The Efficacy and Reliability of Mobile Application as an Effective “Voice” of the Female Patients (over 21 years of age) with Anorexia Nervosa (AN) in Silent Cultures which regard Disordered Eating as *Taboo*

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LEARNING OBJECTIVE # 1

~ to interpret the reliability and efficacy of mobile application as an adjunct treatment assessment tool for disseminating Ecological Momentary Assessment (EMA), to patients with Anorexia Nervosa (AN) who are from “silent cultures”. This will include the ramifications of using said mobile application in treatment for patients.

Methods & Implementation

- Data Collection & Findings
- Results of Findings

LEARNING OBJECTIVES # 2:

~ to describe both the benefits and potential risks of using mobile applications as a culturally – sensitive tool for disseminating treatment to patients’ with anorexia nervosa (AN), who are from non-communicative cultures which regard AN as a taboo.

- Benefits
- Risks
Presentation Outline

- Overview: Background & Significance
  - Current National Statistics
  - Current Global Statistics

- Systematic Literature Review

- Theoretical Framework

- Learning Objective # 1: Methods & Implementation
  - Data Collection & Findings
  - Results of Findings

- Learning Objective # 2: Use of Mobile Application
  - Benefits
  - Risks

- Future Considerations

- Conclusion
Overview: Background & Significance

- **Problem Significance**
  - Current National Statistics
  - Current Global Statistics

- **National**
  - 1 in 10 people with Eating Disorders (ED) receive treatment
  - Problem: No intensity of treatment needed to stay in recovery provided
    
    *(National Association of Anorexia Nervosa and Associated Disorders, 2012).*

- **Global**
  - ED reported throughout the world in a variety of social and cultural contexts.
    
    *(Garcia de Amusquibar, 2000; Garcia de Amusquibar & De Simone, 2003).*

- **Population, Quality of Life (QoL), and Health**
  - 80% are female
  - Characterization: *Body Image Distortion, Starvation, Excessive Weight Loss* *(NED, 2014)*
  - Physical Health
    - Refusal to maintain body weight at normal BMI; Loss of Menstrual periods; *patient with Anorexia Have A Distorted View Of Their Bodies -- But Not Of Others* *(NED, 2014).*
  - Mental Health
Systematic Literature Review

- **Study Highlights**
  - **Cultural Implications**
    Many cultures do not discuss issues of this type, feeling the subject something that might point to the fear of communication (Thornicroft, G. & Rose, D. 2013).
  - **Individual Implications:** *Self-care management*
  - **Available Treatment Methods**
    Inpatient (INPT.) / Residential (RES.) / Partial Hospital (PHP)
    Outpatient (OP) once a month clinic visit

- **Cognitive Behavior Therapy (CBT)**
  - Behavioral Management: *Mood, Eating Habits*
  - Ecological Momentary Assessment (EMA) & Ecological Momentary Intervention (EMI): *Real-time reporting*

- **Intervention/s for Study: Outpatient**
  - Mobile Applications (apps) / Smartphones
  - Face-to-face Outpatient Individualized Care / Internet

Source: professays.com
Theoretical Framework


(2). Orem’s Self Care Theory and Self Care Deficit Theory (Orem, 1980).

(3). Nightingale’s Environmental Theory (BBC 2012).

(4). Hancock’s Inter-relational Hypothesis of Optimal Care (Hancock, 2015).
Methods & Implementation

- Clinical Setting & Stakeholders
- Hypotheses
  - H1: Relationship btw EMI/EMA via Mobile App (in silent cultures) & Effective Treatment (Tx) Outcomes Exist
  - H10: Relationship btw EMI/EMA via Mobile App & Treatment (Tx) Outcomes Does Not Exist
- Project Description
  - Research Design: Correlational studies
  - Participants
    - N=6 (Demographics: African American (2), African (2), Hispanic(2))
  - Instruments & Intervention: Flyers, Demographic Data Questionnaire, Weight & Mood ED Self efficacy Scale (SES), & Mobile App / Face-to-face (F2F) OP visit
- Data Gathering
  - Variables: Dependent: Mood & BMI / Independent: RR
  - IRB: Protection of Human Subjects
  - Implementation timeline

Source: recoveryrecord.com
Data Collection & Findings

- **Population:**
  
  N = 6 (African American AA, African A, & Hispanic H)
  Variables: Dependent: *Mood & BMI*; Independent: *Instruments ~ Mobile App & ESES*

- **Comparison:** Mobile App & ESES Paper Self-reporting Results (Pre-Project to Post-project phases)
  **KEY:** 3 Measurements: Overall Mean SES Score, Mean Score for Individual Subscale Negative Affect (NA), and Mean Score for Individual Subscale Socially Acceptable Circumstances (SAC).

