Use of anti-asthmatics among ethnic minority adolescents:
from multilevel analysis to interview insights

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Content

1. Background

2. Study I: Ethnic differences in asthma treatment among Swedish adolescents: A multilevel analysis of individual heterogeneity

3. Study II: Young Muslim Women Living with Asthma in Denmark: A Link between Religion and Self-Efficacy
1. Lack of adherence to asthma medicine regimes continues to be a public health problem among young people.

2. Adolescents with immigrant or ethnic minority background suffering from asthma receive on average less appropriate anti-asthmatic medication (AAM) than the majority population (Cantarero-Arévalo et al. JECH 2013).

3. Parental socioeconomic position and place of residence cannot explain alone the problems related to suboptimal adherence (Cantarero-Arévalo et al. JECH 2013; Cantarero-Arévalo et al. PDS 2013).
By performing a multilevel analysis, we aimed to evaluate if MCOB by itself accurately identifies adolescents with inappropriate AAM use over and above individual socioeconomic and medical factors.
Methods

Study population
• 782,857 adolescents born between 1988 and 1991 residing in Sweden the year they turn 17 (12.8% non-ethnic Swedes)

Registers
• Medical Birth Register
• The Register of the Total Population
• Swedish National Prescription Register

Outcome measures
• Use of anti-asthmatic medication:
  • Relief, non expensive
  • Preventive, expensive medication
Methods

Statistical procedure

- Multilevel logistic regression analysis (781,632 adolescents nested within 62 Mother COB)
- Measures of association (odds ratios, (OR)) and measures of variance (Intra-class correlation (ICC))
- Constructed an equation that predicted the probability of using anti-asthmatic medications at the age of 17 based on medical needs for AAM and parental socioeconomic factors (risk score)

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Level 2</th>
<th>Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model A</td>
<td>Adolescent</td>
<td>Mother COB</td>
</tr>
<tr>
<td>Model B</td>
<td>Adolescent</td>
<td>Mother COB</td>
</tr>
<tr>
<td>Model C</td>
<td>Adolescent</td>
<td>Mother COB</td>
</tr>
</tbody>
</table>

- Adjusted for GDP per capita of COB (World Bank Classification)
The RS corresponds to the predicted probability of using anti-asthmatic medication as a function of the variables included in the model:

\[
\text{Logit (use of anti-asthmatic medication)} = \\
\begin{align*}
\text{Mother} & : \text{Mother with asthma diagnosis} \\
& : \text{Mother with respiratory diagnoses} \\
& : \text{Father/mother farmer} \\
\text{Gestation} & : \text{Maternal age} \\
& : \text{Gestational age, weeks} \\
& : \text{Maternal smoker status} \\
\text{Delivery} & : \text{Child’s weight} \\
& : \text{Delivery} \\
& : \text{Apgar at 5 minutes} \\
& : \text{Parity} \\
\text{Socioeconomic} & : \text{Income father} \\
& : \text{Income mother} \\
& : \text{Father/mother education} \\
& : \text{Number of children in father/mother household} \\
& : \text{Time in Sweden (mother/father)} \\
& : \text{Social allowance mother/father} \\
& : \text{Parents living together}
\end{align*}
\]
Results

Multilevel logistic regression analysis

Odds Ratio (OR) with 95% (CI) for use of asthmatic medication

<table>
<thead>
<tr>
<th></th>
<th>Relief</th>
<th>Preventive</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>OR (CI-95%)</td>
<td>OR (CI-95%)</td>
</tr>
<tr>
<td>Low income</td>
<td>0.83 (0.54-0.93)</td>
<td>0.59 (0.44-0.71)</td>
</tr>
<tr>
<td>(World bank)</td>
<td></td>
<td>0.93</td>
</tr>
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</table>

Intraclass correlation coefficient (ICC) with 95% (CI)

<table>
<thead>
<tr>
<th>ICC (%)</th>
<th>Model A</th>
<th>Model B</th>
<th>Model C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relief</td>
<td>2.51 (1.26-4.40)</td>
<td>2.30 (1.06-4.25)</td>
<td>1.55 (0.36-3.35)</td>
</tr>
<tr>
<td>Preventive</td>
<td>3.49 (1.84-5.93)</td>
<td>3.00 (1.64-5.06)</td>
<td>2.19 (1.01-4.00)</td>
</tr>
</tbody>
</table>
Conclusions

• Mother’s COB are associated with adolescent use of AAM suggesting the existence of ethnic inequalities in access to asthma treatment among Swedish adolescents.

• However, the small ICC indicates that MCOB is an inaccurate categorization for identifying inappropriate use of AAM among Swedish adolescents.
Aim

• By performing a qualitative-based study, we aimed to explore the role of self-efficacy and religion in adherence to asthma medicine treatment.

Druedahl et al. Pharmacy 2018
Methods

- 10 Muslim minority women (14–24 years of age) living in Denmark.

- 10 individual interviews and 1 focus group

- Data analysis was deductive using Bandura’s theory of self-efficacy and modes of agency.
Results

• Young women reported changes in self-perceived self-efficacy during the holy month of Ramadan.

• Praying was used as an alternative to medicine for controlling asthma symptoms.

• Young women did not perceive religion and treating asthma with medicine as mutually exclusive, but rather as coexisting for the shared goal of controlling asthma symptoms.
Conclusions

- It is important for healthcare professionals to be aware of the link between self-efficacy, religion and adherence to asthma medicine treatment.

- This awareness can aid HCPs in giving advice regarding adherence to asthma treatment, and when monitoring treatment to improve the quality of asthma care for young Muslim minority women.
Tak!

[Image of a blackboard with a motivational message: I can't do it, I want to do it, How do I do it, I'll try to do it, I can do it, I will do it, Success.]

[Image of a group of people posing for a photo.]