Programs and Policies for Mental Health: High-Quality Data

Accurate Measures of Mental Disorder to Guide Interventions

High-quality mental health data from Nepal are freely available from the Chitwan Valley Family Study.

Major Depressive Disorder (MDD) is a serious and common mental disorder worldwide. Not only does MDD limit a person's ability to function, it also worsens many other health problems. For example, people with MDD may have difficulty following treatment or prevention plans for other illnesses. The prevalence and consequences make programs and policies to reduce MDD important. We need data to guide interventions but, if data quality is low, we will greatly underestimate the total number of people who experience MDD episodes. And MDD is only one of many different mental disorders.

Programs and policies aiming to improve mental health and mental disorder treatment in the population need accurate measures of the prevalence of specific types of mental disorders. This includes a need for data that document the specific types of common experiences most likely to produce episodes of mental disorder. Unfortunately, measurement of mental disorders is not easy. For any data that exist there is always a process that creates the data. And a low-quality process creates low quality data. When used to guide policy makers' decisions, low quality data leads to low quality decisions.

> *If data quality is low, we will greatly underestimate the total number of people who experience episodes of Major Depressive Disorder.*

Data Process

The successful application of general population tools for the measurement of mental health *depends* on a data creation process that includes:

1. Careful selection of a sample of individuals who represent the population
2. A well-designed survey tool or questionnaire
3. Careful translation across languages and cultures
4. A well-trained team of interviewers, with high levels of supervisions and quality control
5. Careful data management and analyses (Groves and Lyberg 2010)

Robust Results

We learned that a Life History Calendar (LHC) paired with our standard survey helped respondents remember important events and increased their memory of impairments serious enough to indicate a mental disorder episode.

We found that with the LHC tool, more than double the participants met criteria for a Post-Traumatic Stress Disorder (PTSD) diagnosis. Four times more people met criteria for Generalized Anxiety Disorder (GAD). And nearly eight times more people met criteria for MDD. **This means Nepal has much higher levels of mental disorders than previously documented, as earlier population studies relied on much less robust survey items.**

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Creating High-Quality Measures of Episodes of Mental Disorder

A clear definition of the topic is needed to define a plan to collect high-quality data on that topic. In the case of mental health, psychologists and psychiatrists spend tremendous effort across decades revising the definition of mental health to identify the experience of mental disorders (American Psychiatric Association 2022; World Health Organization 1992). Disorders are mental illness experiences that significantly impair a person's functioning (physical, emotional, or cognitive). *Crucial to this science, mental disorders happen as episodes, not constant conditions*. People experience an episode of mental disorder, but then the symptoms can lessen. This means a person can experience a serious mental disorder that impairs their ability to work, go to school, or care for their children and then recover from that episode so that when you speak with the person, they report they are "fine."

In the process of designing our study protocol, we discovered that remembering the timing of important life events greatly improves recall of mental health/illness symptom episodes.

The World Mental Health Survey Initiative is a global consortium that has spent decades revising the general population tools to support measurement of the mental health of representative samples of thousands of people (Kessler and Üstün 2008). Success applying these tools depends upon a rigorous data creation process. When implementation of the survey tool is successful, measures of mental disorder episodes can be validated by an independent assessment by a mental health professional.

Creating High-Quality Mental Health Data in Nepal

To accomplish this difficult task in Chitwan, Nepal, we began with a four-year process of survey translation and cultural adaptation that involved leaders of the World Mental Health consortium, Nepalese psychiatrists and social scientists, and data creation methodologists (Ghimire et al. 2013). We used an excellent quality population sample from the Chitwan Valley Family Study (CVFS), highly trained and supervised interviewers from the Institute for Social and Environmental Research – Nepal (ISER-N), sophisticated data collection software (Blaise) from Statistics Netherlands, and science-leading study management software (SurveyTrak) and technical oversight from the University of Michigan's Survey Research Center. In the process of designing our study protocol, we discovered that remembering the timing of important life events greatly improves recall of mental health/illness symptom episodes.

A Life History Calendar (LHC) is a well-documented tool for improving recall of key life events (Axinn, Pearce, and Ghimire 1999). Based on pilot testing and validation, we learned that an LHC paired with our standard survey helped respondents remember important events and increased their memory of impairments serious enough to indicate a mental disorder episode. To test this using the final version of our questionnaire, interviewers, sample, and methods, we randomly assigned more than 2,000 people to complete the study with and without the LHC.

Table I. Percent meeting the criteria for mental disorder, with and without use of the Life History Calendar (LHC)

	Without LHC (n=1404).%	With LHC (n=1089).%
Screening Positive		
Depression	19.59	29.38***
Generalized anxiety disorder	17.09	21.03*
Alcohol use disorder	29.56	28.65
Post-traumatic stress disorder	78.21	83.84***
DSM-IV Diagnoses (Life Time)		
Depression	1.85	14.60***
Generalized anxiety disorder	1.78	7.35***
Alcohol use disorder	5.06	5.60
Post-traumatic stress disorder	1.71	3.67**

*p<0.05; **p< 0.01; ***p < 0.001 (proportion tests for significant differences between the two subsamples).

The Life History Calendar revealed much higher prevalence of mental disorders in Nepal than previously documented.

