

24 - 27 September
#ISQua2024

Assessment of sustainable healthcare practices in Indonesian hospitals: A focus in water, sanitation, and care waste management interventions

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**ISQUA2024-
ABS-2761**

INTRODUCTION

The World Health Organization (WHO) has stated that as the climate continues to change, risks to health systems and facilities, including hospitals, clinics, and community care centres, are increasing. This is reducing the ability of health professionals to protect people from a range of climate hazards. Health care facilities are considered the first and last line of defend against climate change impacts due to their potential large emissions of greenhouse gases (GHGs) and their role in providing necessary services and care to people affected by extreme weather and other long term climate hazards. Furthermore, health care facilities can also generate significant amounts of environmental waste and contamination, including GHGs and other pollutants that may be infectious, toxic, or radioactive, posing a threat to the health of individuals and communities. The declaration in Indonesia on management policies for achieving energy efficiency in electricity, water, paper usage, the use of environmentally friendly materials, waste management, and environmental pollution, as well as the adoption of an environmentally friendly culture and operational cost efficiency in line with Hospital Accreditation Standards (STARKES), was launched in September 2022. It is now mandatory for all hospital accreditation surveyors to enhance their knowledge and skills in assessing the sincerity of hospitals in making these improvements.

AIM

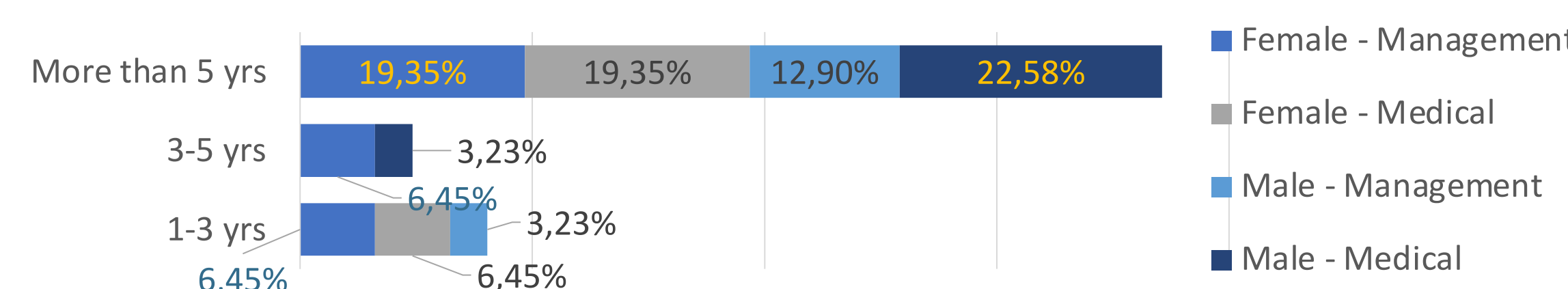
To evaluate a comprehensive intervention program aimed at improving environmental sustainability practices in Indonesian hospitals, with a specific focus on water conservation, alternative water sources, and waste management.

We expected to provide a direct recommendations to address the key areas of weakness identified in the current study, while also contributing to the broader field of sustainable healthcare practices in developing countries. The resulting intervention program could serve as a model for improving environmental sustainability in healthcare settings, with potential benefits extending beyond Indonesia.

METHOD

- This cross-sectional quantitative study employed a comprehensive questionnaire to assess sustainable water, sanitation, environmental, chemical, and health care waste interventions in Indonesian hospitals.
- Participants were Hospital Accreditation Commission surveyors (n = 31). We utilized purposive sampling to ensure representation across different types of hospitals (public, private, teaching) and geographical regions of Indonesia.
- The questionnaire was adapted from the WHO guidance for climate-resilient and environmentally sustainable health care facilities. It consisted of two main domains, Water, sanitation, chemical and health care waste – climate resilience (41 items) and Water, sanitation, chemical and health care waste – environmental sustainability (27 items). Each domain was further divided into three indicators: 1) Monitoring and Assessment; 2) Risk Management; and 3) Health and Safety Regulation.
- Respondents rated each item on a 3-point Likert scale (1 = Not available/implemented, 2 = Partially available/implemented, 3 = Fully available/implemented). The study was conducted throughout 2023. Surveyors were asked to provide responses based on their observations and assessments of hospitals they had surveyed or served in during the past year.
- Data were analysed descriptively, where mean scores were calculated for each item and indicator. Range analysis utilized for identification of minimum and maximum scores of each indicator to highlight areas of strength and weakness. Results were presented using spider graph to visually represent mean scores for each item, allowing for easy identification of high and low-performing areas.

