Non communicable Diseases in Egypt and North Africa

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Egypt
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Level of Income North African countries according to World Bank

<table>
<thead>
<tr>
<th>Level of Income</th>
<th>Egypt</th>
<th>Morocco</th>
<th>Tunisia</th>
<th>Algeria</th>
<th>Libya</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower middle</td>
<td>Lower middle</td>
<td>Upper middle</td>
<td>Upper middle</td>
<td>Lower middle</td>
<td>Upper middle</td>
</tr>
</tbody>
</table>
Population Size/million of North African Countries, 2010

- Egypt: 81.53
- Algeria: 35.6
- Morocco: 31.89
- Tunisia: 10.54
- Libya: 5.65
<table>
<thead>
<tr>
<th>Country</th>
<th>Life Expectancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Libya</td>
<td>74</td>
</tr>
<tr>
<td>Tunisia</td>
<td>73.9</td>
</tr>
<tr>
<td>Algeria</td>
<td>72.3</td>
</tr>
<tr>
<td>Egypt</td>
<td>71.3</td>
</tr>
<tr>
<td>Morocco</td>
<td>71.2</td>
</tr>
</tbody>
</table>

8 “Investing for Health in Africa” – Harmonisation of Health in Africa April 2010
What are The Non Communicable diseases

Noncommunicable (NCDs) are diseases of long duration and generally slow progression. The 4 main types of NCDs diseases are:

• Cardiovascular diseases (like heart attacks and stroke)
• Cancer
• Chronic respiratory diseases (such as chronic obstructed pulmonary disease and asthma)
• Diabetes.
10 Facts on Noncommunicable Diseases

1. NCDs account for 63% of all deaths.
2. Some 80% of all NCD deaths occur in low- and middle-income countri
Cardiovascular Diseases (CVD) Deaths

80% of CVD Deaths
3. More than nine million of all deaths attributed to noncommunicable diseases (NCDs) occur before the age of 60.

4. Around the world, NCDs affect women and men almost equally.
5. NCDs are largely preventable by means of effective interventions that tackle shared risk factors, namely: tobacco use, unhealthy diet, physical inactivity and harmful use of alcohol.

6. NCDs are not only a health problem but a development challenge as well.

7. One and a half billion adults, 20 and older, were overweight in 2008.
8. Nearly 43 million children under five years old were overweight in 2010.
9. Tobacco use kills nearly six million people a year.
10. Eliminating major risks could prevent most NCDs.
## Country capacity to address and respond to NCDs

<table>
<thead>
<tr>
<th>Items of comparison</th>
<th>Egypt</th>
<th>Algeria</th>
<th>Libya</th>
<th>Tunisia</th>
<th>Morocco</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>There is funding available for:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- NCD treatment and control</td>
<td><strong>YES</strong></td>
<td><strong>YES</strong></td>
<td><strong>YES</strong></td>
<td><strong>YES</strong></td>
<td><strong>YES</strong></td>
</tr>
<tr>
<td>- NCD prevention and health promotion</td>
<td><strong>YES</strong></td>
<td><strong>YES</strong></td>
<td><strong>YES</strong></td>
<td><strong>YES</strong></td>
<td><strong>NO</strong></td>
</tr>
<tr>
<td>- NCD surveillance, monitoring and evaluation</td>
<td><strong>YES</strong></td>
<td><strong>YES</strong></td>
<td><strong>YES</strong></td>
<td><strong>YES</strong></td>
<td><strong>NO</strong></td>
</tr>
<tr>
<td><strong>National health reporting system includes:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NCD cause-specific mortality</td>
<td><strong>YES</strong></td>
<td><strong>YES</strong></td>
<td><strong>YES</strong></td>
<td><strong>YES</strong></td>
<td><strong>NO</strong></td>
</tr>
<tr>
<td>NCD morbidity</td>
<td><strong>YES</strong></td>
<td><strong>NO</strong></td>
<td><strong>YES</strong></td>
<td><strong>YES</strong></td>
<td><strong>NO</strong></td>
</tr>
<tr>
<td>NCD risk factors</td>
<td><strong>YES</strong></td>
<td><strong>NO</strong></td>
<td><strong>YES</strong></td>
<td><strong>YES</strong></td>
<td><strong>NO</strong></td>
</tr>
<tr>
<td><strong>Has a national, population-based cancer registry</strong></td>
<td><strong>NO</strong></td>
<td><strong>NO</strong></td>
<td><strong>NO</strong></td>
<td><strong>NO</strong></td>
<td><strong>YES</strong></td>
</tr>
</tbody>
</table>
The Rising NCD Challenge in Developing Regions

Sources: World Bank analysis based on the WHO Global Burden of Disease, 2011 database
NCDs are estimated to account for 82% of all deaths.

