Title: Hazard exposure with health and safety outcomes hinder the work ability of salt farm workers in Thailand

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 **Abstract**

Objective: Unsafe environments and occupational hazards have been documented and are contributing to health risks for salt farm workers in Thailand. Whether exposures with various health hazards and outcomes affect work ability among these workers is uncertain. This study aimed to examine the effects of hazard exposures with health risks and outcomes, including accidents, for work ability among salt farm workers.

Methods: A cross-sectional study was completed with 120 salt farm workers recruited from the largest salt farm company in Samutsakorn Province during January and February 2014. Face to face interviews were conducted using a structured questionnaire comprised of worker characteristics, working conditions, safety and health problems related to work, and a work ability index (questionnaire reliability =0.84) through a worksite visit. The MIMIC model was used to determine direct , indirect and total multilevel -causal effects of work-related health hazards and outcomes on work ability.

Results: Among 120 salt farmers, 61% were female and 77% had primary educations. Average age and work experience was 49.5 years (SD = 13.7) and 23.7 years (SD = 13.5), respectively. 66% worked more than 5 days per week and 21.3% had at least one accident in the past 3 months. The results of structure equation analysis revealed that healthy skin was related to heat exposure (β=.35, p=.01) and directly influenced work ability (β=.37, p=.01), Eye irritation was influenced by length of work time (β=.24, p=.05), and harmonized the predictive value of the model at a high level (χ2=94.51, df=73, p-value =0.05, χ2/df=1.29. RMSEA= 0.066).

Conclusion: Results for the MIMIC model indicate that two factors, bright sunlight and strong wind exposure over an extended work period, could be having crucial impacts on skin and eye health of salt farm workers. These factors might be protected against using PPE and health examinations with positive health outcomes directly improving work ability. Substantial governmental action with community leadership is needed immediately so action plans are instituted to improve occupational safety and health.