RESULTS



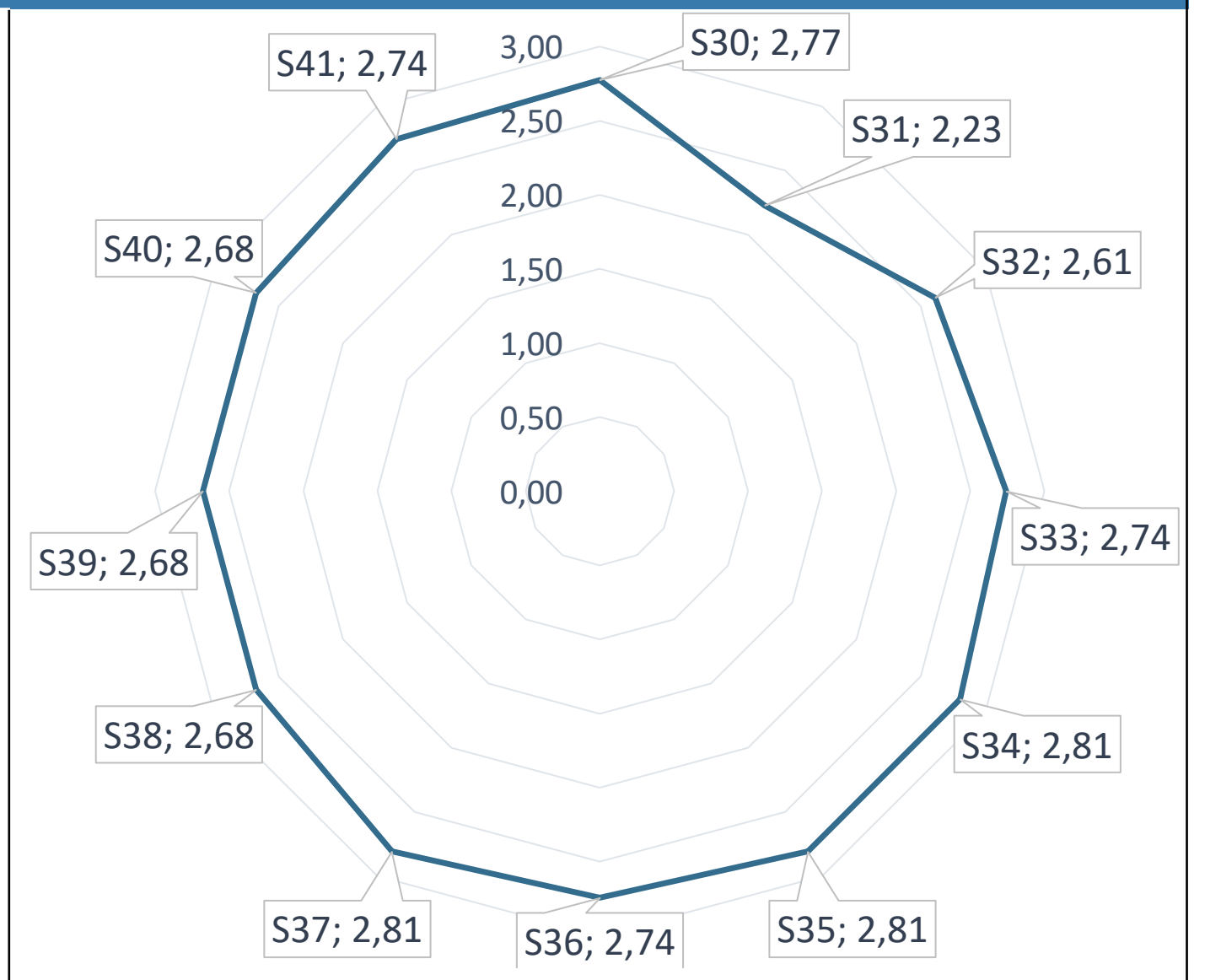
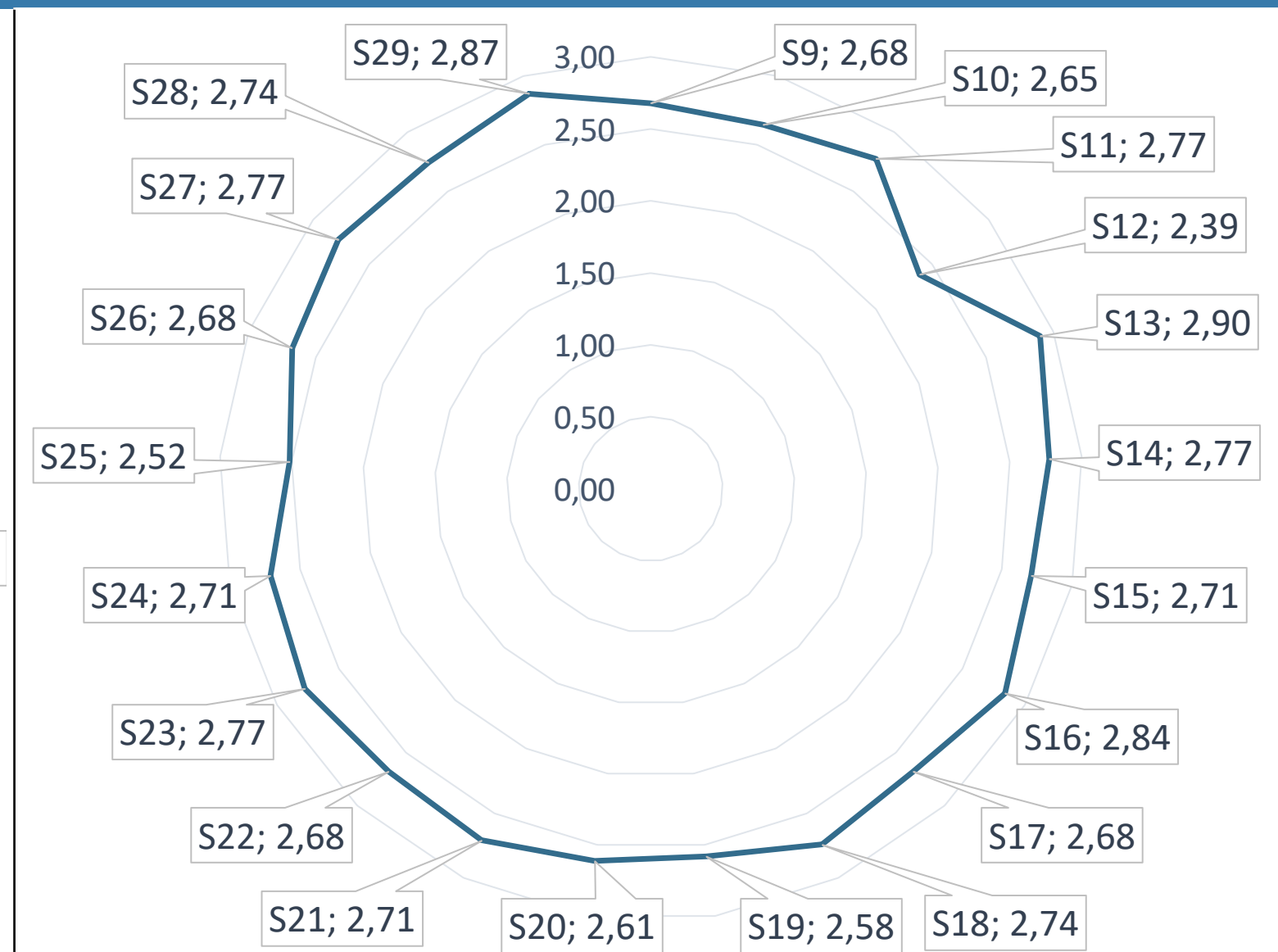
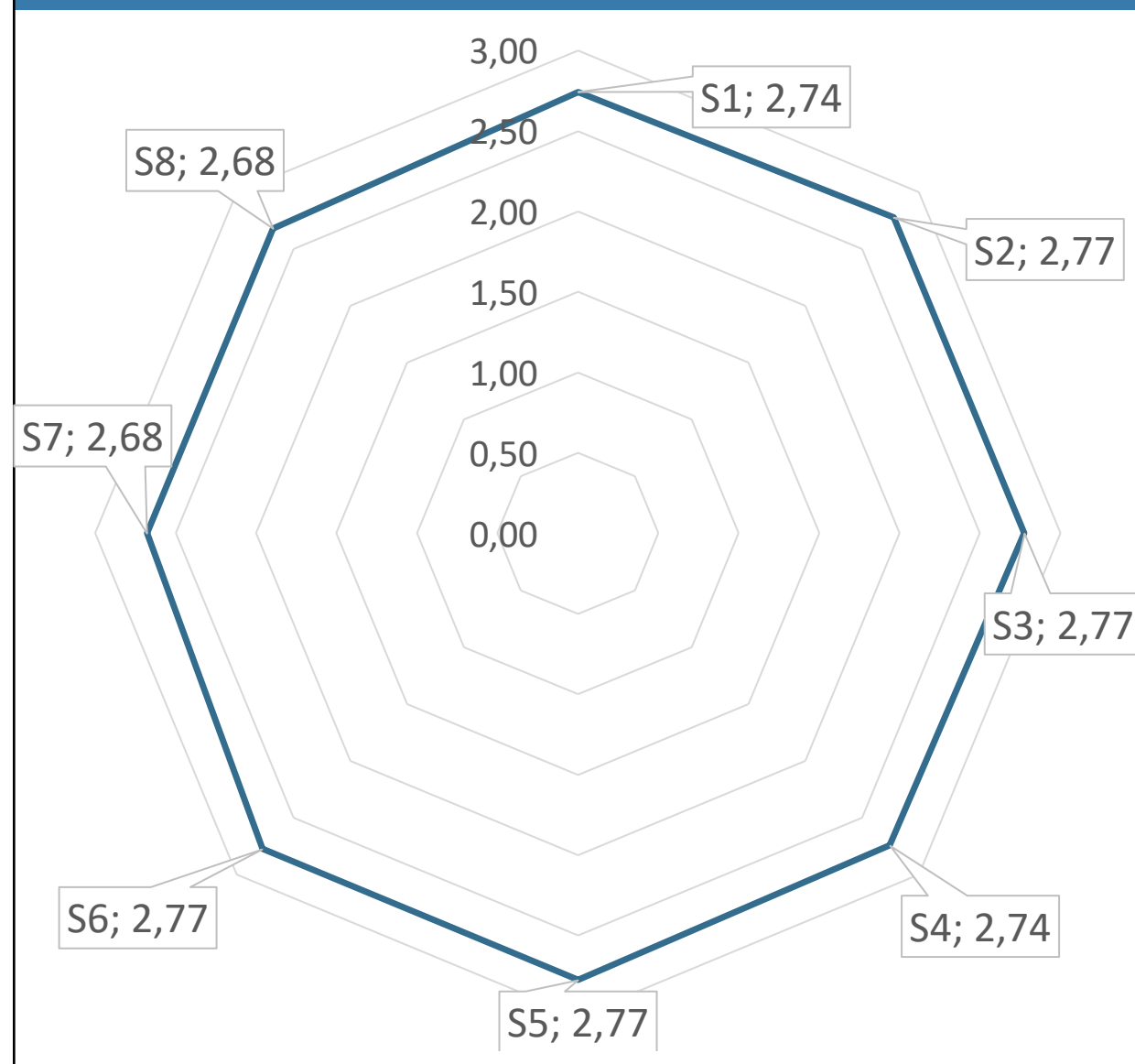
We included responses from 31 hospital accreditation surveyors. Most of them were female (58,06%) and have served as surveyor for more than five years. Most Surveyors served as medical surveyors (51,61%) and were referring type B hospitals (51,61%).

