

Assistive Technology for Supporting People with Mental Health Conditions: Part 1

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Technology for Independence



Job-Driven Center Goals

Improve skills of state VR agency staff, other rehab professionals & providers of VR services, who are trained to provide “job-driven” VR services & supports to PWD, employers & customized training providers.

Four Topic Areas:

1. Business Engagement
2. Employer Supports
3. Labor Market Information (LMI)
4. Customized Training Providers

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Job-Driven Center Partners

Institute for Community Inclusion (ICI) at Univ. of Massachusetts,
Boston

In Partnership with:

- Jobs for the Future (JFF)
 - Univ. of Arkansas
 - Univ. of Washington
- Council of State Administrators of Vocational Rehabilitation (CSAVR)
 - United States Business Leadership Network (USBLN)
 - Association of University Centers on Disabilities (AUCD)

In Collaboration with:

- National Council of State Agencies for the Blind (NCSAB)
 - Technical Assistance Center Collaborative



Washington Assistive Technology Act Program



- Provide assistive technology resources and expertise to all Washington residents with disabilities to aid in making decisions and obtaining the technology and related services needed for employment, education and independent living
- Each state has a federally funded and mandated AT program that provides comprehensive statewide services



How the AT Act Programs Can Help

- Low cost or free programs for consumers
 - Device Demonstration
 - Device Lending
 - Device Reutilization
 - Alternative Financing
 - Information and Referral



Objectives

- Part 1
 - Understand prevalence and potential negative outcomes of having a mental health condition.
 - Understand the interaction between cognitive disability and mental health conditions and the effects on employment outcomes.
 - Understand how assistive technology can be used to support people with mental health conditions and improve employment outcomes.
- Part 2
 - Identify specific assistive technologies that can be used as accommodations for people with mental health conditions.



Mental Health Conditions

- Refers to a broad range of conditions:
 - Anxiety Disorders
 - Bipolar Disorder (Manic-Depressive Illness)
 - Borderline Personality Disorder
 - Depression
 - Eating Disorders
 - Generalized Anxiety Disorder
 - Obsessive-Compulsive Disorder (OCD)
 - Panic Disorder
 - Post-Traumatic Stress Disorder (PTSD)
 - Schizophrenia
 - Social Phobia (Social Anxiety Disorder)



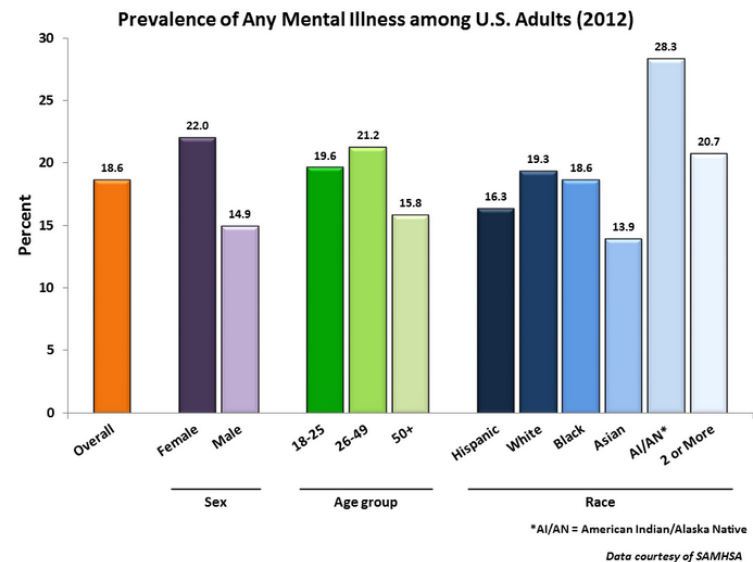
Prevalence— Any Mental Health Condition

In 2012, there were an estimated 43.7 million adults aged 18 or older in the U.S. with AMI in the past year. This represented 18.6 percent of all U.S. adults.