NCDs are estimated to account for 78% of all deaths.

NCDs are estimated to account for 75% of all deaths.
NCDs are estimated to account for 63% of all deaths.

NCDs are estimated to account for 72% of all deaths.
Total NCD deaths (000s) in North Africa

WHO, 2008
Age-standardized death rate per 100 000 (Males) WHO, 2008

- Egypt
- Morocco
- Tunisia
- Algeria
- Libya

Legend:
- ALL NCD
- Cancers
- Chr Resp Dis
- CVD and Diabetes
Behavioural risk factors
WHO 2008 estimated prevalence (%)
Smoking in North Africa
WHO 2008

Current Daily Tobacco Smoking (Prevalence %)

- Males
- Females

<table>
<thead>
<tr>
<th>Country</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algeria</td>
<td>24.8</td>
<td>0.2</td>
</tr>
<tr>
<td>Egypt</td>
<td>35.1</td>
<td>0.5</td>
</tr>
<tr>
<td>Morocco</td>
<td>28.7</td>
<td>0.2</td>
</tr>
<tr>
<td>Tunisia</td>
<td>56.5</td>
<td>6.8</td>
</tr>
<tr>
<td>Libya</td>
<td>45.5</td>
<td>0.2</td>
</tr>
</tbody>
</table>
Physical Inactivity in North Africa
WHO 2008

Physical Inactivity (Prevalence %)

<table>
<thead>
<tr>
<th>Country</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Egypt</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Morocco</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Tunisia</td>
<td>30</td>
<td>39.1</td>
</tr>
<tr>
<td>Algeria</td>
<td>30.8</td>
<td>47.6</td>
</tr>
<tr>
<td>Libya</td>
<td>35.4</td>
<td>53.6</td>
</tr>
</tbody>
</table>
Metabolic risk factors

WHO 2008 estimated prevalence (%)
Hypertension in North Africa

WHO, 2008

Libya  Morocco  Tunisia  Algeria  Egypt

45.9  39.1  40.7  41.7  39  38.1  38.8  37.6  35.5  34.5

Males  Females
Global distribution of CVD mortality rates in Males per 100 000, WHO 2011
Global distribution of CVD mortality rates in Females per 100 000, WHO 2011

Chart Title

- Males
- Females

Libya: 12.1
Tunisia: 11.3
Morocco: 11.9
Algeria: 10
Egypt: 8.2

Females: 6.2
Males: 6.9
Overweight in North Africa
WHO, 2008
Obesity in North Africa
WHO, 2008

![Graph showing hypercholesterolemia rates in North Africa for males and females in Algeria, Egypt, Morocco, and Tunisia.](Image)
Modifiable Risk Factors

- Age
- Obesity
- Diabetes Mellitus
- Smoking
- Vascular Changes since Childhood 6 yrs
- Lipid Profile
  - High Cholesterol > 200 mg/dl
  - High LDL > 160 mg/dl
  - Low HDL < 40 mg/dl
  - Triglycerides > 200 mg/dl

Hypertension
- Primary
- Secondary

Renal Dis

Cerebrovascular Disease

Coronary Heart Dis
Modifiable Risk Factors

- Peers
- Stress
- Type A behaviour
- Vascular Changes
- Lipid Profile
  - High LDL > 160 mg/dl
  - Low HDL < 40 mg/dl
- Platelet Aggregation
- High fibrinogen

Smoking

Cerebrovascular Disease

Coronary Heart Disease
- Myocardial infarction
- Sudden Death
Modifiable Risk Factors

- Stress
- Physical Inactivity
- Vascular Changes
- Lipid Profile:
  - High Cholesterol > 200mg/dl
  - High LDL > 160 mg/dl
  - Low HDL < 40 mg/dl
  - Triglycerides > 200mg/dl
- Hypertension
- Cerebrovascular Disease
- Coronary Heart Disease
  - Myocardial infarction/ Sudden Death
- Obesity
Hypertension
Before Menopause: 2:1
After Menopause: 2:1.8

Coronary Heart Dis
Before Menopause: 2:1
After Menopause: 2:1.8

Diabetes Mellitus

Smoking

Lipid Profile
- High Cholesterol > 200mg/dl
- High LDL > 160 mg/dl
- Low HDL < 40 mg/dl
- Triglycerides > 200mg/dl

Vascular Changes

Cerebrovascular Disease

Unmodifiable Risk Factors
DALY’s, Years of Life Lost due to Diseases (WHO, 2008)
Egypt:
DALY’s, Years of Life Lost due to Diseases (WHO, 2008)