MONITORING AND ASSESSMENT: Information regarding water, sanitation, chemical and health care waste management considers climate resilience and environmental sustainability for promoting action.

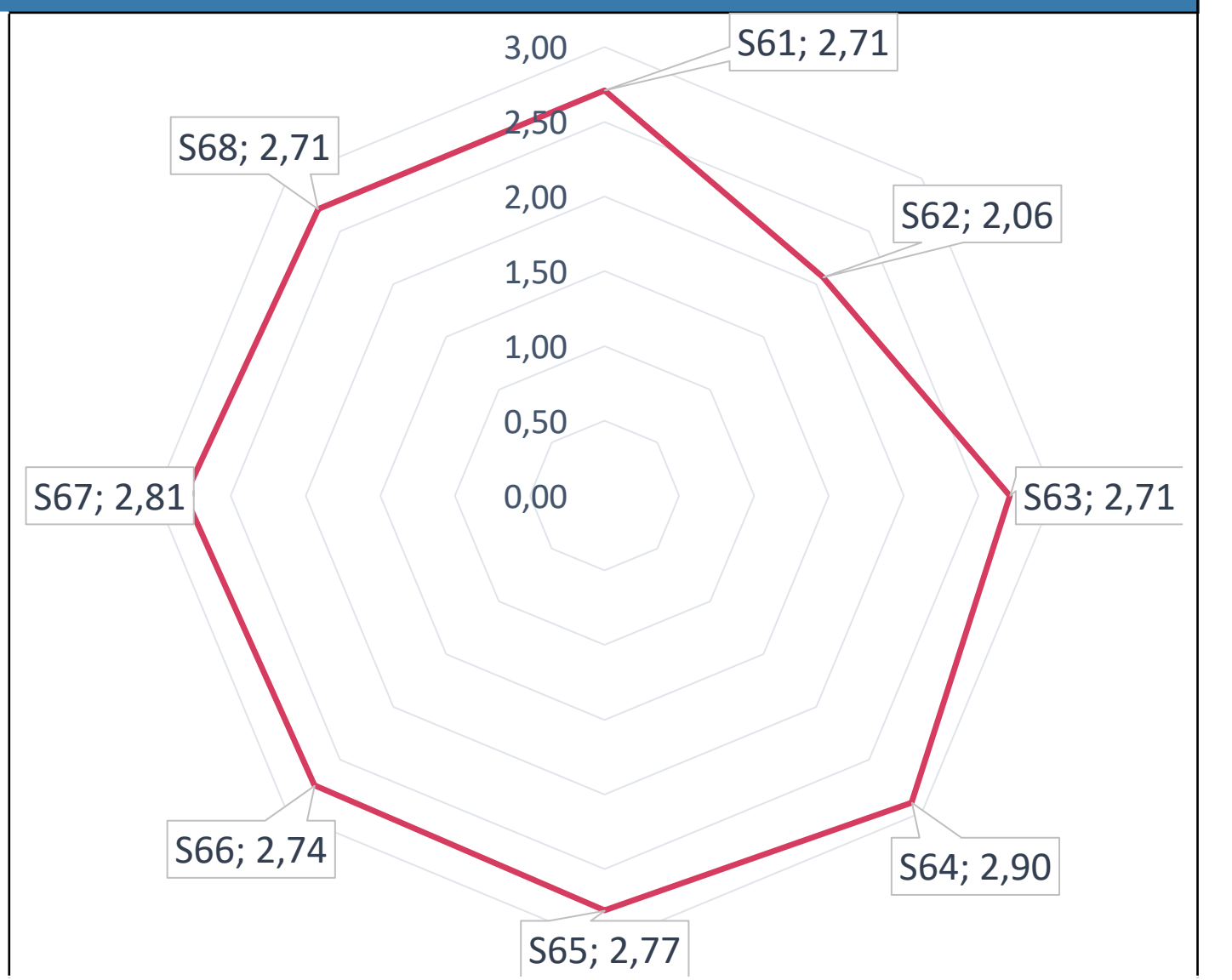
