Centralized Data Hosting Model for Cross-Cultural Surveys: Saudi National Health and Stress Study

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Outline

1. Cross-Cultural Survey Structure
2. Centralized Data Hosting Model
3. Saudi National Health and Stress Survey Design
4. Building Blocks of Centralized Data Hosting Model
5. Challenges Encountered during implementation of first four building blocks
Cross-Cultural Survey Structures

- Cross-cultural surveys are organized in many different ways with varying levels of:
  - Comparable survey methods (same objective varying methods to same objective and similar methods)
  - Central coordination (no central coordination to central coordination with executive control)
  - Systems sharing (no system sharing to same systems used across surveys)
  - Data accessibility (each country owns its data to accessibility is open to international collaborators)
- Each has its advantages and disadvantages
- Determining factors including:
  - Funding availability
  - Source of funding
  - Local infrastructure
  - Local human resources and capabilities
  - Local regulations and politics
  - Language sharing
Comparable Survey Methods

Central Coordinating Center

System Sharing

Data Accessibility

Comparable

Data

Quality
Comparable Survey Methods

Central Coordinating Center

Quality

Systems Sharing

Data Accessibility
Centralized Data Hosting

- Real-time Support
- Real-time Monitoring
- Standardized Paradata
- Continuous training of cultural site staff
- Data Access
Saudi National Mental Health Survey (SNMHS)

Main Objective:
To estimate the psychiatric morbidity in different regions, in Saudi Arabia

Study Aims:
1. To estimate the population prevalence of mental health conditions in Saudi Arabia
2. To model the etiology of individual mental health conditions
3. To study comorbidity with other psychiatric and health disorders
4. To estimate the magnitude of disability caused by psychiatric morbidity
Sample Design

• **Target Population:** Saudi Nationals 15-65 years old who are non-institutionalized and who reside in 13 administrative regions of Kingdom of Saudi Arabia

• **Sample Design:**
  – Multistage Area Probability Proportionate to Size
  – Stratified by 13 administrative Areas
  – Based on 2010 Census
  – Sample Size:
    • 5000 households
    • Two respondents per household: Female and male
Model of Data Collection

• Face-to Face

• Computerized Administered Personal Interviews (CAPI) using Blaise

• Audio-Computerized Administered Self Interview (A-CASI) for sensitive questions:
  – Marital Dynamics, Suicidality, Alcohol and Substance Use, Religiosity, etc...
Interviewing Teams

• Each household is assigned a team: male interviewer (mainly a physician), female interviewer (mainly a nurse), driver

• Interviews are gender matched

• Interviewers are employees of the Ministry of Health, Primary Health Care Centers, which are available throughout the Kingdom

• 150 Interviewers will be active in the field
Quality Control

• **Pre-field:**
  – Cognitive Interviews
  – Pilot Test
  – Instrument and System Testing
  – Staff Training and Support

• **During-field**
  – Sample management: Extensive details will be collected on each call attempt made by interviewers to each household including:
    • Time/Day of contact
    • Mode of contact
    • Letters delivered
    • Incentives given
    • Information requested by respondent or questions asked
    • Observations on housing unit and neighborhood
Quality Control

• **During-field (Continued)**
  – Interviewer Evaluation:
    • Observation by supervisor
    • Re-contact sub-sample of respondents to verify information
    • Daily monitoring of interviewer productivity and performance (pre-designed reports, real-time analysis of survey data)
  – Study Hot-line: a hot-line will be available for respondents to call and inquire about survey
  – Data Transfer:
    • Multiple daily transfer through air cards connected to interviewers’ laptop
    • Data will be hosted on a highly secured server assigned to this study at the Survey Research Operation, ISR, University of Michigan
    • Data will be backed up daily
  – Data Cleaning: for missing data, discrepancies, invalid information, etc...
Additional Study Components

• DNA specimen through saliva sample collection

• Clinical re-appraisal
  – Most disorders assessed in CIDI
  – Psychosis

• Informant information on:
  – Disabled household members
  – Demented household members
Building Blocks of Centralized Data Hosting Model

I. Setting-up Computing and Technical Infrastructure at the Centralized Coordinating Center

II. Testing Site-Specific Equipments (such as laptops) and systems (such as Operating systems)

III. Transferring of centralized technical systems (such as sample management systems)

IV. Conducting Remote and Personal on-site and off-site staff trainings

V. Standardization of Paradata

VI. Real-time data transfer and storage
## Building Blocks of Hosting Model

<table>
<thead>
<tr>
<th>I. Technical Set-up</th>
<th>Details</th>
<th>Challenges</th>
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</table>
| Server for data transfer, data storage and backup at Survey Research Operation - University of Michigan | Building a study specific server that runs on SRO routine data security, transfer, storage, reporting and backup rules | 1. Security Protocols  
2. Mapping to Local drives  
3. Language compatibility  
4. Access control  
5. Connectivity and port restrictions |