<table>
<thead>
<tr>
<th></th>
<th>Communicable</th>
<th>Noncommunicable</th>
<th>Injuries</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Country</td>
<td>Regional average</td>
<td>Country</td>
</tr>
<tr>
<td>Percentage</td>
<td>24</td>
<td>55</td>
<td>65</td>
</tr>
</tbody>
</table>

Distribution of years of life lost by causes (2008)
Morocco:
DALY’s, Years of Life Lost due to Diseases (WHO, 2008)
Tunisia:
DALY’s, Years of Life Lost due to Diseases (WHO, 2008)

<table>
<thead>
<tr>
<th></th>
<th>Communicable</th>
<th>Noncommunicable</th>
<th>Injuries</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Country</strong></td>
<td>34</td>
<td>53</td>
<td>13</td>
</tr>
<tr>
<td><strong>Regional average</strong></td>
<td>55</td>
<td>31</td>
<td>14</td>
</tr>
</tbody>
</table>

**Distribution of years of life lost by causes (2008)**
Algeria:
DALY’s, Years of Life Lost due to Diseases
(WHO, 2004)

<table>
<thead>
<tr>
<th></th>
<th>Communicable diseases</th>
<th>Injuries</th>
<th>Non communicable diseases</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Communicable</strong></td>
<td><strong>African Region</strong></td>
<td><strong>Algeria</strong></td>
<td><strong>African Region</strong></td>
</tr>
<tr>
<td>Diseases</td>
<td>33.8%</td>
<td>71.1%</td>
<td>54.7%</td>
</tr>
<tr>
<td>Injuries</td>
<td>11.6%</td>
<td>7.9%</td>
<td>21.0%</td>
</tr>
</tbody>
</table>

*Distribution of burden of diseases as % of total DALYs by broader causes (2004)*
Libya:
DALY’s, Years of Life Lost due to Diseases (WHO, 2008)
WHO-STEPwise approach for NCD Egypt, 2005
Prevalence of behavioral risk factors

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Male/4993</th>
<th>Female/4787</th>
<th>Total/9780</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily Smokers(^1)</td>
<td>34.6%</td>
<td>0.7%</td>
<td>18%</td>
</tr>
<tr>
<td>Shisha Smokers(^2)</td>
<td>9%</td>
<td>0.4%</td>
<td>4.8%</td>
</tr>
<tr>
<td>Alcohol Drinkers(^3)</td>
<td>3.8%</td>
<td>0.5%</td>
<td>2.1%</td>
</tr>
<tr>
<td>Healthy Eating Habit(^4)</td>
<td>21.3%</td>
<td>20.9%</td>
<td>21.1%</td>
</tr>
</tbody>
</table>

The percentage of those who ate healthy food consisting of at least 5 or more combined servings of fruit and vegetables per day was 21.1%
WHO-STEPwise approach Egypt, 2005
Smoking habit stratified by age group

<table>
<thead>
<tr>
<th>Age group</th>
<th>% within age group</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;=15 - 25</td>
<td>11.5</td>
<td>3652</td>
</tr>
<tr>
<td>&gt;25 - 35</td>
<td>20.5</td>
<td>2309</td>
</tr>
<tr>
<td>&gt;35 - 45</td>
<td>23.3</td>
<td>1890</td>
</tr>
<tr>
<td>&gt;45 - 55</td>
<td>23.2</td>
<td>1237</td>
</tr>
<tr>
<td>&gt;55 - 65</td>
<td>21.2</td>
<td>692</td>
</tr>
</tbody>
</table>
The prevalence of tobacco smoking stratified by gender

- **Male**: Current daily smokers (34.6%), Manufactured cigarette (27.4%)
- **Female**: Current daily smokers (0.7%), Manufactured cigarette (0.4%)
- **Both**: Current daily smokers (18%), Manufactured cigarette (14.2%)
Burden of Smoking

Average years of current daily smokers
Mean number of smoked cigarette per day

![Bar chart showing average years of smoking and mean number of cigarettes per day for males, females, and both genders.](image)
WHO-STEPwise approach Egypt, 2005 overweight and obesity distribution

- Male:
  - Overweight (BMI = 25): 38%
  - Obese (BMI = 30): 21.8%

- Female:
  - Overweight (BMI = 25): 33%
  - Obese (BMI = 30): 39%
**WHO-STEPwise approach Egypt, 2005**