- **Component(s) of Instruments:**
  - ESES: Eating DO Self-efficacy- 25 Questions (Mood & Weight) Paper & Pen face-to-face
  - RR:
    - 3 Questionnaires (Logs: Meals, Feelings, Thoughts) contained in one Questionnaire with recommendations;
    - 2 full assessments every 28 days (eating do & impairment) automatically triggered and utilized by family together as means of communication & discussion (ALL IN REAL-TIME).
Result of Findings

Variable: BMI

KEY (1): BMI VALUES (kg/m²)
Categories
<18.5 Underweight
18.5 - 24.9 Recommended
25 - 29.9 Overweight
30+ Obese (WebMD, 2014)

KEY (2): AA African American
AA African
H Hispanic

Variable: MOOD

**KEY (1):** Measurement: Overall Mean Self-efficacy Score;
**KEY (2):** Did not include Ctrl Grp. #2, #3-dropped out post 1 month
Benefits

- **Population Classification & Characteristics**
  - Self-reported vs. Real-time reports collected via Mobile Application (also customized support in real-time)
  - Increase access to treatment
  - Implication(s) of “silence” in chosen cultures before, during, & after project: enhance treatment compliance and engagement

- **Health Risks Reduction**
  - Physical
  - Emotional
  - Mental

- **Better Behavioral Treatment Outcomes equal improved QoL**
  - Individual / Family
  - National
  - Global

- **Collaboration**
  - Nationally: Primary Care
  - Globally: International Organizations
### A Case for Use: Mobile Applications for Eating Disorders

**Evidence-based features present in currently available eating disorder smartphone treatment apps**

<table>
<thead>
<tr>
<th>Evidence-based principles</th>
<th>Recovery Record</th>
<th>RiseUp</th>
<th>Before I Eat</th>
<th>iCounselor</th>
<th>Stop Binge Eating</th>
<th>Daytime Affirmations</th>
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<td>Reducing/restructuring cues</td>
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Legend: x = feature or component present in app; * = feature present, but guidance or functionality is limited


**Update(s) provided by Recovery Record include:**

- Evidence-based practice automatically-delivered interventions
- Feedback based on information entered by the patient
- Messages based on pre-intervention behavioral patterns (www.recoveryrecord.com)
Potential Risks for Use of Mobile Application

- May be used to replace in-person professional treatment
- Interference with treatment. i.e. providing conflicting information
- Coping strategies provided may not be Evidence-based (EBP) ~ Harmful to patient
- Cases with App for Weight measurement: Obsession with Food intake and weight measurement may escalate
- Globally: International Organizations
Future Considerations

- Replicate study with larger N; consider larger region
  - Enlarge population to include other “silent cultures” e.g. Asian & Arab cultures
  - Extend the age of population to include females 17 – 21 years
  - Future research: investigate other factors that influence clinician willingness to incorporate technology-based ambulatory interventions.

- Evaluate other mobile applications across spectrum of cost effective ready access
  - Recovery Record Rise Up iCounselor Before I Eat

- Extend project from Outpatient (OP) setting to Partial Hospitalization (PHP)

- Increase the length of observation & data collection > 90 days (at least 6 months)
  - Extend post-intervention from 28 days to 60 days
  - Expand collaboration: Clinics, hospitals, and organizations for wider dissemination of outcomes

- Improved sustainability
  - Evaluate other ways for project sustainability.
http://www.bbc.co.uk/history/historic_figures/nightingale_florence.shtml


http://link.springer.com/article/10.1007%2FBF03325018


http://www.anad.org/get-information/about-eating-disorders/general-information/

National Eating Disorders Association. (2014). What is an eating disorder:  
Some basic facts. Retrieved on 12/4/2014 from:  
http://www.nationaleatingdisorders.org/


http://www.newscientist.com/article/dn23729-the-mental-illness-taboo-is-a-problem-for-all-of-us.html#.VHs- a4fxSZY
The End

There is HOPE!

The woman who beat anorexia to fulfill her dream of becoming a mother