INTEGRATING BEHAVIORAL ASSESSMENT TOOLS WITH TABLETS IN CLINICAL PRACTICE

Kathleen Johnson, MSN, FNP-BC, C-PMHS
Adolescence: critical period of development;  
Mental health disorders: disruptive, impact a young person’s life, milestones, interpersonal development long-term

Depression: most impairing mental health disorder worldwide

25% of adolescents have a mild form of depression by adulthood (Iturralde, 2017).

Autism Spectrum Disorder and Developmental Disabilities have high prevalence for co-occurring depression, anxiety, stress, and mood disorders (De la Iglasia, 2015).
Suicide amongst Youth

* Suicide: second top cause of death for youth ages 10-24.
* Individuals with Autism have over a 50% rate of Suicidal Ideation (SI).
* 15% of those with SI and Autism attempt suicide (De la Iglasia, 2015).
* Those with Autism and higher IQ are shown to have higher rates of depression and suicidal ideation.
* 90% of people that die from suicide have an identifiable mental health disorder at the time of death (NIMH, 2017).
* Majority of youth that die by suicide have contact with a medical provider within three months. (NIMH, 2017).
Why is this a crisis?

* There is a lack of psychiatric providers with over 15 Million children are in need of mental health services.
* 8% of adolescents had a Major Depressive Episode in past year
* Only 20% of these youth are diagnosed and treated annually (American Academy of Child and Adolescent Psychiatry, 2013, National Alliance of Mental Health, 2010).

• The US Preventive Screening Task Force (USPSTF) recommends screening for major depressive disorder in adolescents 12-18 years of age regularly.
• Especially important for school based clinics and primary care practices who see them frequently
• Screening promotes early identification and initiation of treatment (2016)
Barriers to Frequent Behavioral Screening

* Youth often are less engaged with healthcare providers, many do not have annual physicals anymore
* Emergency rooms and Urgent Care centers are commonplace for evaluating and treating acute illness.
* Providers often have short, focused visits and many responsibilities
* Evaluation of mental health symptoms with developmental disabilities may be difficult, as these may resemble core symptoms of the underlying disorder.

ALEXTHYMIA: Adults with Autism often have more difficulty identifying, describing, and interpreting emotional states than the general population.
* Screening tools for depression, anxiety, mood disorder, suicidal ideation, drug and alcohol use/abuse, and Post Traumatic Stress Disorder, and more!

* Can incorporate screening tools: electronic format with TABLETS in clinical practice

* Results can populate directly into the Electronic Medical Record

* Tablet mediated interventions have been shown more favorable and equally effective to traditionally used pen and paper (Hong, 2017)

* Study using tablets with M-CHAT and follow-up questions for positive/at risk answers demonstrated more parental satisfaction (Harrington, 2013)
Touchscreen Tablets

* **Touchscreen tablets**: provide targeted behavioral interventions and enhancing communications with developmental disabilities, such as autism.

* Verbal and physical communication deficits, learning disabilities: may find pen and paper questionnaires difficult

* Youth may find papers and pencil to feel like school...or just be BORING!

* Tablets may feel familiar and comfortable, thus increase youth cooperation and participation

* Helps keep answers private, building trust between youth and provider.
The Institute of Medicine (IOM) report *To Err Is Human* expressed the power that information systems have to improve clinical function and improve accountability in health care (1999).

Electronic Medical Records (EMR) improve communication amongst health care providers, using automated technology, converting paper medical charts into electronic information; increasing ability to store, recall, analyze, and share (Brown, 2013).

Screening forms from tablets directly imputed into the EMR could provide this information in every health care setting to increase continuity.

This could decrease providers’ workload, allowing increased time spent with patient and increased clinician satisfaction.
Implementation: use of tablets to administer behavioral screening tools to provide early identification and ongoing evaluation of treatment efficacy, while having it populate into the EMR for ease of use AND sharing data between providers

* API Improvement model was preferred, offering a streamlined model for improvement based on the Plan-Do-Study-Act (PDSA) model that asks three fundamental questions:

1. What is trying to be accomplished?
2. How will we know that a change is an improvement?
3. What change can we make that will result in improvement?