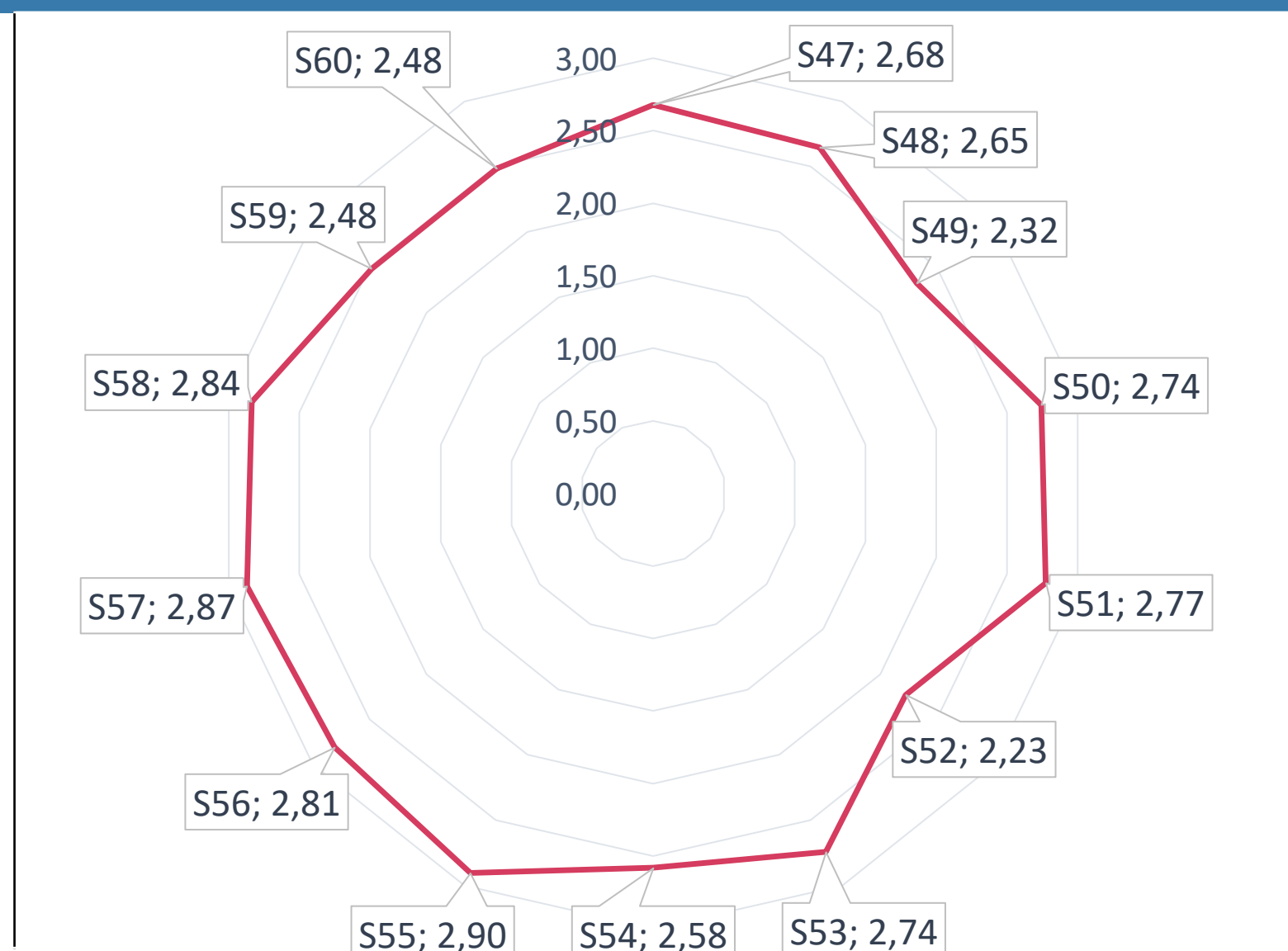
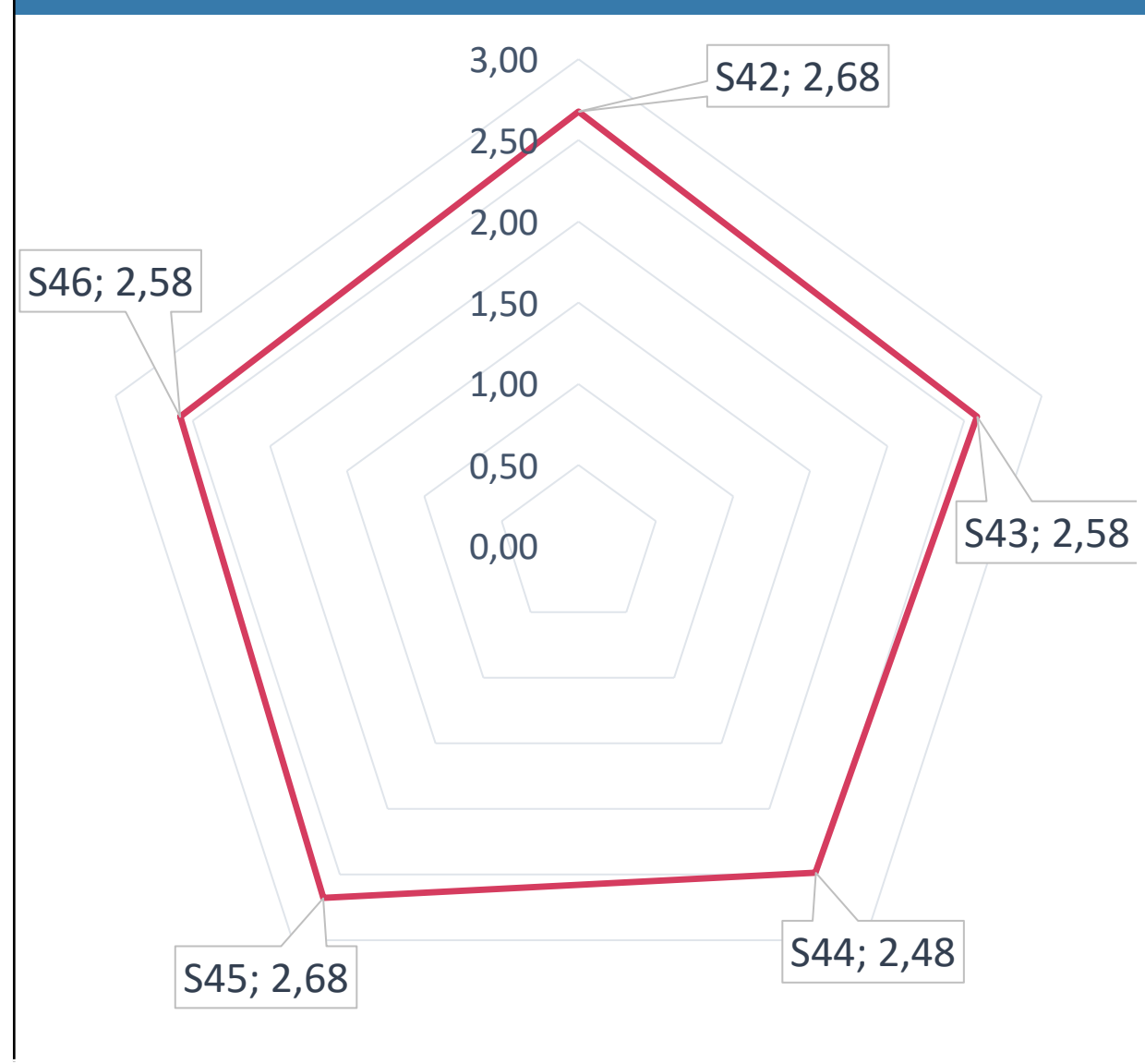
RISK MANAGEMENT: Strengthened capacity of health care facilities to manage water, sanitation, chemicals and health care waste risks to workers, patients and served communities, by including assessments of climate resilience and environmental sustainability in responding to hazards and identifying and reducing exposures and vulnerabilities.

