

tionalized spatial contexts.

Imagine if, for example, a patient's psychosis could be understood using an interface similar to online geographic maps. One could "zoom out" (decrease the resolution) to observe psychosis symptoms over days, weeks and months, and could "zoom in" (increase the resolution) to observe whether psychosis systematically change as a function of time (e.g., worse in the evening) or spatial conditions (e.g., worse when interacting with certain peers). This sort of dynamic data and interface would provide unprecedented opportunities for understanding psychiatric disorders and for personalizing pharmacological, psychosocial and emergency interventions.

Just as the reliability and validity of biomedical measures of, for example, glucose or heart rate<sup>3</sup> are only reported and evaluated during specific and controlled circumstances, so too should the reliability and validity of digital phenotyping technologies be understood as a function of time and space. Digital phenotyping technologies are not "reliable and valid" *per se*, but rather can have reliability and validity under specific circumstances and for specific purposes. Reporting psychometric features with regard to relevant temporal and spatial characteristics can help guide implementation of digital phenotyping technologies, improve interpretation of their data, and potentially help optimize signal and reduce noise. Conceivably, this can improve reliability and validity parameters such that they approximate those of biomedical tests more generally.

To illustrate how resolution can improve digital phenotyping validation efforts, consider natural language processing technologies used to quantify psychosis. A cursory review of the literature reveals that "validity" has been established, in that modest convergence is documented between various computationally-derived semantic speech features and "gold-standard" clinical symptom ratings<sup>8</sup>. This approach to validation seems inappropriate when one considers the mismatch in resolution between

these measures – with the former being derived from systematic analysis of brief language samples procured during a fairly-concocted clinical interaction or cognitive task, and the latter representing an ordinal rating assigned by a clinician based on an extended clinical interview<sup>9</sup>. These ratings reflect very different temporal and spatial characteristics, and hence, failures to find large convergence is unsurprising. While machine learning-based algorithms connecting digital phenotyping technologies and clinical ratings have shown impressive accuracy, they have generally also ignored the overt resolution mismatch between these variables and have not demonstrated generalizability to new samples, speaking tasks or clinical measures<sup>2,9</sup>.

To our knowledge, resolution is not generally considered in digital phenotyping research. In order for digital phenotyping of psychiatric disorders to be considered on-par with that of biomedical disorders more generally, their psychometrics need to be similarly precise. This precision can be achieved through deliberate consideration of "resolution".

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## Ensuring Quality in Psychological Support (WHO EQUIP): developing a competent global workforce

Globally, the vast majority of people with mental health conditions do not receive effective care. Among people living with depression, only 1 in 5 persons in high-income countries and 1 in 27 in lower-middle income countries receive minimally adequate treatment<sup>1</sup>. There is a dearth of health workers trained in mental health care, with only one trained provider per 10,000 people in most countries<sup>2</sup>. One key action to improve access to mental health care is to expand psychological and psychosocial support services delivered by diverse cadres across settings<sup>3</sup>.

There is now good evidence that persons who are not specialists in mental health can effectively deliver psychological interventions, but they must be adequately trained and supervised<sup>4</sup>. Non-specialist providers include primary care workers, community workers, psychosocial workers, teachers, family members and peers. However, unlike licensed professionals for whom

there are professional associations to assure standards, there are usually no systems or mechanisms in place that check whether non-specialist providers have sufficient training and supervision to achieve minimum competency to effectively and safely deliver interventions. This raises the question: how can governments and the general population be assured that non-specialists provide quality care?

One way to address this challenge is to establish competency-based training approaches and competency assessment measures that governments, non-governmental organizations and other institutions can use to benchmark skills for safe and effective care. Competency measures can be used to determine who is or is not competent as well as to tailor supervision and supplementary training to address gaps in skills. Having competency targets in mind can also inform training duration and content

that may need to vary across sites or cadres. Competency-based training approaches have already demonstrated success in diverse areas of health care in low resource settings, including surgery and obstetric care<sup>5,6</sup>.

To facilitate competency-based training in psychosocial support, psychological treatments, and foundational helping skills, the World Health Organization (WHO) is developing the Ensuring Quality in Psychological Support (EQUIP) platform ([https://www.who.int/mental\\_health/emergencies/equip/en/](https://www.who.int/mental_health/emergencies/equip/en/)).

The EQUIP platform aligns with WHO's work on universal health coverage, that is establishing competency frameworks across fields of health care. EQUIP will be an online resource to help program managers and trainers utilize competency assessments to evaluate trainings and to feedback those competency results to support trainee development and modify curricula.

The full suite will comprise tutorials on implementing competency assessments, including how to achieve interrater reliability with global rating standards and how to use role plays to assess competency. It will include guidance for trainers on delivering competency-based training programs, and for implementation and adaptation of psychological interventions. In addition, the EQUIP platform will offer training modules on common factors that can be selected based on competency assessment outcomes. Common factors are general elements of psychosocial support and psychological care – such as communication skills, empathy, collaboration, and helper-client alliance – that are vital ingredients for any intervention to be effective<sup>7</sup>.

Contents of the EQUIP platform have been informed by a theory of change workshop attended by mental health and psychosocial service stakeholders with different practice experiences from diverse global settings. The EQUIP team has reviewed manuals and training materials for interventions delivered by non-specialists with effectiveness demonstrated in randomized controlled trials. This has led to the identification of competencies for both common factors and specific classes of psychological interventions (e.g., cognitive, interpersonal, problem solving, behavioral and trauma-focused techniques).

EQUIP will encompass a competency evaluation tool, the Enhancing Assessment of Common Therapeutic Factors (ENACT), that has been developed for role-play based assessment of mental health and psychosocial support skills for non-specialist and specialist providers across cultures, context and types of interventions<sup>8,9</sup>. In addition, a suite of competency assessment tools based on ENACT is being developed and tested. Below we briefly outline who, how, where and when EQUIP can be used.

*Who can use EQUIP?* EQUIP is intended for trainers, supervisors and project managers implementing psychosocial support and psychological interventions.

*How can EQUIP be used?* EQUIP can be used to improve implementation plans, competency assessments of trainees, and training and supervision curricula in common factors to accompany manualized interventions. Competency assessments may also be used to aid selection of trainees and to guide institutional certification after achieving minimum skill targets.

*Where can EQUIP be used?* EQUIP will be an online platform of resources with offline formats.

*When can EQUIP be used?* To refine the platform and its materials, EQUIP is being developed using a human-centered design approach to enhance usability and engagement, and piloted in multiple countries. After piloting, materials will be available in English, Arabic and Spanish.

Ultimately, EQUIP is intended to be a resource that will undergo iterative transformation based on feedback from the global practitioner community. Addressing mental health and psychosocial needs requires radical growth in the global workforce to ensure safe and effective delivery of psychosocial support and evidence-based psychological interventions. The EQUIP platform will make competency-based training and assessment resources widely available and adaptable to the contexts and needs of local organizations and practitioners.

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## Defining pathological social withdrawal: proposed diagnostic criteria for hikikomori

In the late 1990s, a severe and prolonged form of social withdrawal typically observed among adolescents and youth transitioning to adulthood entered the collective national consciousness in Japan. Called “hikikomori”, it has shifted in recent years

from being viewed as a typical Japanese problem to an issue that may have global health implications<sup>1</sup>. This shift has been driven by increasing evidence of hikikomori in epidemiologic studies, clinical case series and media reports from around the world<sup>2</sup>.