(Warren, 2014)
1. What is trying to be accomplished?

* Reduce the healthcare disparity of mental health access and early interventions.
* Reduce loss of developmental milestones, loss of life, and increase quality of life for adolescents and young adults.
* Streamlining use of Behavioral Assessment Tools: may increase more consistent use and youth cooperation.
* Ability to screen those with different abilities for verbal or physical communication, helping evaluate those with developmental disorders and co-occurring challenges.
2. How will we know there is change or improvement?

* **GOALS:** reduced symptoms of depression, anxiety, suicidal thoughts, more positive intervention and treatment outcomes, and better quality of life.

* Youth will feel more privacy: patients will be more cooperative and participate with screening tools

* Parents will have increased satisfaction being able to utilize from home before appointment

* Symptoms: improvement/decline tracked for one year with data being calculated for significance of changes and noting relevant correlations over time.

Adolescent AQoL-6D Simplified will be given at onset and one year to assess Quality of Life.
There are no rating scales specific to patients with ASD or DD: over time the needs to change screening tools could be identified.

* Providers: variety of screening tools, can pick from relevant tools ahead of time

* Parents or patients can fill out at home with Internet, or in clinic with tablet

* Individuals with DEVELOPMENTAL DISABILITIES will be assessed using tablets, more familiar to many.

* Providers attention to differentiate presenting symptoms: Developmental Disorders core symptoms versus mental health.

* Follow up evaluations will be automatically triggered in EMR to improve clinicians’ adherence to guidelines (Weber, 2014).
Healthcare leaders must possess ability to implement change, while reacting to evolving healthcare environment, improving the quality of care provided, and creating improvements for the benefit of patients (Weber, 2014).
Behavioral Screening Tools

* **Patient Health Questionnaire (PHQ-9):** most common screening tool for depression (Screening Tools, 2018), Appendix A.

* **General Anxiety Disorder (GAD-7):** identifies if further evaluation for anxiety is warranted (Screening, 2018), Appendix B.

* **Mood Disorder Questionnaire (MDQ):** evaluation of bipolar disorder (Hirschfeld, 2000), Appendix C.

* **CAGE-AID:** for the evaluation of alcohol and drug use/abuse. When one question is yes, sensitivity 0.79, specificity 0.77. When two or more questions are yes, sensitivity 0.70 and specificity 0.85 (Brown, 1995), Appendix D.

* **ASQ:** Ask Suicide Screening Questions, see Appendix E, is a tool developed by the National Institute of Mental Health and worded simply for screening in emergency or primary care setting (2018), Appendix E.
CONCEPT:
• Yellow Brick Clinic: small, community based clinic developed for the care of children, adolescents, and young adults.
• Clinic will pilot integrating screening tools with Tablet and EMR interfacing.
• Screenings will be inputted into EMR, results will be tallied and shared with for revision.
• GOAL: to provide workable solution that can benefit many in multiple healthcare settings.
• Screening tools on tablets will be utilized to offer appropriate evaluation, treatment interventions, gain participation, and help patients have more positive perception of their personal well-being.
* The disparity of accessible mental health care for youth ages 16-25; those with developmental disabilities it is even greater.

* Educating primary care providers and encouraging more clinical providers to become developmental-behavioral specialists to reduce disparity.

* Utilizing tablets with screening tools in clinic: more private, conducive to patient participation, builds communication and trust, parental satisfaction.

* Clinicians may follow recommendation for frequent screenings, have more time with patients, less clerical tasks, and thus more job satisfaction.

* Patients with developmental disorders may have better mental health outcomes if screened regularly, co-occurring mental health disorders are extremely prevalent.

* Trialing this program first in a small practice setting may help decide if it can work in larger institutions.
You’ve always had the Power
my dear, you just had to
learn it for yourself.

