Metabolic Syndrome in Commercial Truck Drivers: Prevalence and Associated Factors

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Introduction

- Population: Commercial Truck Drivers
- Metabolic syndrome and related disorders are understudied in this population
- Prevalence estimates for working adult populations is 10%-51.4%
  - General population prevalence is 34%
  - No studies in commercial truck drivers
Methods

- Large, multi-center, cross-sectional study
- N=817 Commercial truck drivers
- Measured anthropometry
  - Height and weight
  - Neck, chest, waist and hip circumference
- Finger stick for cholesterol profile and hemoglobin A1c measurements
- Computer administered questionnaire
  - past medical history, physical activity, diet and psychosocial factors
- Comparison with NHANES population for Objective measures
Criteria for Metabolic Syndrome

- 3 or more of 5 criteria:
  - **Waist circumference**: women ≥ 102 cm or men ≥ 88
  - **Triglycerides**: ≥ 150 mg/dL or on medication
  - **Blood pressure**: ≥ 130/85 mm Hg or on medication
  - **Diabetes Mellitus**: Hemoglobin A1c ≥ 7% or prior diabetes diagnosis
  - **High Density Lipoprotein**: ≤ 50 mg/dL (women) or ≤ 40 mg/dL (men)
What did we find?

- Mean age: 47.3 ± 10.5 years, 86.3% (n=705) male
- 62.1% (n=507) classified as obese (BMI > 30 kg/m²)
  - Average BMI 32.7 ± 7.4 kg/m²
- 52.4% (n=428) met criteria for MetS
  - 34% (n=276) met 3 of 5 criteria
  - 15% (n=116) met 4 of 5 criteria
  - 3% (n=36) met all 5 criteria
- Average no. of metabolic risk factors 2.45 ± 1.19
- Average neck circumference 43.3 ± 4.4 cm
Odds Ratios for a comparison of Metabolic Syndrome and MetS criteria between Truck Drivers and the General Population (NHANES)

<table>
<thead>
<tr>
<th>Metabolic Syndrome</th>
<th>Odds Ratio</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metabolic Syndrome</td>
<td>4.32</td>
<td>2.89 - 6.47</td>
</tr>
<tr>
<td>Waist Circumference</td>
<td>9.45</td>
<td>6.25 - 14.29</td>
</tr>
<tr>
<td>HDL Cholesterol</td>
<td>4.12</td>
<td>2.90 - 5.87</td>
</tr>
<tr>
<td>Triglycerides</td>
<td>7.46</td>
<td>4.98 - 11.17</td>
</tr>
<tr>
<td>Blood Pressure</td>
<td>0.53</td>
<td>0.36 - 0.78</td>
</tr>
<tr>
<td>Hemoglobin A1c/Glucose</td>
<td>0.42</td>
<td>0.28 - 0.65</td>
</tr>
</tbody>
</table>
## Adjusted Analysis for relationship with Metabolic Syndrome among Truck Drivers

<table>
<thead>
<tr>
<th>Multivariate Analysis of Modifiable Factors</th>
<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI</td>
<td>1.15</td>
<td>1.12-1.19</td>
</tr>
<tr>
<td>Age</td>
<td>1.04</td>
<td>1.03-1.06</td>
</tr>
<tr>
<td>Shift Work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day shift</td>
<td>1.00</td>
<td>Ref. Ref.</td>
</tr>
<tr>
<td><strong>Night shift</strong></td>
<td><strong>0.50</strong></td>
<td><strong>0.25-0.99</strong></td>
</tr>
<tr>
<td>Swing shift</td>
<td>0.70</td>
<td>0.50-1.06</td>
</tr>
<tr>
<td>Variable shifts</td>
<td>1.05</td>
<td>0.68-1.63</td>
</tr>
<tr>
<td>Physical Activity (per hour week)</td>
<td><strong>0.87</strong></td>
<td><strong>0.77-0.98</strong></td>
</tr>
</tbody>
</table>
This study provides the first estimates of metabolic syndrome in the trucking industry and demonstrates modifiable personal factors associated with MetS among truck drivers.

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Thank you for your attention