

Key questions
to ask when
**selecting outcome
measures:** a checklist
for allied health
professionals

Author:

Allied Health Professions (AHP) Outcome
Measures UK Working Group

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Appraising the impact and effectiveness of our interventions and services, and how they are perceived by the people who access them, is an integral part of professional practice.

A health outcome can be defined as 'a change in the *health status* of an individual, group or population which is attributable to a planned intervention or series of interventions' (World Health Organization 1998, p10.). Outcome measures allow us to evaluate whether such changes have occurred over time, and therefore play an important role in helping us deliver safe and effective interventions/services, which are valued by the people who access them. They can be used to:

- Identify meaningful change for the person accessing our services (e.g. in wellbeing/quality of life)
- Evaluate the effect of our interventions
- Demonstrate the impact and value of our services (e.g. to people who access them, colleagues and funders/commissioners)
- Identify areas for improvement
- Benchmark against other organisations/services/standards

Whilst the value of using outcome measures is well recognised, deciding upon an appropriate measure can be a somewhat daunting prospect. This checklist has been developed by a cross-disciplinary group of professional bodies, to help individual allied health professionals (AHPs) or teams select an appropriate outcome measure for their practice setting.

The checklist consists of three sections:

- 1. Initial considerations when selecting an outcome measure** – helps to identify the type of outcome and how it will be measured.
- 2. Acceptability and utility** – focusses on whether the outcome measure is user-friendly and relevant, and its feasibility within the practice setting.
- 3. Measurement properties** – outlines key measurement properties, including validity, reliability and responsiveness/sensitivity to change.

This checklist is not intended to be exhaustive; it is a tool to aid discussion, reasoning and decision-making. A list of further reading is provided at the end of the document.

1. Initial considerations when selecting an outcome measure			✓	
What do I want to measure?	People's experience of accessing care/satisfaction with service			
	People's perception of their health/wellbeing			
	Activity/function/participation			
	Effectiveness/safety of intervention			
	Service-level outcomes			
How will I measure it?	Self-report	Self-reported outcome measure (e.g. Patient Reported Outcome Measure [PROM])		
		Self-reported experience measure (e.g. Patient Reported Experience Measure [PREM])		
		Satisfaction measure		
	Report by, or measure designed to be administered by, relevant others (e.g. parent, teacher, caregiver)			
	Therapist/clinician administered measure			
	Service data (e.g. length of hospital stay, number of appointments/sessions, grade of staff delivering the intervention)			
Is there already a recommended outcome measure for this population/area of practice? <i>N.B. Population can, for instance, relate to age, gender, health condition, culture and/or geographic region.</i>	Yes	Name of outcome measure:		
		Does it have an evidence base for use with this population/area of practice? <i>N.B. Information about the evidence base may be found in the manual/on the website for the outcome measure, or by carrying out a literature search for relevant research papers.</i>	Yes Continue to section 2.	
			Not sure Check manual, relevant literature etc.	
	No Consider alternative outcome measure(s). Please refer to the 'further reading' section.			
No/I am not aware of one	Consider potential outcome measure(s) Please refer to the 'further reading' section for resources.			

2. Acceptability and utility		Comments
Is the outcome measure acceptable and meaningful to the people who will be using it?	Is it user-friendly?	
	Is it meaningful/does it add value (for the person accessing the service, and the department where it is to be used)?	
	Is it in a format that is appropriate for the individual? (e.g. are easy-read, translated or braille versions available?)	
What are the practical implications?	Is a current version of the outcome measure available?	
	Are there any cost/licensing implications?	
	Is any special training required to administer the outcome measure?	
	How is it administered? (e.g. face-to-face, questionnaire, app)	
	Where can it be administered? (e.g. individual's home, clinic setting)	
	Is any specialist equipment required?	
	How long does it take to administer?	
	How is information recorded and stored? Does use of the outcome measure comply with information governance/data protection requirements, including the General Data Protection Regulation?	
	How often can/should it be administered? <i>N.B. some outcome measures should not be re-administered within a certain period of time.</i>	

3. Measurement properties

When selecting an outcome measure, it is important to consider its measurement properties, which can broadly be considered in terms of:

- Validity
- Reliability
- Responsiveness/sensitivity to change

This section of the checklist asks some key questions about measurement properties, to help you ascertain whether the outcome measure can be expected to produce accurate and consistent results (when used with the people you are working with) and is responsive/sensitive enough to detect meaningful change.

N.B. You will usually be able to find details of measurement properties in the manual, on the relevant website and by exploring the evidence base (e.g. through a literature search).

VALIDITY	What population(s) has the outcome measure been validated against?	Population(s):	Is this applicable to the people I am working with?	Yes			
		N.B. Population can, for instance, relate to age, gender, health condition, culture and/or geographic region.	<i>For example, if an outcome measure was developed and its properties tested with a population of Canadian school children, it may not be valid when used with British school children.</i>	No			
				Comments:			
	Does it accurately measure what it intends to measure?	Face validity	Whether, on the face of it, the content of the outcome measure adequately reflects that which it is designed to measure. <i>For example, does an outcome measure about fear of falling ask questions about this?</i>	Comments:			
		Content validity	The extent to which the content measures what it is intended to measure, has sufficient breadth/depth, and is lacking in bias.	Comments:			
		Construct validity	The extent to which an outcome measure explores the construct (such as 'quality of life') that it intends to measure.	Comments:			
		Criterion validity	Concurrent validity	The extent to which the scores/results are consistent with those produced by a known outcome measure with good validity. <i>For example a new test of muscle function produces scores that are consistent with those achieved in an existing test.</i>	Comments:		
			Predictive validity	The extent to which the outcome measure can accurately predict an outcome, result or relationship. <i>For example, a test of balance that can predict risk of falls.</i>	Comments:		

