? **Q?** How does it make me: • Feel? • Think? • Act?
Q? Have I been in a similar position in the past? If so, how did that turn out? Is there any wisdom I can take from this experience that would be helpful to apply now?
Q? What sort of person was I at the time when I faced this difficulty from the past? **Q?** How did I feel after overcoming this difficulty?
Q? If that person from then was here now, how would they be approaching life post-stroke/this particular challenge?

Worksheet 12: Reflections and Learning

When reviewing the outcomes from Worksheet 5, we agree that certain principles apply:

1. Examine the event as objectively as possible,
2. Reflection rather than blame,
3. Assess what was known then (no hindsight bias).

Reflect on the outcomes from worksheet 11.
Q? What was the outcome? If so, did anything change?
Q? What went well? **Q?** What went not so well?
Q? If I was not able to do it, why? What got in the way? What can I do differently next time?
Q? Have I gone through a similar situation before? If so, what did I learn from this situation, and how can I use that now?
Q? What did I learn from this experience?
Q? How do I view myself now?

Session 6: Moving Forward

Worksheet 13: Review worksheet

Hopefully, the skills you have learned over the last few weeks have been useful and are starting to feel more familiar. It is important to continue to practice them so that they continue to become more familiar and feel easier and more natural. It is like when you pass your driving test – you have the skills and tools, but you still need more experience using them to become more automatic.

It is also important to remember that progress is rarely linear, and things tend to happen in life which get in the way or leave us feeling worse. This means that many people find that they might feel a bit worse again at some point – that's normal and part of living in a busy world with lots happening in our lives at certain times. It does not mean, however, that you will automatically lose all your progress when this happens.

If you keep using the skills you've learned and think in advance about how you would like to continue forward, you can give yourself the best chance of coming through these times and feeling more able to manage challenges. Planning for this is the focus of today's session.

Q? What do you see when you look back at your life now?
Q? How do you feel about your resilience and how you have coped throughout your life?
Q? What have you learned from your experiences?
Q? Looking back at your goals from session 1, how far have you come to achieving them?
Q? What wisdom or insight from your life has/can help you deal with your current difficulties?
Q? Looking back at all the tasks you have accomplished; what does this say about you?
Q? How can you apply what you have learned to any remaining or future challenges?

Appendix S

CTS-R

Cognitive Therapy Scale-Revised

I.M. Blackburn, I.A. James, D.L. Milne & F.K. Reichelt Dec 2001

Participant ID		Session Number	3	
Items	**Score Range**	**Comments**	**Self-Rating**	**Tutor Rating**
Item 1: **Agenda Setting & Setting the Scene**	0-6	**Trainee**: Intended to use an agenda but was interrupted by client ***Marker**: Explicitly mentioned an intension to agenda set but emotional difficulty that was disclosed distracted from this as an explicit component/process. However, the difficulty was skilfully incorporated into the task at hand.*	3	3
Item 2: **Feedback**	0-6	**Trainee**: Was collaborative, though some didactic questioning ***Marker**: There are some good examples of two-way feedback and frequent sense-checking. Sometimes clarifying questions come a little quickly and clarity may have been provided with uses of therapeutic silence or pause. Nicely summarised and checked using worksheets.*	3	3
Item 3: **Collaboration**	0-6	**Trainee**: Was collaborative and done jointly. Space was given to participant to discuss other things as needed ***Marker**: Problem-solving questions were open-ended and collaborative. Tasks were done jointly with the client and experiences from the week weaved into the current task. There was a good balance between letting the client bring relevant experiences to the session but also use of therapeutic interruption to ensure progress could be made in the session, though more moments of sitting with certain feelings may have improved containment*	3	3.5
Item 4: **Pacing and Efficient Use of Time**	0-6	**Trainee**: Not enough silent pauses to let participant talk at times. Pressured due to time ***Marker**: As above, there was a good balance between interrupting and refocusing on the task and providing time to reflect. At times, it had a somewhat rushed feeling.*	3	3
Item 5: **Interpersonal Effectiveness**	0-6	**Trainee**: Appear warm and connected with participants emotional state ***Marker**: You are warm and provide a supportive and motivating atmosphere to the session. More explicit empathic statements and sitting with the emotion may have further improved interpersonal effectiveness in this session. Some use of leading questions "are you sometimes worried about making a decision when you feel like that" but acknowledge this is challenging to avoid*	3	3
Item 6: **Eliciting Appropriate Emotional Expression**	0-6	**Trainee**: Connected and explored as appropriate ***Marker**: Very effective elicitation of emotional expression, with frequent examples throughout*	4	4.5
Item 7: **Eliciting Key Cognitions**	0-6	**Trainee**: Cognitions explored and discussed in relation to session ***Marker**: Some good questions that elicited particular cognitions but perhaps there were opportunities to ask more*	3	3
		Trainee: Elicited as needed		

