



Validation of Personal, Environmental, and Social Health Education in Primary Schools in Islamshahr County Under Conditions of Energy Imbalance

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ABSTRACT. Personal, environmental, and social health education in primary schools is recognized as a fundamental component in promoting the health of students and society. With a descriptive-analytical approach, this mixed-method (quantitative-qualitative) study aimed to validate personal, environmental, and social health education in primary schools of Islamshahr County under energy imbalance conditions. Data were collected using quantitative methods (standardized questionnaires) and qualitative methods (content analysis, semi-structured interviews with students, teachers, administrators, and parents, and field observations of educational environments). The results were evaluated based on validity, reliability, and credibility indicators. The validity of the tools was confirmed using Cronbach's alpha (0.87) and content validity. Qualitative data from interviews and observations were analyzed using qualitative content analysis. Thematic coding was conducted using MAXQDA software, extracting key concepts such as infrastructural limitations and family participation, and categorizing data to identify main themes and related patterns. Quantitative data from questionnaires were analyzed using statistical software (e.g., SPSS-26) and descriptive (mean, standard deviation) and inferential statistical methods (independent t-tests, ANOVA, linear regression, and variance analysis). Data integration was performed through triangulation to enhance the internal validity of the findings. The findings revealed that health education programs under energy imbalance conditions face challenges such as resource shortages, insufficient teacher training, and inadequate family participation. However, targeted educational programs and the use of innovative teaching methods can improve the effectiveness of these programs. Personal, environmental, and social health education plays a vital role in enhancing the health of students and society. Health, as a cornerstone of sustainable community development, has always been a focus for policymakers, planners, and professionals in education and healthcare. Schools, as educational and training institutions, play an irreplaceable role in shaping the health and social behaviors of students. Health education in primary schools not only promotes individual health but also fosters a healthy and dynamic society by emphasizing environmental and social health. Energy imbalance, defined as the disparity between energy supply and demand, has direct and indirect impacts on the quality of education and health in schools in this region. These conditions can lead to reduced access to educational resources, declining quality of learning environments, and limitations in implementing health programs. Therefore, validating personal, environmental, and social health education programs in primary schools of Islamshahr under such conditions is of particular importance.

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Introduction

Students' health is paramount, as they are the future builders of society. Personal, environmental, and social health education in primary schools plays a significant role in enhancing student well-being and preventing diseases. However, energy imbalance conditions such as shortages of energy resources and their impact on educational environments can pose significant challenges to the effective implementation of these initiatives and programs. Islamshahr County, due to its high population density and infrastructural limitations, is one of the regions requiring special attention in this regard. Today, health education in primary schools is recognized as a fundamental pillar in promoting individual and social health.

However, unstable environmental and infrastructural conditions, particularly in urban areas with energy limitations, have created significant challenges in the effective implementation of these programs. Islamshahr County, as one of the suburban areas of Tehran, faces issues such as frequent power outages, inadequate heating and cooling systems, and limited access to clean water.

These limitations not only affect the quality of life of residents but also disrupt the implementation of personal, environmental, and social health education programs in schools (Iran Statistical Center, 2023;

Safari & Razavi, 2023). According to the World Health Organization (WHO, 2019), health education in primary schools will only be sustainable and effective when aligned with local conditions and environmental challenges.

In Iran, despite the emphasis of the Fundamental Reform Document of Education (Ministry of Education, 2021) on life skills and health education, there is a noticeable lack of studies validating these programs under critical conditions such as energy imbalance. Previous research has primarily focused on theoretical aspects of health education, with less attention paid to operational challenges in underserved areas (UNESCO, 2021). This study, using a mixed-method approach, analyzes the impact of energy shortages on student participation, the role of teachers, and the effectiveness of educational content. The findings of this research can assist educational policymakers in redesigning health programs tailored to critical conditions and developing sustainable strategies.

This study highlights the importance of considering environmental and social conditions in designing and implementing health education programs and offers suggestions for improving these programs. Given the energy imbalance conditions and their impact on educational environments, this research examines the validation of health education programs in primary schools of Islamshahr County.

Additionally, this study seeks to identify challenges and propose solutions to improve the quality of health education under energy imbalance conditions. The results of this research can help policymakers and educational planners design and implement health education programs that maximize effectiveness under specific energy imbalance conditions. Furthermore, this study can serve as a reference for future research in the field of health education and school health. Given the importance of the topic, this research employs mixed methods (qualitative and quantitative) to gain a comprehensive understanding of the current situation.

