Motivations for using khat

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Motivation

Motivation is the internal condition that activates behavior and gives it direction; and energizes and directs goal-oriented behavior.

Wikipedia
Drives/Motives underlying motivation

avoid
- Hunger
- Thirst
- Cold, hot
- Pain
- Social exclusion

seek
- Sexuality
- Power
- Curiosity
- Pleasure
- Justice, humanity

Natural vs. Learned Incentives

Food vs. Drugs
Traditional motivations to use khat

- Pleasure, altered state of consciousness
  - Euphoria, relaxation (upper class)
  - Creativity (upper class)
  - Alertness (travel, warship, study)
  - Transcendental experiences (Sufism)

- Social functions
  - Inclusion, participation, strengthen social relations
  - Information exchange, solve problems
  - Learned incentives: Business, politics

- Reduce pain, hunger, fatigue (farmers, workers)
- Escapism (poor, psychological problems)
- Medical use (depression)

Gros, 1982; Al-Motarreb et al., 2002; Krikorian, 1984
High culture vs. everyday use
High culture: Social regulation mechanisms

- Formalization: Embedded in a ritual/setting
- Rites of initiation in early adulthood
- Rules for minimizing negative effects
  - Social use setting (khat party)
  - After a meal
  - Having a walk before
  - Moderate amount
  - Stop to use early evening
  - Only weekend
What is different today?

• Different motivations today?
• Are the motivations still the same?
• What is the composition of motivations among users?

• Availability increased
• More users outside traditional user groups without traditional knowledge
• New khat cultures and use patterns develop

=> Khat is more and more an everyday drug
econometric approach
Khat expenditure analysis (Milanovic, 2008)

Djibouti
- Household Income Survey, 1997
- 2,380 households
- 15,701 individuals
- Khat consumption

Yemen
- Household Survey, 1998
- 13,641 households
- 97,544 individuals
- Khat purchases (underestimation)
Table 1: *Food Shares and Incidence of Households with the Presence of Qat Users by Welfare Decile*

<table>
<thead>
<tr>
<th>Welfare decile (according to expenditures per equivalent adult)</th>
<th>Yemen Food share in total expenditures</th>
<th>Yemen Incidence of qat users</th>
<th>Djibouti Food share in total expenditures</th>
<th>Djibouti Incidence of qat users</th>
</tr>
</thead>
<tbody>
<tr>
<td>First (poorest)</td>
<td>0.69</td>
<td>0.62</td>
<td>0.65</td>
<td>0.07</td>
</tr>
<tr>
<td>Second</td>
<td>0.54</td>
<td>0.64</td>
<td>0.58</td>
<td>0.29</td>
</tr>
<tr>
<td>Third</td>
<td>0.43</td>
<td>0.63</td>
<td>0.51</td>
<td>0.34</td>
</tr>
<tr>
<td>Fourth</td>
<td>0.35</td>
<td>0.66</td>
<td>0.48</td>
<td>0.42</td>
</tr>
<tr>
<td>Fifth</td>
<td>0.30</td>
<td>0.69</td>
<td>0.46</td>
<td>0.52</td>
</tr>
<tr>
<td>Sixth</td>
<td>0.26</td>
<td>0.68</td>
<td>0.42</td>
<td>0.57</td>
</tr>
<tr>
<td>Seventh</td>
<td>0.24</td>
<td>0.70</td>
<td>0.41</td>
<td>0.64</td>
</tr>
<tr>
<td>Eighth</td>
<td>0.21</td>
<td>0.74</td>
<td>0.39</td>
<td>0.70</td>
</tr>
<tr>
<td>Ninth</td>
<td>0.18</td>
<td>0.76</td>
<td>0.35</td>
<td>0.75</td>
</tr>
<tr>
<td>Tenth (richest)</td>
<td>0.17</td>
<td>0.81</td>
<td>0.28</td>
<td>0.71</td>
</tr>
<tr>
<td>Average share</td>
<td>0.26</td>
<td>0.69</td>
<td>0.46</td>
<td>0.50</td>
</tr>
</tbody>
</table>