Item 8: **Eliciting Behaviours**	0-6	***Marker**: There were some examples of behaviour elicitation earlier in the session, though more open-style questions may have supported this. Equally, this is a later stage of the therapy and so extensive formulation elicitation may be less of a priority*	3	3
Item 9: **Guided Discovery**	0-6	**Trainee**: Used guided discovery in line with participant and session manual. Sometimes leading questions were used ***Marker**: Some good questions about how she coped with past adversity, and nice follow-up "tell me more about that, what did that mean for you?"*	3.5	4
Item 10: **Conceptual Integration**	0-6	**Trainee**: Goals were discussed, no formal formulation was used due to nature of intervention. ***Marker: T**he patient's goals are explicitly mentioned and explicit attention is drawn to past difficulties, cognitions, and beliefs and their relation to the present, as well as positive strengths/coping resources. There was no explicit link to a formulation, but this work does not involve in-depth longitudinal formulation. With this in mind, conceptual integration was effective*	3	4
Item 11: **Application of Change Methods**	0-6	**Trainee**: Change was brought into the session and discussed and planned ***Marker:** Much of the focus of the session was dedicated to eliciting change, through asking lots of probing questions via the past-exploration exercise. This prompted reflection on what worked then and therefore what could be effective now. Couple of leadng questions i.e. "do you think you would be able to let go of those thoughts for now until then?"*	3.5	4
Item 12: **Homework Setting**	0-6	**Trainee**: Homework was set collaboratively ***Marker**: Homework was set competently and in line with both the therapy manual and with an example given by the client*	4	5

Scoring System

Each item is rated on a Likert scale from 0-6. Each level is defined in detail to conform to the levels of competence. To get rated on the top marks (i.e., 'expert' end of the continuum) a very high level of skill would need to be demonstrated. The maximum score on the scale is 72 (12 x 6).

This assessment scale has been adapted from CTS-R, I.A. James, I.M. Blackburn & F.K. Reichelt (Dec 2001).

Cognitive Therapy Scale-Revised

I.M. Blackburn, I.A. James, D.L. Milne & F.K. Reichelt Dec 2001

Participant ID		Session Number	5	
Items	**Score Range**	**Comments**	**Self-Rating**	**Tutor Rating**
Item 1: **Agenda Setting & Setting the Scene**	0-6	**Trainee**: No agenda was set ***Marker**: No explicit agenda setting in the session but a clear internal agenda, reviewing homework and progressing to the main content of the session.*	2	2
Item 2: **Feedback**	0-6	**Trainee**: Summaries provided as needed ***Marker**: Good use of clarifying questions throughout, with clear evidence of checking understanding. Good use of "checking in" to make sure the phrasing was appropriate on worksheets. Elicited feedback on "old self/new self" task.*	3	4
Item 3: **Collaboration**	0-6	**Trainee**: Good relationship and collaborative, participant was focused and cooperative to session ***Marker**: Very strong rapport evident. Good collaborative stance with nice open questions that showed curiosity about experiences. Some incidences of closed or leading questions but this can be hard to avoid. Used own words.*	4	5
Item 4: **Pacing and Efficient Use of Time**	0-6	**Trainee**: Pacing was appropriate and went through stages of the manual at a good level ***Marker**: Skillfully made progress in the session – did not get overly caught into tangents or caught into repetitive topics. The session clearly progressed through each stage and key actions completed*	4.5	5
Item 5: **Interpersonal Effectiveness**	0-6	**Trainee**: Emotional levels between therapist and participant are in sync. Good rapport ***Marker**: Strong working relationship very evident. Joint use of humour, warmth, trust, and genuineness clear. The client clearly trusts the therapist and openly discloses*	4.5	5
Item 6: **Eliciting Appropriate Emotional Expression**	0-6	**Trainee**: Elicited and explored ***Marker**: Elicited relevant emotions during task and kept this well-paced. E.g. exploring emotions attached to not feeling confident. Stayed with emotion questions even when the client didn't directly answer questions bout emotions.*	4	4
Item 7: **Eliciting Key Cognitions**	0-6	**Trainee**: Elicited although some closed questioning ***Marker**: Elicited relevant cognitions during task and kept this well-paced. Elicited avoidance, though slightly closed/leading "does that lead into a bit of an avoidance?"*	3	3
Item 8: **Eliciting Behaviours**	0-6	**Trainee**: Elicited and explored ***Marker**: Discussed behavioural plans previously and going forward, and how self that is unconfident may behave. Explored how "old self" might encourage him to behave more constructively.*	4	4

Item 9: Guided Discovery	0-6	**Trainee**: Used well and overall Socratic. ***Marker**: Good use of Socratic questioning throughout. Positive questions were used effectively (what has gone well this week) to balance negative biases. More opportunities possible (e.g. examining meaning of being a burden) but also mindful of need to manage the session of the time and keep to the manualised approach.*	4	4
Item 10: Conceptual Integration	0-6	**Trainee**: Discussed and conceptalised participants history ***Marker:** Participants history and past very central to discussions and therefore conceptual integration demonstrated. Discussed past history of low confidence and relevance of stroke to confidence, plus previous adversities.*	4	4
Item 11: Application of Change Methods	0-6	**Trainee**: Change methods were applied explicity and planned ***Marker:** Clear demonstration of change methods throughout i.e. extracting wisdom from past situations that can be applied to managing the current situation. Could have left longer pauses after "not sure" answers to enable this to be more collaborative, but nonetheless demonstrated, and good open questions. Gently challenged non-compassionate views 'I would say "grow a pair"'; 'what would be a more compassionate way of saying that?'*	4	4
Item 12: Homework Setting	0-6	**Trainee**: Clear homework set collaboratively ***Marker**: Homework agreed collaboratively. The client was clearly aware on how to follow up on the ideas on what to do next and this is a really strong sign that the client is motivated to change, believes in the approach, and has engaged well.*	5	5

Scoring System

Each item is rated on a Likert scale from 0-6. Each level is defined in detail to conform to the levels of competence. To get rated on the top marks (i.e., 'expert' end of the continuum) a very high level of skill would need to be demonstrated. The maximum score on the scale is 72 (12 x 6).

This assessment scale has been adapted from CTS-R, I.A. James, I.M. Blackburn & F.K. Reichelt (Dec 2001).