However, the effective implementation of health education programs under energy imbalance conditions requires thorough investigation and validation.

Islamshahr County, as one of the densely populated and developing regions of Tehran Province, faces numerous challenges in energy and educational infrastructure. Health education at this age not only helps prevent diseases and promote individual health but also fosters a healthy and sustainable society by emphasizing environmental and social health. Energy imbalance, defined as the disparity between energy supply and demand, is a significant issue that has gained increasing attention in recent years due to population growth, industrial development, and resource limitations.

This phenomenon has widespread impacts on various sectors of society, including the educational system. In primary schools, energy imbalance can lead to reduced access to educational resources, declining quality of learning environments, and limitations in implementing health programs. These conditions are particularly evident in densely populated and developing areas such as Islamshahr County, which faces infrastructural and energy challenges.

Methods

Study Design and Setting

This mixed-methods (quantitative-qualitative) study employed a descriptive-analytical approach to validate personal, environmental, and social health education in primary schools of Islamshahr County under energy imbalance conditions. Data were collected through: - Quantitative methods: Standardized questionnaires - Qualitative methods: Content analysis and semi-structured interviews with students, teachers, administrators, and parents to deeply examine stakeholders' perspectives, supplemented by educational environment observations.

Qualitative Data Analysis

Interview and observation data were processed through: - Qualitative content analysis - Thematic coding using MAXQDA software - Identification of key concepts (e.g., infrastructure limitations, family engagement) - Categorization to reveal core themes and patterns.

Quantitative Data Analysis

Questionnaire data were analyzed using: - SPSS-26 software: - Descriptive statistics (mean, standard deviation) - Inferential statistics (independent t-tests, ANOVA, linear regression, variance analysis).

Data Integration

Triangulation method was applied to enhance findings' internal validity, Population & Sampling., - Target population: All students, teachers, administrators, and parents in Islamshahr primary schools (2022-2024 academic years).

Sampling

Stratified random sampling by gender and geographical distribution across 15 schools: - 300 students (150 male, 150 female) from grades 3-6 - 50 teachers (25 male, 25 female) - 20 school administrators - Inclusion criteria: Minimum one-year school tenure with direct experience of energy imbalance challenges.

The research instrument

Data Collection Instruments and Methods: 1. Quantitative Questionnaire - A researcher-developed questionnaire designed to assess the perspectives of students, teachers, and parents regarding health education programs - Includes items addressing: • Educational content • Teaching methodologies • Stakeholder engagement • Impact of energy imbalance. Developed based on: • WHO standards (2019) • Fundamental Reform Document of Education (2021) - Structure: • 40 items across three domains: - Personal hygiene (15 items) - Environmental health (15 items)- Social health (10 items)- Psychometric properties:• Reliability: Cronbach's alpha = 0.87• Validity: Verified by 5 health education specialists.

Semi-structured Qualitative Interviews

- Participants: School administrators and teachers - Sample size: 30 interviews (30-45 minutes each) - Focus areas: • Implementation challenges during:- Power outages- Water shortages- Heating system failures • Strategies for program improvement.

Field Observations

- Method: Direct observation- Observation sessions: 60 instructional periods - Observation targets: • Students' health-related behaviors • School facilities and resources • Program implementation quality• Energy imbalance impacts on learning environments.

Data Analysis Methods

Qualitative Data Analysis

- Method: Qualitative content analysis- Software: MAXQDA - Analytical process: 1. Thematic coding 2. Extraction of key concepts (e.g., infrastructure limitations, family involvement) 3. Identification of core themes and patterns.

Quantitative Data Analysis

- Software: SPSS-26 - Statistical methods: • Descriptive statistics (mean, standard deviation) • Inferential statistics: - Independent t-tests – ANOVA - Linear regression - Variance analysis.

Data Integration

- Method: Triangulation - Purpose: Enhancing internal validity of findings.

Research Validity and Reliability

Validation

Results were evaluated based on validity, reliability, and authenticity metrics: - Instrument reliability confirmed by Cronbach's alpha (0.87) - Content validity verified. - Expert validation by education and health specialists - Content validity verification

Reliability

- Measured via Cronbach's alpha
- Reliability coefficient: >0.7 (acceptable)

Statistical analysis

Quantitative Findings

1. Personal Hygiene Education

- The average effectiveness of handwashing and healthy nutrition education was 76%, but in schools with frequent water cuts, this decreased to 52% ($p < 0.05$). - 68% of students reported that power shortages disrupted access to digital educational materials (e.g., health animations).

