

A Prevalence and Associated Factors of Metabolic Syndrome Among Thai Seafarers

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Background

- Metabolic Syndrome (MetS) is a cluster of risk factors—central obesity, hypertension, dyslipidemia, and hyperglycemia—that increases the risk of cardiovascular disease and diabetes.
- Globally affects 20–25% of adults.
- Seafarers are at higher risk due to occupational stressors (shift work, isolation, limited healthy food, inactivity).
- Thai seafarers are under-studied; this study addresses the gap.

Prevalence of MetS in Thai people

Population Group	Prevalence (%)	Notable Risk Factors
Police Officers	39.2%	Stress, inactivity, irregular meals
Army Personnel	23.2%	Alcohol, age, central obesity
Office Workers	15.2%	Sedentary behavior, sugary drink intake
Healthcare Workers	20–28%	Shift work, emotional stress
Adolescents	4.1%	Early signs of risk with poor lifestyle
General Thai Adults	~23–25%	Obesity, diet, aging, low HDL-C
Thai Seafarers (this study)	17.3%	Non-officer status, high BMI, dyslipidemia

Objectives

- Determine prevalence of MetS in Thai seafarers.
- Identify demographic, occupational, clinical, and behavioral risk factors.

Methods

- Design: Retrospective study
- Setting: OPD, Somdech Phra Pinklao Hospital (Jan 2022–Dec 2023)
- Participants: 549 Thai seafarers certified “fit for duty”
- Criteria: Harmonized IDF-AHA-NHLBI definition of MetS ≥ 3 of: BMI ≥ 25 , TG ≥ 150 , HDL-C < 40 , BP $\geq 130/85$, FBG ≥ 100 mg/dL
- Statistical tools: Descriptive stats, chi-square, t-test, multivariate logistic regression

Key Results

- **MetS prevalence: 17.3% (95/549)**
- Similar to international maritime rates, but lower than Thai police or military groups

Quantitative Risk Factors

- Compared MetS vs non-MetS groups:
- Age: 37.9 vs 34.3 years ($p = 0.001$)
- BMI: 27.6 vs 23.8 kg/m² ($p < 0.001$)
- Systolic BP: 139 vs 131 mmHg ($p < 0.001$)
- Fasting glucose: 100.8 vs 92.2 mg/dL ($p < 0.001$)
- TG: 219 vs 103 mg/dL ($p < 0.001$)
- HDL-C: Lower in MetS (46.7 vs 54.0 mg/dL; $p < 0.001$)

Qualitative Risk Factors

- Non-officer rank: 20.2% vs 13.4% MetS ($p = 0.037$)
- BMI: High BMI $\rightarrow$ 37.4% had MetS vs 4.7% with normal BMI ($p < 0.001$)
- Comorbidities:
 - Diabetes ($p = 0.033$)
 - Hypertension ($p = 0.002$)
- Smoking/Alcohol: Not statistically significant
- Worksite (deck/engine/other): Not significant

Multivariate Analysis

- **Significant predictors:**
 - Non-officer status: OR = 1.733 ($p = 0.030$)
 - Total cholesterol >200 mg/dL: OR = 1.983 ($p = 0.024$)
 - Age ≥ 45 years: borderline significance (OR = 1.784, $p = 0.054$)
- **Non-significant:** Smoking, alcohol, LDL-C, worksite type

Discussion

- Prevalence aligns with global maritime data.
- Occupational rank is an important determinant—linked to work stress, autonomy, and health literacy.
- Metabolic risk cluster common among seafarers: elevated BMI, BP, TG, low HDL, impaired glucose.
- No significant link with smoking or alcohol—possibly due to underreporting.
- Work environment: inactivity, shift work, limited food choices, psychological stress exacerbate risk.

Limitations

- Single-center, retrospective design
- Lifestyle factors (diet, sleep, stress) not fully captured
- Self-report bias possible
- Small numbers with diabetes, hypertension
- Cannot determine causality

Conclusion & Recommendations

- MetS affects 1 in 5 Thai seafarers—a notable occupational health issue.
- Key risk: non-officer rank, high cholesterol, older age, obesity, and hypertension.
- Recommendations:
 - Integrate MetS screening in routine maritime medicals
 - Promote health education, dietary improvement, and onboard exercise programs
 - Prioritize non-officers for targeted interventions
 - Address chronic disease prevention in maritime health policy

Thank you