Prevalence of NCD among Egyptian population

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
<th>Both</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diabetes</strong>[^1^]</td>
<td>6.2%</td>
<td>8.2%</td>
<td>7.2%</td>
</tr>
<tr>
<td><strong>Diabetics with Ocular complication</strong>[^2^]</td>
<td>11.6%</td>
<td>27.9%</td>
<td>20.7%</td>
</tr>
<tr>
<td><strong>Diabetics with foot complication</strong>[^3^]</td>
<td>8.7%</td>
<td>11.1%</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Hypertension</strong>[^4^]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SBP &gt; 140 and/ or DBP &gt; 90 mmHg</td>
<td>26.3%</td>
<td>27.1%</td>
<td>26.7%</td>
</tr>
<tr>
<td>SBP &gt; 170 and/ or DBP &gt; 100 mmHg</td>
<td>6.2%</td>
<td>7.6%</td>
<td>6.9%</td>
</tr>
</tbody>
</table>
### WHO-STEPwise approach Egypt, 2005

Hypercholesterolemia

<table>
<thead>
<tr>
<th>Cholesterol Level</th>
<th>Male</th>
<th>Female</th>
<th>Both</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\geq 5.2\text{ mmol/L}$</td>
<td>15.7%</td>
<td>23.1%</td>
<td>19.4%</td>
</tr>
<tr>
<td>$\geq 6.5\text{ mmol/L}$</td>
<td>2%</td>
<td>4.4%</td>
<td>3.3%</td>
</tr>
</tbody>
</table>
### Prevalence of Raised Risk, Egypt

**At risk (at least 3 of the risk factors)**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>At risk (at least 3 of the risk factors)</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Men</td>
<td>Women</td>
<td>Both Sexes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N= %</td>
<td>N= %</td>
<td>N= %</td>
<td></td>
</tr>
<tr>
<td>15-24 years</td>
<td>93.2%</td>
<td>95.3%</td>
<td>94.2%</td>
<td></td>
</tr>
<tr>
<td>25-34 years</td>
<td>98.2%</td>
<td>98.5%</td>
<td>98.4%</td>
<td></td>
</tr>
<tr>
<td>35-44 years</td>
<td>99.5%</td>
<td>99.4%</td>
<td>99.4%</td>
<td></td>
</tr>
<tr>
<td>45-54 years</td>
<td>99.3%</td>
<td>99.5%</td>
<td>99.4%</td>
<td></td>
</tr>
<tr>
<td>55-65 years</td>
<td>99.4%</td>
<td>99.3%</td>
<td>99.3%</td>
<td></td>
</tr>
<tr>
<td>15-65 years</td>
<td>97.2%</td>
<td>97.7%</td>
<td>97.4%</td>
<td></td>
</tr>
</tbody>
</table>
Planning of Prevention & Control of Non Communicable Diseases

• PRE-PLANNING:
  Is a new Non Communicable diseases’ diagnosis and treatment plan needed?

• PLANNING step 1: Where are we now?;
• PLANNING step 2: Where do we want to be?
• PLANNING step 3: How do we get there?
There is a clear vision on how to address CVDs

**Surveillance**
Map and monitor the epidemic of CVDs

**Prevention**
Reduce exposure to risk factors

**Management**
Equitable health care for people with CVDs

Address social determinants of health
Examples of Priority Interventions to Address NCDs

Tobacco use

• Raise taxes on tobacco
• Enforce bans on tobacco advertising, promotion, and sponsorship
• Ban smoking in public places and protect people from tobacco smoke
• Offer help to quit tobacco use and warn about the dangers of tobacco use
Excessive dietary salt intake

• Regulate salt concentration limits in processed and semi-processed foods
• Reduce dietary salt levels through voluntary action by food industry
• Promote low-sodium salt substitutes
• Implement information and education campaigns to warn about the harm from excessive salt intake
Harmful alcohol use

- Increase taxes
- Ban advertising
- Restrict access
Unhealthy diets, physical inactivity, Obesity

• Introduce taxes for unhealthy food
• Provide subsidies for healthy food
• Promote labeling
• Administer marketing restrictions
Cardiovascular risk

• Facilitate access to and promote combinations of drugs for individuals at high risk of NCDs
Environmental pollution

• Subsidize and promote the use of cookstoves that use cleaner fuels
• Reduce emissions of harmful urban air pollutants from vehicles through better technology and greater
• use of mass transit
• Reduce exposure to agro-industrial chemicals and waste by ensuring clean water for irrigation and
• managing pesticide use for crops and vegetables
Those helped me in Data Collection for this Lecture

Dr Dina Gaber

• Assistant Lecturer in Community Medicine Dpt
• Fac Med Ain Shams University