HEALTH AND SAFETY REGULATION: Water, sanitation, chemical and health care waste regulations are implemented taking into consideration climate variability and change, and environmental sustainability.

Water, sanitation and health care waste – climate resilience



Water, sanitation and health care waste – environmental sustainability



- The mean scores for all indicators across both domains (climate resilience and environmental sustainability) range from 2.60 to 2.74 out of a possible 3.00. This suggests that Indonesian hospitals are performing reasonably well in implementing sustainable practices, but there is still room for improvement.
- Notable areas of strength include: Water quality monitoring and emergency preparedness (S5, S6); Safe water storage practices (S13), Proper waste segregation and disposal systems (S55), and Hand hygiene facilities availability (S64)
- Several areas show potential for improvement: Long-term drought management planning (S10); Training and support for the health workforce on water messaging (S12); Rainwater harvesting and use of alternative water sources (S31, S62); Elimination of plastic bottled water where tap water is available (S49); Establishment of recycling programs for non-hazardous waste (S52)

CONCLUSIONS

- Indonesian hospitals show moderate to good performance in sustainable healthcare practices related to water, sanitation, and care waste management. Climate resilience measures are slightly more developed than environmental sustainability measures. Specific areas such as drought management, alternative water sources, and recycling programs require significant improvement.
- **Recommendation:**
 - Hospital accreditation standards must include more specific criteria for climate resilience and environmental sustainability.
 - Develop targeted training programs for healthcare workers on sustainable practices, particularly in areas identified as weaknesses.
 - Implement incentive systems for hospitals that demonstrate excellence in sustainable practices.
 - Encourage collaboration between hospitals, environmental agencies, and local communities to address sustainability challenges.
- **Future Research** may investigate the barriers to implementing sustainable practices in areas identified as weaknesses. Longitudinal studies may also be carried out to assess the impact of improved sustainability practices on hospital performance and patient outcomes. Other future research may include exploration of cost-effectiveness of various sustainable interventions in the Indonesian healthcare context or examination of potential technology and innovation to enhance sustainability in healthcare facilities.

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