AMI defined as:

- A mental, behavioral, or emotional disorder (excluding developmental and substance use disorders);
- Diagnosable currently or within the past year; and,
- Of sufficient duration to meet diagnostic criteria specified within the 4th edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV).

Definitions from National Institute of Mental Health (NIMH)
<http://www.nimh.nih.gov/health/statistics/index.shtml>



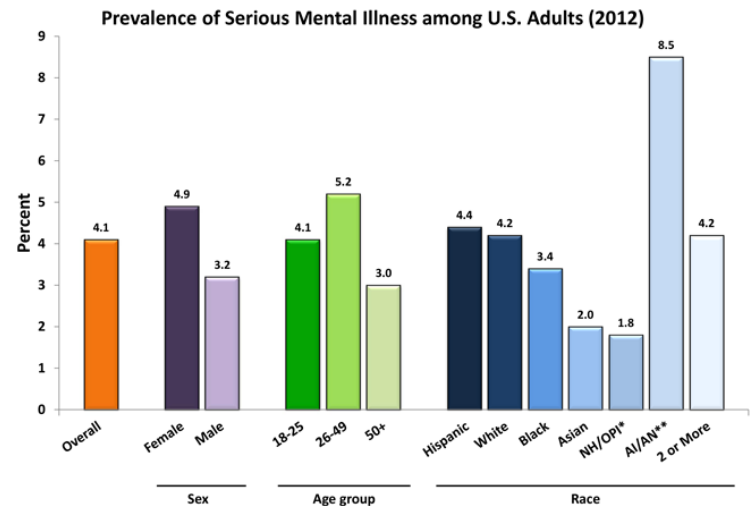
Data from the National Survey on Drug Use and Health (NSDUH)



Prevalence— Serious Mental Health Condition

In 2012, there were an estimated 9.6 million adults aged 18 or older in the U.S. with SMI in the past year. This represented 4.1 percent of all U.S. adults. SMI is defined as:

- A mental, behavioral, or emotional disorder (excluding developmental and substance use disorders);
- Diagnosable currently or within the past year;
- Of sufficient duration to meet diagnostic criteria specified within the 4th edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV);
- Resulting in serious functional impairment, which substantially interferes with or limits one or more major life activities.



Data courtesy of SAMHSA.

*NH/OPI = Native Hawaiian/Other Pacific Islander
**AI/AN = American Indian/Alaska Native



Mental Health Conditions and Employment

- The unemployment rate for people receiving public mental health services is approximately 80%.
- Employment rates declined from 23% in 2003 to 17.8% in 2012.
- Approximately 60% of the 7.1 million people receiving public mental health services want to work, but less than 2% receive supported employment opportunities.
- Work disincentives in public benefits encourage unemployment because an individual may return to work, lose SSDI and SSI, but not receive mental health services as part of an employer sponsored plan.

Breslau, et al. (2008). Mental disorders and subsequent educational attainment in a US national sample. *J Psychiatr Res*; 42(9): 708–716.

Esch, et al. (2014). The downward spiral of mental disorders and educational attainment: a systematic review on early school leaving. *BMC Psychiatry*, 14:237



Mental Health Conditions and Education

- Mental illness is related to early termination of schooling at all levels, with the highest proportion of terminations attributable to mental illness at high school (10.2%).
- Substance use and disruptive disorders are more related to early school leaving than mood and anxiety disorders.
- Socio-economic status is a significant mediating factor between mental disorders and educational attainment.

Breslau, et al. (2008). Mental disorders and subsequent educational attainment in a US national sample. *J Psychiatr Res*; 42(9): 708716.

Esch, et al. (2014). The downward spiral of mental disorders and educational attainment: a systematic review on early school leaving. *BMC Psychiatry*, 14:237



Mental Health Conditions and Criminal Justice Involvement

- Statistics are grim.
 - Estimates suggest ten times more seriously mentally ill persons in jails and prisons than in hospitals.
 - 356,268 in jails; 35,000 in state psychiatric hospitals
 - In 44 of 50 states, a prison or jail in that state holds more individuals with serious mental illness than the largest remaining state psychiatric hospital.
 - Approximately 40% of individuals with serious mental illness have been in jail or prison at some time in their lives.
 - Some argue that we moved from de-institutionalization in the 1960s to trans-institutionalization in prisons and jails currently because mental health programs are so poorly funded.