RESPONSIVENESS	Is it able to adequately detect change over time? (responsiveness/sensitivity to change)	Floor effect	Occurs when an outcome measure lacks the sensitivity to change to produce scores below a certain level. <i>For example, if an individual's muscle strength is less than that represented by the lowest score on the test.</i>	Comments:
		Ceiling effect	Occurs when an outcome measure lacks the sensitivity to change to produce scores above a certain level. <i>For example, if an individual's muscle strength is greater than that represented by the highest score on the test.</i>	Comments:
RELIABILITY	Does it produce consistent results?	Internal consistency	The extent to which features within the outcome measure (such as items in a questionnaire) produce consistent results.	Comments:
		Intra-rater reliability	The extent to which a single rater (person administering/scoring the outcome measure) will produce consistent results.	Comments:
		Inter-rater reliability	The extent to which two or more raters will produce consistent results.	Comments:
		Test-retest reliability	The extent to which the outcome measure produces consistent results over time <i>(i.e. when re-administered and other variables have not changed).</i>	Comments:
		Measurement error	The difference between what is measured and its 'true' value. All outcome measures have the potential for small amounts of error. <i>For example, when weighing an individual with calibrated scales, there will still be a degree of variation.</i>	Comments:
 It is important that you administer, use and score the outcome measure as intended. Adapting an outcome measure to suit your own clinical needs will invalidate its measurement properties.				

Further Reading

This checklist is intended to help professionals select an appropriate outcome measure for use in their area of practice. It is not intended for academic or research use, and does not seek to be an exhaustive source of information. If you would like to carry out further reading, the publications and websites listed below may be of interest. Many of these have been used to inform the development of this checklist.

Publications

Asher IE (2014) *Asher's occupational therapy assessment tools: an annotated index*. 4th ed. Bethesda, MD: American Occupational Therapy Association.

Cappelleri JC, Zou KH, Bushmakina AG, Alvir JMJ, Alemayehu D, Symonds T (2014) *Patient-reported outcomes: measurement, implementation and interpretation*. Boca Raton, FL: CRC Press/Taylor and Francis.

Kamudoni P, Johns N, Salek S (2018) *Living with chronic disease: measuring important patient-reported outcomes*. Singapore: Adis/Springer Nature.

Kaplan SL (2007) *Outcome measurement and management: first steps for the practicing clinician*. Philadelphia, PA: FA Davis.

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Mokkink LB, Terwee CB, Patrick DL, Alonso J, Stratford PW, Knol DL ... de Vet HCW (2010) The COSMIN study reached international consensus on taxonomy, terminology, and definitions of measurement properties for health-related patient-reported outcomes. *Journal of Clinical Epidemiology*, 63(7), 737–745.

Stokes EK (2011) *Rehabilitation outcome measures*. 1st ed. Edinburgh: Churchill Livingstone.

Streiner DL, Norman GR, Cairney J (2015) *Health measurement scales: a practical guide to their development and use*. 5th ed. Oxford: Oxford University Press.

Thornicroft G, Tansella M eds (2010) *Mental health outcome measures*. 3rd ed. London: RCPsych Publications.

Websites

COMET (Core Outcome Measures in Effectiveness Trials) Initiative. <http://www.comet-initiative.org>

COSMIN (COnsensus-based Standards for the selection of health Measurement INstruments). <https://www.cosmin.nl>

UKROC (UK Rehabilitation Outcomes Collaborative). <http://www.ukroc.org>

SSNAP (Sentinel Stroke National Audit Programme). <https://www.strokeaudit.org>

All websites accessed on 23.09.19.

References

World Health Organization (1998) Health promotion glossary. Geneva: World Health Organization. Available at: <http://www.who.int/healthpromotion/about/HPR%20Glossary%201998.pdf>

Accessed on 23.09.19.

Contributors

This resource has been developed by representatives from the following AHP professional bodies and membership organisations:

 <p>ROYAL COLLEGE OF SPEECH & LANGUAGE THERAPISTS</p>	<p>Kathryn Moyse (Chair) Outcomes and Informatics Manager Royal College of Speech and Language Therapists www.rcslt.org</p>
<p>Document endorsed by</p>  <p>The Association of UK Dietitians</p>	<p>Eleanor Johnstone Policy Officer The British Dietetic Association www.bda.uk.com</p>
 <p>CHARTERED SOCIETY OF PHYSIOTHERAPY</p>	<p>Dr Denise Ross Research and Innovation Lead for Physiotherapy and Clinical Specialist Physiotherapist Neurological Rehabilitation Leeds Teaching Hospitals NHS Trust Representing the Chartered Society of Physiotherapy www.csp.org.uk</p>
 <p>The COLLEGE of PODIATRY</p>	<p>Katie Collins Professional Support Officer The College of Podiatry www.cop.org.uk</p>
 <p>THE INSTITUTE of OSTEOPATHY</p>	<p>Dr Carol Fawkes Senior Research Officer National Council for Osteopathic Research Representing the Institute of Osteopathy www.iosteopathy.org</p>
<p>Royal College of Occupational Therapists</p> 	<p>Pauline McDonald Research and Development Officer Royal College of Occupational Therapists www.rcot.co.uk</p>

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