

The Importance of Indoor Air Quality (IAQ) for Young Children: Insights for Caregivers and Administrators



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INTRODUCTION

Indoor Air Quality (IAQ) in classrooms is important (Roberts et al., 2019; Madureira, 2014). IAQ has a direct impact on the learning process, as well as the physical and mental well-being of children (Robert, 2019; Sá, 2019; D’Angelo et al., 2023; Kolarik et al., 2016; Ferreira et al., 2014; Araújo-Martins, 2014), and the rate of absenteeism for both children and teachers (Madureira, 2009; Simon, 2010). The majority of work has been done with older children, while less work has focused on younger children who may be more impacted due to their developmental characteristics. If ECE teachers and administrators have information about IAQ and its impact on the learning process, it can inform their efforts to offer high-quality settings to promote development and learning (Madureira et al, 2009; Gabriel et al, 2021; Scheepers, 2015). We conducted a study to gauge teachers' and administrators' understanding of and knowledge about IAQ in ECE classrooms for children between the ages of 1 and 5.

METHOD

This study is part of a larger study, named OK-AIR, that aims to explore the impact of IAQ in ECE settings. A survey was developed to ask teachers about their current knowledge and understanding of IAQ. The survey was administered online using Qualtrics and includes various types of questions, such as multiple-choice, Likert scale, and open-ended questions. See Table 1 for the description of items.

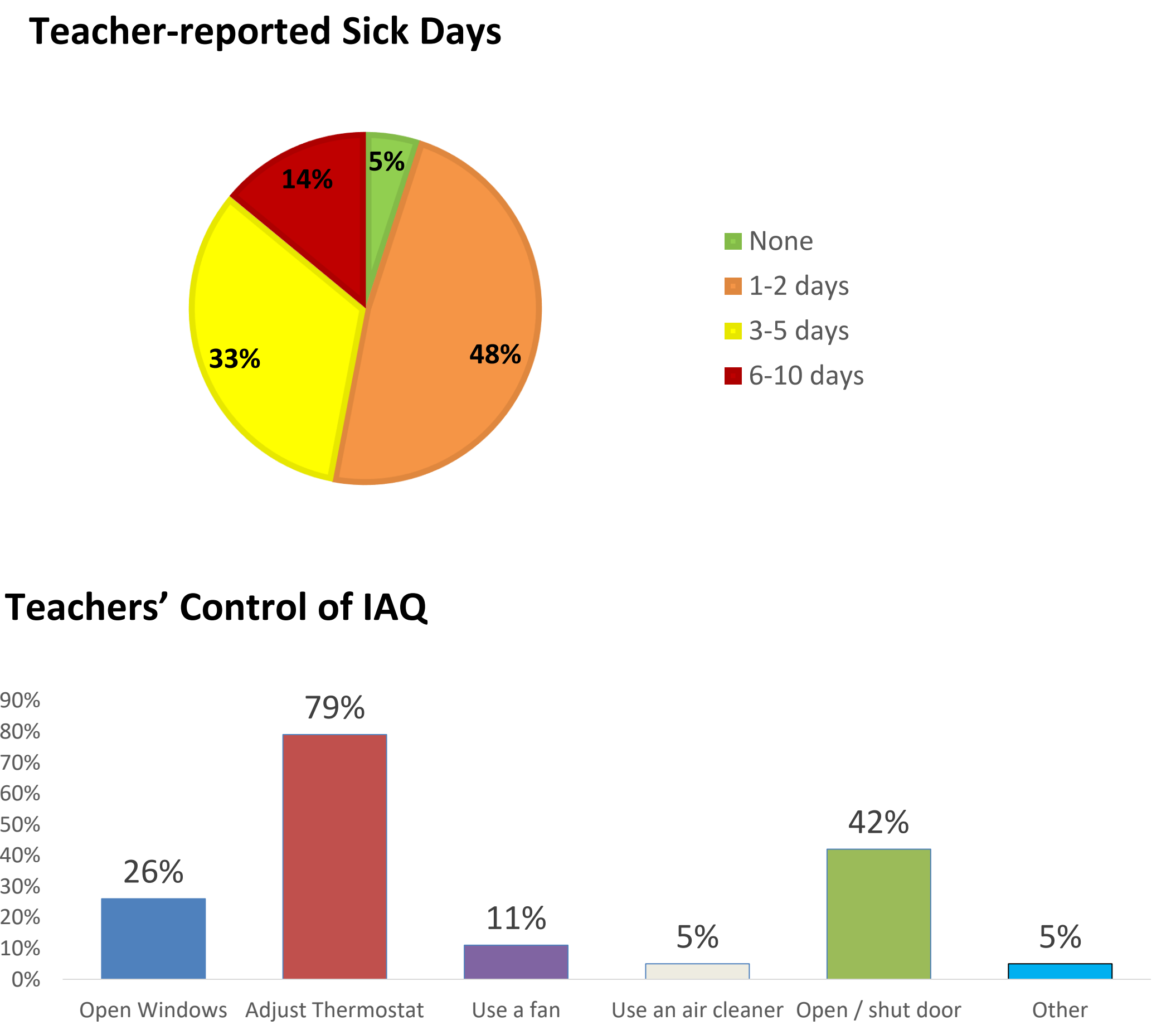
The survey items were piloted by distributing the survey to 10 individuals with ECE experience. Based on their feedback, adjustments and edits were made to finalize the survey.