Life History Calendars Reveal High Prevalence of Mental Disorders, Potentially Traumatic Experiences

The results were strong. Rates of both screening positive (endorsing several symptoms) and meeting diagnostic criteria (the full criteria as defined in the DSM-IV, the standard tool of psychiatry) were **significantly higher** among those who used an LHC for some of the most common mental disorders in Nepal, including MDD, generalized anxiety disorder (GAD), and post-traumatic stress disorder (PTSD), (see Table 1).

With an LHC, the tool to help people remember important events in their lives, more than double the number met criteria for a PTSD diagnosis. Four times more people met criteria for GAD. And nearly eight times more people met criteria for MDD. This means Nepal has much higher levels of mental disorders than previously documented, as earlier population studies relied on much less robust survey items.

Crucial to understanding the quality of these measures is the result of our clinical validation. The CVFS used thorough clinical validation of the LHC-enhanced interviews to demonstrate levels of validity similar to those accomplished in the United States, using the same clinical validation procedures as used in the United States (Axinn et al. 2020) – independent re-interviews of randomly selected participants by clinicians using the gold-standard diagnostic tool. No shortcuts.

In fact, any analysis of mental disorder incidence data that did not use an LHC is likely to lead to incorrect conclusions about what we can do to improve mental health policy. For example, using this same large-scale experiment from Chitwan, Nepal, we investigated people's reports of experiencing potentially traumatic experiences, or PTEs.

Again, results demonstrated that when the LHC tool was used in their interview, they were significantly more likely to report any PTE (see Table 2), significantly more likely to report two or more PTEs (an important risk factor for mental disorder), and likely to report a significantly higher number of PTEs (Axinn and Chardoul 2021). PTEs are an important risk factor for both PTSD and MDD. Low-quality data on health risks (like PTEs) can **mislead policy/program decision-makers** about factors that must be addressed to reduce these problems.

Table 2. Percent with any and a count of potentially traumatic experiences (PTEs), with and without use of a Life History Calendar (LHC)

	Without LHC (n=1404)	With LHC (n=1089)
Any PTE	78.2%	83.8%***
Two or more PTEs	47.8%	64.2%***
Count of PTEs	1.71 (0.04)	2.00 (0.04)**
***p< 0.001 (tests for significant differences between the two subsamples)		

When the Life History Calendar was used, participants were much more likely to report potentially traumatic experiences.

Of course, creating high-quality data takes much more time and effort than creating low-quality data. Here we have reviewed key elements of the processes needed to create high-quality data, using the illustration of creating data on mental health in the general population. We showed results from a large-scale randomized test of the difference only one element can make. The CVFS applied the highest quality science available in all phases of general population measurement of mental disorders – LHCs are only one example.

To read more about these high-quality mental health data see Scott et al. (2021). Data from the CVFS are freely available to the scientific community: see ***cvfs.isr.umich.edu.***

References

American Psychiatric Association. 2022. *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5-TR). 5th ed. Washington, D.C.: American Psychiatric Association.

Axinn, William G., and Stephanie Chardoul. 2021. "Improving Reports of Health Risks: Life History Calendars and Measurement of Potentially Traumatic Experiences." *International Journal of Methods in Psychiatric Research* 30(1):e1853. doi: 10.1002/mpr.1853.

Axinn, William G., Stephanie Chardoul, Heather Gatny, Dirgha J. Ghimire, Jordan W. Smoller, Yang Zhang, and Kate M. Scott. 2020. "Using Life History Calendars to Improve Measurement of Lifetime Experience with Mental Disorders." *Psychological Medicine* 50(3):515–22. doi: 10.1017/S0033291719000394.

Axinn, William G., Lisa D. Pearce, and Dirgha J. Ghimire. 1999. "Innovations in Life History Calendar Applications." *Social Science Research* 28(3):243–64. doi: 10.1006/ssre.1998.0641.

Ghimire, Dirgha J., Stephanie Chardoul, Ronald C. Kessler, William G. Axinn, and Bishnu P. Adhikari. 2013. "Modifying and Validating the Composite International Diagnostic Interview (CIDI) for Use in Nepal." *International Journal of Methods in Psychiatric Research* 22(1):71–81. doi: 10.1002/mpr.1375.

Groves, Robert M., and Lars Lyberg. 2010. "Total Survey Error: Past, Present, and Future." *Public Opinion Quarterly* 74(5):849–79. doi: 10.1093/poq/nfq065.

Kessler, Ronald C., and T. Bedirhan Üstün, editors. 2008. *The WHO World Mental Health Surveys: Global Perspectives on the Epidemiology of Mental Disorders*. Vol. 1. New York, NY: Cambridge University Press.

Scott, Kate M., Yang Zhang, Stephanie Chardoul, Dirgha J. Ghimire, Jordan W. Smoller, and William G. Axinn. 2021. "Resilience to Mental Disorders in a Low-Income, Non-Westernized Setting." *Psychological Medicine* 51(16):2825–34. doi: 10.1017/S0033291720001464.
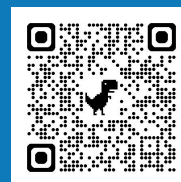
World Health Organization. 1992. *The ICD-10 Classification of Mental and Behavioural Disorders: Clinical Descriptions and Diagnostic Guidelines* (Vol. 1). Geneva: World Health Organization.

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