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<tr>
<th>II. Testing</th>
<th>Details</th>
<th>Challenges</th>
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| Testing Local Saudi Equipments and Operating Systems and Connections | Shipping local laptops from Saudi with local operating systems to test their compatibility with sample management system, Blaise, databases.  
Testing sending and receiving data from Saudi (SurveyTrak, Blaise) | 1. Deciding on final laptop model  
2. Deciding on operating systems (Arabic Window 7, English Window 7, English Window 7 with Arabic language pack)  
3. Shipments of laptops (clearance and weekend differences) |
# Building Blocks of Hosting Model

<table>
<thead>
<tr>
<th>III. Transferring systems and codes</th>
<th>Details</th>
<th>Challenges</th>
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</table>
| **Sample Management System**       | Sharing In-house system and adapting it for specific study features and Arabic Language | 1. Language Compatibility  
2. Staff Language (Tester and Programmer)  
3. Address System (census vs. common use)  
4. Real-time line transfer and connectivity |
| **Reporting System**               | Sharing in-house reporting system for field quality control and adapting it for specific study features | 1. Language Compatibility  
2. Staff Language (Tester and Programmer)  
3. Detailed programmed reports  
4. Consolidation of logging and reporting systems for ease of use |
| **Instrument Testing System (CTT)** | Sharing in-house system and testing its ability to support Arabic Language | Work in Progress |
| **Blaise programming codes**       | Sharing CAPI and ACASI codes for Programming Arabic Instruments | 1. Unicode Support for Questions  
2. Unicode support for preloads  
3. Keystroke files and Operating systems  
4. Gender matched wave files |
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<th>Result Date</th>
<th>Tel Calls</th>
<th>FTF Calls</th>
<th>Last Call Mode</th>
<th>3 Calls No Contact</th>
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Family #: 1
Markaz: 0
Almusamme Alsakani: 2
Hall: 2
Qita'a: 2
Block: 6
Mabna: 6
Maskan: 2
Street Name: رضى مرة أخرى
Building Name:
Case Notes:
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<td>Saudi Study Manager &amp; Study Coordinator</td>
<td>CIDI Train-the-Trainer session in Lebanon</td>
<td>Regional CIDI Certified Trainers; October 2009</td>
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<td>Cognitive Interviewing</td>
<td>Saudi Study Manager, Study Coordinator, &amp; Interviewers</td>
<td>Protocol for conducting cognitive interviews, &amp; analyzing &amp; reporting its data</td>
<td>Web-Training by SRO Survey Director; April 2010</td>
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<td>Survey Methods Techniques</td>
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<td>Summer Institute for Survey Research Techniques at University of Michigan</td>
<td>ISR Faculty, June-July 2010</td>
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<td>Blaise Programming</td>
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<td>Blaise Language for Programming Arabic CAPI and A-CASI Instrument at Harvard University and University of Michigan</td>
<td>Harvard and SRO Programmers; July-August 2010</td>
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<td>Sample Management Programming</td>
<td>Saudi Programmers</td>
<td>Power Builder Programming for Adapting SurveyTrak to Saudi Survey at University of Michigan</td>
<td>SRO Programmers; August 2010</td>
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## Building Blocks of Hosting Model

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<tr>
<th>Activity</th>
<th>Staff</th>
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<th>Trainers; Date</th>
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<tr>
<td><strong>Help-Desk and Data Management</strong></td>
<td>Saudi Programmers, Help desk and data manager</td>
<td>Protocols for preparing interviewers’ laptops, maintaining them and trouble shooting software and hardware problems during field. Managing sample and assigning lines to interviewers, data transfer and storage, generating quality control reports, and data trouble shooting before, during and after field</td>
<td>SRO Technical Support Staff; Web-Training since October 2010 Hands-on-Practice during Pilot test at University of Michigan- April 2011</td>
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<td><strong>CIDI</strong></td>
<td>Saudi Field Supervisors</td>
<td>Protocols for General Interviewing Training Techniques; Refusal aversion and persuasion, sample management, quality control, CIDI study specific guidelines at KSA</td>
<td>SRO Survey Director and CIDI Certified Trainer ; April 2011</td>
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<td><strong>Data Analysis</strong></td>
<td>Saudi Analyst</td>
<td>Using SAS and SUDAAN for Analyzing CIDI data</td>
<td>Harvard Analysts; Spring 2011</td>
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Building Blocks of Hosting Model

• Staff Training Challenges
  – Time Differences
  – Weekday differences
  – Number of systems and programs
  – Hands-on vs. Lecture type
  – Attrition
  – Number of teams and institutions involved
Collaborators

Saudi Collaborators

- Ministry of Health
- Ministry of Economy & Planning
- Prince Salman Center for Disability Research
- King Saud University
- King Abdulaziz City for Science & Technology
- King Faisal Specialist Hospital & Research Center

International Collaborators

- World Health Organization
- Harvard University
- University of Michigan