*Note: Expenditure per equivalent adult are defined as: total expenditures divided by (household size)\(^{0.75}\).*

Milanovic, 2008
Comparison

Yemen
• Male > female
• Rural = urban
• Higher education
⇒ Less chewers
⇒ Higher expenditures
• Rich = poor
• No food substitution

Djibouti
• Male > female
• Rich > poor
• Khat substitutes food
Conclusions

• Motivations to use khat differ in Yemen and Djibouti

• Yemen:
  – social motivation
  – khat is part of social life
  – not chewing = social exclusion
individual approach
“Most men and women lead lives at the worst so painful, at
the best so monotonous, poor, and limited that the urge to
escape, the longing to transcend themselves if only for a few
moments, is and has always been one of the principal
appetites of the soul. Art and religion, carnivals and
saturnalia, dancing and listening to oratory - all these have
served in the H.G. Well’s phrase, as Doors in the Wall. And
for private and everyday use, there have always been
chemical intoxicants. All the vegetable, sedatives and
narcotics, all the euphorics that grow on trees, the
hallucinogens that are in berries or can be squeezed from
roots - all without exception, have been known and
systematically used by human beings from time immemorial.”

Aldous Huxley, Doors of Perception, 1954
Escapism - “Door in the wall”

- Unemployment
- Hopelessness
- Unfulfilled wishes (academic career, leaving the country)
- No alternative spare-time activities
- Chewing = social support

Bhui et al., 2003, 2006; Nabuzoka & Badhadhe, 2000; Rousseau et al., 1998; Zarowsky, 2000; Hansen, 2009
Assessment of > 8,700 militia in 6 regions of Somalia

Somali Peace Conference Mbaghati, 2003: preparation of DDR in all Somalia

Methods and Design

Design:
- Convenience samples in 6 regions of Somalia
- Trained local interviewers
- 8,723 militia members approached
- 8,124 included (93.1%), i.e. 11.4% of all men under arms in Somalia

Instruments:
- Short version of Somali PDS (Odenwald et al., 2007)
  Against CIDI (expert):
  - Specificity .96
  - Sensitivity .55
  - Kappa = .57 (p < .001)
- Paranoia: CIDI-item, rating: bizarre
- Khat bundles last week
- Self-medication
Perceived drug use in military units in the previous week (weighted estimates for perceived proportion of users)
Different khat consumption patterns between northern and southern/central Somalia (related to the week before the interview)

a) Weighted estimates for proportions of use patterns

b) Weighted estimates for quantitative indicators

Proportion of khat chewers
Proportion with > 2 bundles per day
Proportion of > 1 sleepless night
Proportion of solitary chewers
Number of consumed khat bundles
Number of sleepless nights

northern Somalia
southern/central Somalia
Functional use

Use of substances to modify unpleasant emotional states, often related to clinical syndromes like depression or anxiety
PTSD Symptoms
3 Categories:
- Intrusions
- Avoidance
- Hyper-arousal
Psycho-social needs assessment of ex-combatants, 2002
Our sample

NDC/GTZ-Demobilization-Project

Army
Police
Custodians

On government payroll
NDC
N = 15,000

Not on government payroll
SOYAAL
N = 17,000

Female Veterans
not registered

NDC/GTZ-Demobilization-Project
1,000 Beneficiaries

N = 700 identified so far by GTZ

Random Sample
N = 195

Validation Interview
N = 63

69% identified and interviewed
N = 135
### Validation interview: PTSD and associated symptoms