The survey link was emailed to the participating ECE teachers who were recruited at a professional conference and through existing research-program partnerships.

Table 1			
Survey Component	Number of Questions	Purpose	Types of the Questions
Informed consent	1	Understand the study, Know their rights, and Provide explicit consent	Yes/No question
Demographic questions	6	Categorizing Participants, Identifying Patterns, Ensuring Representation, Tailoring Analysis, Controlling for Bias	Multiple-choice question/ Open-ended
Work experience and environment	5	Understanding Professional Background, Analyzing Job-Related Factors, Customizing Feedback, Comparing Groups, Exploring External Influences	Multiple-choice question
Personal health	5	Identify Health Symptoms, Correlate Air Quality with Health, Correlate Air Quality with Health, Identify Vulnerable Groups, Evaluate Long-term Health Risks, Support Policy Recommendations	Yes/No question / Multiple-choice question/ Likert-scale question
Classroom conditions	9	Assessing Ventilation and Airflow, Identifying Sources of Pollutants, Evaluating Comfort Levels, Understanding Occupancy and Usage Patterns, Linking Environmental Factors to Health Outcomes, Improving Learning and Teaching Environments, Supporting Policy and Infrastructure Changes	Multiple-choice question/ Likert-scale question/ Open ended
Health concerns and existing measures	2	Identifying Specific Health Concerns, Assessing Awareness of Health Risks, Evaluating the Effectiveness of Existing Measures, Exploring Gaps in Protective Actions, Tailoring Future Recommendations, Linking Perceived Risks with Actual Data	Multiple-choice question/ Open-ended
Knowledge and perceptions	9	Assess Awareness Levels, Evaluate Perceptions of Air Quality, Gauge Attitudes Toward Solutions, Identify Behavioral Practices, Inform Education and Intervention Programs, Highlight Perception vs. Reality Gaps, Support Policy Development	Multiple-choice question/ Open-ended
Factors contributing to indoor air quality and solutions	6	Identify Sources of Pollution, Assess the Impact of Building Design, Understand Behavior and Practices, Evaluate Maintenance and Upkeep, Evaluate Current Measures, Identify Gaps and Needs, Gauge Effectiveness, Explore New Solutions, Inform Policy and Recommendations:	Multiple-choice question/ Open-ended

RESULTS

- Description of the Sample:
 - 21 total respondents to date / All female
- Diverse sample:
 - 38% Hispanic (Latino or Spanish) / 33% Black / 48% White
- Varied ages:
 - 43% Gen Z (1965- 1980) / 33% Millennials (1981- 1996)
- Varied education levels:
 - 38% some college / 29% BA or equivalent
- Varied experience and roles:
 - 67% employed in ECE 1-4 years
 - 33% lead teacher / 57% assistance teacher
 - 38% pre-school / 43% Infant/toddler
 - 96% worked 40 hours or more per week



CONCLUSIONS AND IMPLICATIONS

- Although IAQ is viewed as important, only 1/3 of the respondent said their IAQ knowledge was “good” or “very good.”
- Although the vast majority (80%) view IAQ as “important” or “very important”, 65% reported no training on the topic.
- Most teachers report IAQ is important, but 55% report rarely thinking about it; potentially indicating this is perceived by teachers as being outside their role.

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