-Glinda-
Wizard of Oz
Wizard of Oz Art Credits

Slide One: Almost There, Scott Gufstason, artist

Slide Two: Cowardly Lion Crying, W.W.Densolow,


Slide Four: Ray Bolger as Scarecrow, MGM Studios
https://www.google.com/search?q=wizard+of+oz+pictures&tbm=isch&source=iu&ictx=1&fir=ahA0IP2Pymho1M%253A%252CF-H0UPMvNilnvM%252C__&usg=__CDHBK4FSsm_EB-Nk252WY58Of9M%3D&sa=X&ved=0ahUKEwiri9Pn28TaAhVF3mMKHYSPCaMQ9QEIMzAF#imgrc=3HnI9Z4JpEQvwM:

Slide Five: Nobody gets in to see the Wizard. MGM Studios.

Slide Seven: Wizard of Oz Fairytales and Fables
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Slide Eight: Dorothy and the Wizard of Oz, Marvel Comics.
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Slide Ten: The Wizard of Oz, MGM Studios.
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Slide Eleven: Dorothy, Scarecrow, and Tinman, MGM Studios
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Slide Twelve: Wizard of Oz, Thomas Kinkade.
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Slide Thirteen: Muppets Wizard of Oz. Jim Henson Studios.
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Slide Fifteen: Winding Yellow Brick Road.
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Slide Eighteen: You've always had the power: Glinda
https://www.google.com/search?q=pinterest+knew+you+had+power+glinda&tbm=isch&source=iu&ictx=1&fir=hulEQ-6-zcLg1M%253A%252C1NZQ1cHidk4M%252C_&usg=___wBgc919qeMc-SRIHvP4_tla_JAc%3D&sa=X&ved=0ahUKEwIImoHqxsXaAhVq5YMKHWZLCnYQ9QEIOjAF#imgrc=hulEQ-6-zcLg1M:.
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an iPad based application to complement early behavioural intervention in
Appendix A

PATIENT HEALTH QUESTIONNAIRE (PHQ-9):
Over the last 2 weeks, how often have you been bothered by any of the following problems?
(Use "n" to indicate your answer)
Not at all 0, Several days 1, More than half the days 2, Nearly every day 3
1. Little interest or pleasure in doing things
2. Feeling down, depressed, or hopeless
3. Trouble falling or staying asleep, or sleeping too much
4. Feeling tired or having little energy
5. Poor appetite or overeating
6. Feeling bad about yourself or that you are a failure or have let yourself or your family down
7. Trouble concentrating on things, such as reading the newspaper or watching television
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
9. Thoughts that you would be better off dead, or of hurting yourself
add columns
(Healthcare professional: For interpretation of TOTAL, TOTAL: please refer to accompanying scoring card).
10. If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?
Not difficult at all, Somewhat difficult, Very difficult, Extremely difficult
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Appendix B

* GAD-7
* Over the last 2 weeks, how often have you been bothered by the following problems?
* (Use “✔” to indicate your answer)
* Feeling nervous, anxious or on edge
* Not being able to stop or control worrying
* Worrying too much about different things
* Trouble relaxing
* Being so restless that it is hard to sit still
* Becoming easily annoyed or irritable
* Feeling afraid as if something awful might happen
* Not at all = 0
* Several days = 1
* More than days half the days = 2
* Nearly every day = 3
THE MOOD DISORDER QUESTIONNAIRE

Instructions: Please answer each question to the best of your ability.

Has there ever been a period of time when you were not your usual self and...

...you felt so good or so hyper that other people thought you were not your normal self or you were so hyper that you got into trouble?

...you were so irritable that you shouted at people or started fights or arguments? ...you felt much more self-confident than usual?

...you got much less sleep than usual and found you didn’t really miss it?

...you were much more talkative or spoke much faster than usual?

...thoughts raced through your head or you couldn’t slow your mind down?

...you were so easily distracted by things around you that you had trouble concentrating or staying on track?

...you had much more energy than usual?

...you were much more active or did many more things than usual?

...you were much more social or outgoing than usual, for example, you telephoned friends in the middle of the night?

...you were much more interested in sex than usual?

...you did things that were unusual for you or that other people might have thought were excessive, foolish, or risky?

...spending money got you or your family into trouble?

2. If you checked YES to more than one of the above, have several of these ever happened during the same period of time?

3. How much of a problem did any of these cause you – like being unable to work; having family, money or legal troubles; getting into arguments or fights? Please circle one response only.