2. Environmental Health Education

- Waste management and energy-saving programs showed only 45% effectiveness. - 75% of teachers cited lack of trash bins and recycling systems as the main reason for failure. - A significant positive correlation ($r = 0.62$) was found between stable electricity access and student participation in environmental activities.

3. Social Health Education

- Group collaboration and conflict resolution training had 68% acceptance, but in underprivileged schools with inadequate heating, this dropped to 55%. - 82% of parents complained about the cancellation of health education sessions* during cold seasons due to fuel shortages.

4. Validity of Health Education Programs

- Health education programs in Islamshahr primary schools had moderate validity (3.45/5) in terms of content and implementation.

5. Impact of Energy Imbalance

- Energy imbalance was identified as a major barrier: 68% of teachers and administrators reported that frequent power outages and fuel shortages negatively affected program quality.

6. Stakeholder Participation

- Parent and community engagement was low: Only 42% of parents actively participated in health education programs.

7. Teaching Methods

- Traditional lecture-based methods dominated: 75% of students stated that interactive and practical methods were rarely used.

Qualitative Findings

1. Teacher Interviews

- Power cuts during lessons reduce student focus and interrupt practical training like handwashing. (Interview 12, female teacher). - Lack of heating in winter minimizes student participation in group activities. (Interview 7, male teacher).

2. Field Observations

- 40% of schools lacked running water in restrooms—students used bottled water for handwashing. - 60% of classrooms had non-functional digital displays due to power fluctuations.

3. Implementation Challenges

- Interviews revealed shortages of educational resources, poor facilities, and frequent blackouts as key obstacles.

4. Need for Curriculum Revision

- Analysis showed that health education content requires updates to align with student needs and energy imbalance conditions.

5. Role of Modern Technology

- Participants emphasized online education and renewable energy solutions to improve program quality.

6. Community Involvement

- Increasing parent and local community engagement (e.g., workshops) was suggested to enhance program effectiveness.

Integrated Findings & Analysis

1. Energy Imbalance Effects

- Schools using low-energy tech (e.g., solar-powered interactive whiteboards) showed 30% higher effectiveness in environmental health education.

- Remote parent-teacher meetings (SMS/messaging apps) increased participation by 40%.

2. Gender Differences

- Girls showed 15% higher engagement in personal hygiene education than boys, but no significant difference in environmental/social health.

3. Improvement Strategies

Based on mixed-methods findings, key solutions include: Adopting modern technology (digital tools, renewables), Enhancing community participation, Optimizing energy use, Updating educational content.

4. Enhancing Student Health

- Health education programs can improve student well-being, but require better implementation methods and more resources.

Ethical Considerations

1. Informed consent: - Obtained from all participants - Clear explanation of research objectives and data usage.

2. Confidentiality: - Secure data storage - Restricted use for research purposes only.

3. Right to withdraw: - Participants could withdraw anytime without consequences.

4. Official approval: - Obtained from Islamshahr Department of Education.

5. Non-interference: - Avoided disruption of normal educational processes.

Study Limitations

1. Geographical limitation: - Restricted to primary schools in Islamshahr County.

2. Temporal limitation: - Conducted during 2022-2024 academic years.

3. Resource constraints: - Energy imbalance conditions affected data quality.

4. Uncontrolled environmental variables: - Seasonal fluctuations in energy imbalance.

5. Access restrictions: - Security issues limited access to peripheral schools.

Discussion

This study revealed that health education programs in primary schools of Islamshahr County face multiple challenges under energy imbalance conditions. However, these challenges can be mitigated through targeted program design and innovative teaching methods. Key improvement strategies include., Critical Areas for Intervention, Curriculum & Delivery Reform, Requires content revision and low-energy technology integration, Alternative scheduling to accommodate power shortages.

Stakeholder Engagement, Enhanced participation from families and local communities, Teacher training programs adapted to energy-constrained environments. Infrastructure Development., Inter-agency collaboration (Education Ministry, Municipality, Energy Organization) for sustainable infrastructure Priority solutions: Solar-powered classrooms, water conservation systems. Policy Implications, Programs need alignment between planned objectives and on-ground realities of energy deficits Validation study confirms necessity for: Content modernization, Community-based implementation, Resource allocation for energy-resilient tools.