Torrey, et al. (2014). The Treatment of Persons with Mental Illness in Prisons and Jails: A State Survey. <http://tacereports.org/treatment-behind-bars>



Mental Health Conditions and Cognition

- People commonly make a division between cognitive disability (how we think) and mental illness (how we act or behave or believe); however both are related.
- Some researchers hypothesize that cognitive disabilities support or maintain some of the behaviors seen in people with mental illness.
 - For example in people with schizophrenia...
 - Poor executive functioning, which has been linked to insight of illness, may underpin poor medication compliance, self-injurious behavior, assaultiveness.
 - Poor working memory may underpin formal thought disorder and derailment (loose association, rambling, rapid switching of topics).



Cognitive Impairments

- Cognitive impairment is when a person has trouble remembering, learning new things, concentrating, or making decisions that affect their everyday life. Can range from mild to severe.
 - Memory
 - Executive functions
 - Sensory processing
 - Social and behavioral issues
- Cognitive deficits are the primary barriers to employment for many people with disabilities (e.g., MS, Acquired Brain Injury, and Intellectual Disability).
- With cognitive deficits, “thinking” requires more effort/vigilance and can contribute to fatigue. In addition, reduced speed of information processing, limited working memory, distractibility, potential impulsivity.



Cognition and Mental Health Condition

Cognitive disability varies by type of mental health condition.

	Attention and/or vigilance	Working memory	Executive function	Episodic memory	Semantic memory	Visual memory	Verbal memory	Fear extinction	Processing speed	Procedural memory	Social cognition (theory of mind)	Language
Major depression	+(+)	++	++	++	+	+	+(+)	0/+?	++(+)	+	+(+)	+
Bipolar disorder	++(+)	++	++	++	+	+	++	+?	++	0	++	++
Schizophrenia	+++	+++	+++	+++	++	+(+)	+++	++	++	+	+++	+++
OCD	+++(!)	+(+)	++	+	0/+	+	0/+	++	++	++	+	0/+
PTSD	+++(!)	+(+)	+(+)	++	+	+	++(+)	+++	+	0	0/+	0
Panic disorder	+++(!)	+	0/+	+	0/+	0/+	+	++	++	0	0	0
GAD	+	+	0	0	+	+	+	+	0	0	0/+	0
Parkinson's disease	++	++(+)	++	+	0/+	+	+	0?	+++	+++	+(+)	+(+)
Alzheimer's disease	+(+)	+(+)	+(+)	+++	+++	+++	++(+)	0?	+	+	+	++

Essentially absent, poorly documented, ambiguous, mild and/or variable.

Consistently present, but not pronounced.

Common, marked characteristic.

A core, severe and virtually universal characteristic of the disorder.

Millan, et al. (2012). Cognitive dysfunction in psychiatric disorders: characteristics, causes and the quest for improved therapy. *Nature Reviews*, 11, 141-168.



Student/Worker Traits Affected by Mental Health Conditions

- Concentration
 - Depression or Racing Thoughts
 - Fatigue
- Memory / Organization
 - Medication Side Effects
 - Treatment Residual - ECT
- Inconsistency
 - Mood Changes
 - Decision Making Skills
- Unpredictability
 - Agitation
 - Risky Behavior



Mental Health Conditions and Assistive Technology

- Lots of research and practice about assistive technology for people with cognitive disabilities.
- Almost none of it focuses on people with mental illness and the co-occurring cognitive disabilities that accompany many forms of mental illness.
- Because of this, we have to apply what we know about AT for cognition to the needs of people with mental illness, but with one important caveat.
 - AT for cognition will likely be most effective when other symptoms of mental illness are under stable control either through medication or appropriate counseling.