<table>
<thead>
<tr>
<th></th>
<th>PTSD (14)</th>
<th>No PTSD (48)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>SRQ-20 sum score</td>
<td>9.07</td>
<td>2.52</td>
<td>&lt; .001</td>
</tr>
<tr>
<td></td>
<td>(5.05)</td>
<td>(4.11)</td>
<td></td>
</tr>
<tr>
<td>Average hours chewing</td>
<td>5.54</td>
<td>3.14</td>
<td>.037</td>
</tr>
<tr>
<td>khat per day in last</td>
<td>(5.94)</td>
<td>(2.46)</td>
<td></td>
</tr>
<tr>
<td>week</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hours of sleep per 24 h</td>
<td>6.43</td>
<td>8.54</td>
<td>.007</td>
</tr>
<tr>
<td>in previous week</td>
<td>(2.95)</td>
<td>(2.39)</td>
<td></td>
</tr>
</tbody>
</table>

Odenwald et al., 2007, *Conflict & Health*
The Nakivale Refugee Camp Project: Building Capacity to Provide Trauma Intervention in an African Refugee Camp

Onyut, Neuner, Ertl, Hoogeven, Schauer, Schauer, Odenwald, Elbert (2005), *Intervention*

Neuner, Onyut, Ertl, Odenwald, Schauer, Elbert (2008), *JCCP*

Onyut, Neuner, Ertl, Schauer, Odenwald, Elbert (2009), *Conflict & Health*
Male Somali refugees (N = 400)
PTSD prevalence  49%
Khat use last week:
With PTSD 0.4 (1.7) kafera
Without PTSD 0.2 (1.2)
p = .036
ANOVA (dependent: khat bundles)

<table>
<thead>
<tr>
<th></th>
<th>F</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTSD</td>
<td>37.2</td>
<td>1</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Self-medication</td>
<td>693.1</td>
<td>1</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>interaction</td>
<td>60.5</td>
<td>1</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

Total Adjusted $R^2$ .214

Khat use (means and 99% CI) by PTSD and functional use

(Does khat or other drugs help you to forget your stressful war experiences?)

Khat Addiction
Substance Dependence (DSM IV)

- Continued use despite of substance-related problems

- Symptoms:
  - Tolerance
  - Withdrawal
  - Attempts to quit
  - Significant time spent
  - Continued use despite of knowledge

- Lifetime prevalence (high income countries): 5%
Prevalence of dependence

• Amphetamines (USA; Anthony et al., 1994):
  – Lifetime use (adult general population): 15%
  – Proportion who develop dependence: 11%
  – Prevalence in adult general population: 1.7%

• Khat (Ethiopia, khat producing area, Awas et al., 1999):
  – Lifetime prevalence of khat dependence among adult males: 5%
reward pathway

prefrontal cortex

nucleus accumbens

VTA
Activation of the reward pathway by addictive drugs

Alcohol

Cocaine
Heroin
Nicotine

Heroin
Neurophysiological view on dependence

Tim Condon, Vice-President, NIDA (2008):

• **Reward/Saliency** (Nacc, Ventral Pallidum)
• **Memory/Craving** (Amygdala, Hippocampus)
• **Motivation/Drive** (OrbitoFC, Superior Cingulate Cortex)
• **Inhibitory Control** (PFC, Anterior Cingulate Gyrus)
Repeated intracranial measurement at single neuron level (VTA), monkey

Schultz et al., 1997, Science
Severity of psychological dependence

- SDS (Gossop et al., 1995)
- Numerous studies with addicts around the world

In the last four weeks, ....
did you ever think your ... use was out of control?
did the prospect of not taking ... make you anxious or nervous ?
did you worry about your ... use?
did you wish you could stop?
would you find it difficult to stop?
Proportion of extreme dependent

How many khat users score above a critical value?