   No Problem Minor Problem Moderate Problem Serious Problem

4. Have any of your blood relatives (i.e. children, siblings, parents, grandparents, aunts, uncles) had manic-depressive illness or bipolar disorder?

5. Has a health professional ever told you that you have manic-depressive illness or bipolar disorder?

   YES

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CAGE-AID - Overview
The CAGE-AID is a conjoint questionnaire where the focus of each item of the CAGE questionnaire was expanded from alcohol alone to include alcohol and other drugs.

Clinical Utility
Potential advantage is to screen for alcohol and drug problems conjointly rather than separately.

Scoring: Regard one or more positive responses to the CAGE-AID as a positive screen.

Psychometric Properties
The CAGE-AID exhibited: One or more Yes responses Two or more Yes responses

Sensitivity: One or more Yes: .79, Two or more yes: .70
Specitivity: One or more Yes: .77, Two or more Yes: .85

Appendix E

* ASQ: Ask Suicide-Screening Questions
* Suicide Risk Screening Tool, NIMH TOOLKIT
* Ask the patient:
  * 1. In the past few weeks, have you wished you were dead?
  * 2. In the past few weeks, have you felt that you or your family would be better off if you were dead?
  * 3. In the past week, have you been having thoughts about killing yourself?
  * 4. Have you ever tried to kill yourself?
  * If YES, how? When?
* If the patient answers Yes to any of the above, ask the following acuity question:
  * 5. Are you having thoughts of killing yourself right now? Yes, No
* Next steps:
  * If patient answers “No” to all questions 1 through 4, screening is complete (not necessary to ask question #5). No intervention is necessary (“Note: Clinical judgment can always override a negative screen”).
  * If patient answers “Yes” to any of questions 1 through 4, or refuses to answer, they are considered a positive screen. Ask question #5 to assess acuity:
  * “Yes” to question #5 = acute positive screen (imminent risk identified) • Patient requires a STAT safety/full mental health evaluation.
  * “No” to question #5 = non-acute positive screen (potential risk)
* Patient cannot leave until evaluated for safety.
  * Keep patient in sight. Remove all dangerous objects from room. Alert physician or clinician responsible for patient’s care.
* “No” to question #5 = non-acute positive screen (potential risk)
  * Patient requires a brief suicide safety assessment to determine if a full mental health evaluation is needed. Patient cannot leave until evaluated for safety. • Alert physician or clinician responsible for patient’s care.
  * Provide resources to all patients
* 24/7 National Suicide Prevention Lifeline 1-800-273-TALK (8255) En Español: 1-888-628-9454
* 24/7 Crisis Text Line: Text “HOME” to 741-741
Adolescent AQoL- 6D Simplified
(Generic QoL for Adolescents)
This questionnaire has six sections:
1. Physicalability
2. Socialandfamilyrelationships
3. Mentalhealth
4. Coping
5. Pain
6. Vision, hearing, and communication
You answer each question by ticking the box next to the response that best fits your situation.
Example answer:
Most of the time Tom enjoys a good relationship with his family so he marks the second box from the top to show his answer:
How happy are you with your relationships with your family?
very happy
generally happy
neither happy nor unhappy
generally unhappy
very unhappy
* this question is not relevant to me.
* Physical ability
* Questions 1 to 4 are about how well you are physically able to do things for yourself.
* Q1 How much help do you need when you do jobs around where you live (eg. cleaning, helping with meals, working in the garden)?
  * I can do all these jobs very quickly and easily without any help
  * I can do these jobs relatively easily without help
  * I can do these jobs only very slowly without help
  * I cannot do most of these jobs unless I have help
  * I can do none of these jobs by myself
* I never do jobs where I live although I am able to do so. (same score as second response)
* Q2 How easy or difficult is it for you to get around by yourself outside your home (eg. at school, going out with my friends)?
  * getting around is enjoyable and easy
  * I have no difficulty getting around outside my house
  * a little difficulty
  * moderate difficulty
  * a lot of difficulty
  * I cannot get around unless somebody is there to help me.
Q3 How well can you walk or run?
- I find walking or running very easy.
- I have no real difficulty with walking or running.
- I find walking or running slightly difficult.
- (I cannot run to catch a bus or train, I find walking uphill difficult.)
- Walking is difficult for me.
- (I walk short distances only. I have difficulty walking up stairs.)
- I have great difficulty walking.
- (I cannot walk without a walking stick or frame, or someone to help me.)
- I am bedridden.