Do People with Mental Health Conditions Use Technology?

- Study from 2013. N=1,568. Schizophrenia 58%; bipolar 22%; major depressive 14%; substance use disorder 28%.
- 72% owned a mobile device (12% less than general population).
- Device ownership more common among those with mood disorders(86%) than those with schizophrenia (63%).
- 81% of those who owned a device and 62% of those who did not expressed interest in receiving mental health services via mobile technology in the future.
- Cost was the most common barrier to ownership.

Ben-Zeev, D., Davis, K. E., Kaiser, S., Krzsos, I., & Drake, R. E. (2013). Mobile Technologies Among People with Serious Mental Illness: Opportunities for Future Services. *Administration and Policy in Mental Health*, 40(4), 340–343.



Do People with Mental Health Conditions Use Technology?

- Survey of people with schizophrenia (N=457; 2016)
 - 90% of the individuals surveyed owned more than one digital device such as a personal computer, tablet or smartphone.
 - 54% had access to smartphones compared to 64% of all Americans.



Do People with Mental Health Conditions Use Technology?

- Many of the respondents use their devices to cope with mental illness.
 - 42% by blocking or managing auditory hallucinations with music or audio files
 - 38% for health information on the Internet
 - 37% for calendar reminders
 - 32% for transportation and map needs
 - 28% for medication management
 - 26% for supporting others
 - 26% for developing relationships with other persons with schizophrenia
 - 25% for monitoring symptoms
 - 24% for identifying coping strategies.

<https://www.nami.org/Press-Media/Press-Releases/2016/Schizophrenia-Digital-Technology-Defies-Stigma,-S#sthash.dIEuqim.dpuf>



How can Technology Help?

- Assistive Technology
 - Cognitive support
 - Reminders / Schedulers / Task Management - (Memory, Executive Function)
 - Calming/reducing arousal
 - Soothers / Comforters / Mindfulness - (Anxiety)
 - Distracters / Disrupters - (Agitation)
 - Self-management
 - Mood & Behavior Trackers / Screeners - (Therapeutic)
 - Safety / Monitoring - (Risk Behaviors)
 - Sleep / Diet – (Health Behaviors)
 - Passive symptom tracking
 - Breathing / Pulse / GSR – (Stress)



How can Technology Help?

- Other uses:
 - Skill Training
 - Virtual reality (e.g., exposure training for PTSD)
 - App-based games and educational products
 - Illness Management/Supported Care
 - App-based connection with peer support or a trained health provider.



What Kinds of Technologies?

- Digital Hand Held Devices
 - Smart Phones, Pagers, Watches
 - Tablets, Computers, Sound Machines
 - Video Conferencing, Social Networking, Sleep Aids
- Apps, Online, or Built-in Accessibility Software
 - Commercial Apps, Text Reader, Color Options
- Low Tech
 - Ear Buds, Pocket Stone, Note Pads, Service Animal



Choosing AT: Why Process is Important

- Many AT options – a good, thorough process helps to identify choices
- Up to 50% of all AT is abandoned
 - User's preferences or environment were not considered
 - User purchased device without trying it out
 - User did not receive needed services (evaluation, training, follow up, repairs)
 - User's functional capabilities changed and AT could not accommodate change



The Process: Selecting AT

- Focus on tasks to be accomplished – not just technology
- Get an AT evaluation
- Consider range of options (no-tech, light-tech, high-tech)
- Focus on user preferences - match person & solution
- Consider environmental supports & constraints
- Identify needed services including training, maintenance, repairs, warranties
- Try AT in the work environment before purchasing
- Evaluate outcomes & make adjustments



Implementing AT Solutions

- Reminder: training and ongoing support is needed or individuals will not benefit
- They may:
 - Fail to use AT to best advantage (e.g., not use all relevant features)
 - Abandon the AT completely
- Training must be:
 - Explicit, structured, ongoing
 - Embedded in real world tasks



Questions?



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