<table>
<thead>
<tr>
<th>Study</th>
<th>Number of Users</th>
<th>Location</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Griffiths, 1998</td>
<td>155 Somalis</td>
<td>London</td>
<td>10%</td>
</tr>
<tr>
<td>Kassim &amp; Croucher, 2006</td>
<td>75 Yemenis</td>
<td>Sheffield, Birmingham</td>
<td>39%</td>
</tr>
</tbody>
</table>
Psychotic symptoms
Psychosis
How do escapism, functional use and addiction contribute to psychosis?
Proportions and 99% CIs of respondents with paranoid symptoms in groups of khat users with and without PTSD

Odenwald et al., 2009, Social Science and Medicine
Causal Path Model of Paranoid Development

Odenwald et al., 2009, *Social Science and Medicine*
Odenwald (2005), *BMC Med*, 3:5
612 households in Hargeisa
Representative sample of the overall population

Identify individuals with severe mental disorders

Random selection for clinical interview

Step 1

Step 2
169 Cases identified

Functioning problems due to severe mental disorder

<table>
<thead>
<tr>
<th></th>
<th>With</th>
<th>Without</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>137</td>
<td>2.312</td>
<td>8.4</td>
</tr>
<tr>
<td>Female</td>
<td>32</td>
<td>2.373</td>
<td>1.9</td>
</tr>
</tbody>
</table>

Every 5th household cares for family members with mental disorder

85% of them have a psychotic disorder
# Management of severe mental disorders

<table>
<thead>
<tr>
<th></th>
<th>Men (N = 137)</th>
<th>Women (N = 31)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years in Chains</td>
<td>3.1 (3.9)</td>
<td>1.0 (2.9)</td>
</tr>
<tr>
<td>Years locked in</td>
<td>3.6 (4.7)</td>
<td>4.9 (6.3)</td>
</tr>
<tr>
<td>(not chained)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
QuickTime™ and a TIFF (Uncompressed) decompressor are needed to see this picture.
### Randomly selected groups of cases

<table>
<thead>
<tr>
<th></th>
<th>Psychosis</th>
<th>Control</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$N = 43$</td>
<td>$N = 43$</td>
<td></td>
</tr>
<tr>
<td><strong>Age of first khat intake</strong></td>
<td>16.5 (4.2)</td>
<td>20.4 (7.0)</td>
<td>$p = .008$</td>
</tr>
<tr>
<td><strong>Age of psychosis onset</strong></td>
<td>23.4 (9.8)</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>Mean difference</strong></td>
<td>8.6 years (6.6), median 7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Order of onset

43 cases with psychosis

Odenwald et al., 2005
<table>
<thead>
<tr>
<th></th>
<th>Psychosis N = 43</th>
<th>Control N = 43</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ever chewed khat in life</td>
<td>88.6%</td>
<td>59.1%</td>
</tr>
<tr>
<td></td>
<td>p = .008</td>
<td></td>
</tr>
<tr>
<td>Khat per day week before interview</td>
<td>1.1 (2.4)</td>
<td>0.3 (0.7)</td>
</tr>
<tr>
<td></td>
<td>p = .024</td>
<td></td>
</tr>
<tr>
<td>Khat per day weeks before onset</td>
<td>2.1 (2.0)</td>
<td>0.3 (0.6)</td>
</tr>
<tr>
<td></td>
<td>p &lt; .001</td>
<td></td>
</tr>
</tbody>
</table>
Two risk factors:

- Excessive khat use
- Traumatic experiences

Window of vulnerability:

- Adolescence
Conclusion
Hopeless, depressed, unemployed, traumatized

Khat use

Xaraaro, Dubaab

Mirquaan

Haddaar, Bah, Sleepless
Hopeless, depressed, unemployed, traumatized

Khat use

Xaraaro, prevent Du

Mirquaan

Haddaar, Bah, Sleepless
Hopeless,
depressed,
unemployed,
traumatized,
stigmatized

Khat use

Be calm

Mirquaan,
Grandiosity,
Desorientation

Xaraaro, prevent

Haddaar,
Bah,
Sleepless,
Paranoia,
Voices,
Aggression

What you
Escapism, functional use: excessive khat use

Addiction

Psychotic symptom, brief psychotic disorder

Chronic psychotic disorder
Thank you