Q4 How easy is washing yourself, going to the toilet, dressing, eating, and looking after your appearance?
- These tasks are very easy for me.
- I have no real difficulty in carrying out these tasks.
- I find some of these tasks difficult, but I manage to do them on my own. Many of these tasks are difficult, and I need help to do them.
- I cannot do these tasks by myself at all.

Social and family relationships
Questions 5 to 7 are about your relationships and involvement with your family, friends and local community, and how they are affected by your health.

Q5 How happy do your close friendships make you?
- very happy
- generally happy
- neither happy nor unhappy
- generally unhappy
- very unhappy

Q6 Does your health affect your relationship with your family?
- My relationship with my family is unaffected by my health.
- Some parts of my relationship with my family are affected by my health. Many parts of my relationship with my family are affected by my health. Every part of my relationship with my family is affected by my health.

Q7 How does your health affect your involvement in groups, clubs, sporting or school activities?
- My involvement with such groups is not affected by my health.
- There are some group activities I am not involved in because of my health.
- There are many group activities I am not involved in because of my health.
- I am not involved in any group activities because of my health.

Mental health
Questions 8 to 11 are about my mental health.

Q8 How often did you feel in despair (lost and hopeless) over the last seven days?
- never
- occasionally
- sometimes
- often
- all the time.
Q9 How often did you feel worried over the last seven days?
   never
   occasionally sometimes often
   all the time.
Q10 How often do you feel sad?
   never
   rarely
   sometimes
   usually
   nearly all the time.
Q11 How often do you feel calm or agitated (stressed)?
   always calm
   usually calm
   sometimes calm, sometimes agitated
   usually agitated
   always agitated.
Coping
Questions 12 to 14 are about my ability to cope with things.
Q12 How much energy do you have to do the things you want to do?
* always full of energy
* usually full of energy
* occasionally full of energy
* usually tired and lacking energy always tired and lacking energy.
* Q13 How often do you feel you manage your life well?
  * always
  * mostly
  * sometimes
  * only occasionally never.
* Q14 How much do you feel you can cope with life’s problems (such as conflict with family or friends, doing exams etc.)?
  * completely mostly
  * partly
  * very little not at all.
* Pain
* Questions 15 to 17 are about my experiences of physical pain.
* Q15 How often do you experience serious physical pain?
  * very rarely
  * less than once a week
  * three to four times a week most of the time
Q16 How much physical pain or discomfort do you experience?
* none at all
* I have moderate pain
* I suffer from severe pain
* I suffer unbearable pain.

Q17 How often does physical pain interfere with your usual activities?
* never
* rarely
* sometimes often
* always.

Vision, hearing and communication

Questions 18 to 20 are about seeing, hearing and communicating.

Q18 How good is your vision (with your glasses or contact lenses if you wear them)?
* I have excellent sight.
* I see normally.
* I have some difficulty focusing on things, or I do not see them sharply. (eg. small print, writing on the board or seeing objects in the distance)
* I have a lot of difficulty seeing things. (My vision is blurred. I can see just enough to get by with.)
* I only see general shapes. I need a guide to move around. I am completely blind.
* Q19 How good is your hearing (with your hearing aid if you wear one)?
  * I have excellent hearing
  * I hear normally
  * I have some difficulty hearing or I do not hear clearly. (I have trouble hearing softly-spoken people or when there is background noise)
  * I have difficulty hearing things clearly. (Often I do not understand what is said. I usually do not take part in conversations because I cannot hear what is said.)
  * I hear very little indeed. (I cannot fully understand loud voices speaking directly to me.)
  * I am completely deaf.

* Q20 How well can you communicate with others (eg. by talking, listening, writing or using sign language)?
  * I have no difficulty speaking to them or understanding what they are saying.
  * I have some difficulty being understood by people who do not know me. I have no trouble understanding what others are saying to me.
  * I have great trouble understanding what others are saying to me. I am understood only by people who know me well.
  * I cannot communicate with others.