Consistent with the WHO (2019) report, this study confirms that school-based health education is only effective when aligned with stable environmental conditions. Our findings revealed higher effectiveness in personal hygiene education (76%) compared to environmental health (45%), mirroring results from Safari and Razavi's (2023) Tehran study. This disparity suggests that individual behavior-focused training (e.g., handwashing) remains more feasible during resource shortages, whereas environmental education requires stable infrastructure (e.g., recycling systems, reliable electricity).

The observed decline in family participation during cold seasons due to fuel shortages corroborates Hussein's (2022) Lebanon study identifying energy imbalance as a key deterrent to social engagement. Notably, low-energy technology emerged as a promising solution - schools using solar-powered smart boards demonstrated 30% greater environmental health education effectiveness, aligning with UNESCO's (2021) sustainable education strategies promoting eco-friendly technologies.

Conclusion

This study highlights the challenges of health education programs in Islamshahr's primary schools under energy imbalance conditions. However, strategic improvements in technology, community engagement, and curriculum design can enhance effectiveness. These findings can guide policymakers, educators, and researchers in developing resilient health education programs for challenging environments. While current health education programs demonstrate structural gaps due to energy instability, this research provides a evidence-based framework for policymakers and educators to: - Increase program resilience - Optimize limited resources - Achieve measurable health outcomes.

While current programs show limited validity due to energy instability, strategic interventions can enhance resilience. This study provides policymakers and educators with an evidence-based framework for maintaining program efficacy in resource-constrained settings through: - Curriculum modernization - Sustainable technology adoption - Community engagement optimization.

Strategic Recommendations

Adopt decentralized energy solutions (e.g., solar panels for digital devices), Develop offline/analog teaching kits for blackout periods, Pilot hybrid learning models combining in-person and SMS-based instruction.

References

- UNESCO. (2021). Education for Sustainable Development: A Roadmap. Paris: UNESCO Publishing.
- Al-Khalidi, Y., et al. (2020). The Role of Health Education in Preventing Communicable Diseases in Saudi Arabian Schools. *International Journal of Health Promotion*, 18(2), 145-160.
- Smith, J., et al. (2020). Impact of Water Scarcity on Handwashing Education in Rural India. *Journal of Public Health*, 12(4), 234-245.
- UNESCO. (2019). Education for Sustainable Development: A Roadmap.
- Korpi, M., et al. (2019). The Effects of Health Education on Mental and Social Well-being in Finnish Schools. *European Journal of Public Health*, 29(3), 456-462.
- Akbulut, O., et al. (2019). The Impact of Energy Shortages on Educational Quality in Turkish Schools. *Journal of Educational Research*, 12(4), 78-92.
- Smith, J., et al. (2018). The Impact of Health Education on Student Health Behaviors in US Elementary Schools. *Journal of School Health*, 88(5), 345-354.
- Creswell, J. W., & Plano Clark, V. L. (۲۰۱۷). *Designing and Conducting Mixed Methods Research*. Sage Publications.
- International Sources.
- Hussein, A. (2022). The Impact of Energy Crisis on Health Education in Lebanese Schools. Beirut: Middle East Educational Research Center.
- World Health Organization. (2020). *School-Based Health Education Guidelines*. Geneva: WHO Press.
- World Health Organization. (2020). *Disease Prevention Guidelines in Educational Settings*. Geneva: WHO Press.
- World Health Organization. (2019). *School Health Education Manual* [Translated by Alimoradi, R. (2022)]. Tehran: Andishe Sara Publications.
- Ministry of Health and Medical Education. (2022). *Health Education Manual for Primary Schools*. Tehran: MoH Publications.
- Ministry of Education. (2021). *Fundamental Reform Document of Education*. Tehran: Madrese Publications.
- Ministry of Education. (2020). *Health Education Directive for Primary Schools*. Tehran: MoE Publications.
- Iran Child Health Research Institute. (2021). *Effects of Energy Imbalance on Students' Health*. Tehran: ICHRI Publications.
- Statistical Center of Iran. (2023). *Annual Energy Status Report: Tehran Province*. Tehran: Tehran Provincial Energy Department.
- Statistical Center of Iran. (2023). *Health and Education Status Report: Islamshahr County*. Tehran: SCI Publications.
- Statistical Center of Iran. (2023). *Annual National Energy Report*.
- Salehi, M., & Rezaei, A. (2023). Energy imbalance effects on educational systems. *Journal of Educational Sciences*, 15(3), 45-60.

- Safari, M., & Razavi, S. (2023). Energy crisis impacts on Iran's education system. *Quarterly Journal of Educational Studies*, 21(3), 125-144.
- Mahmoudi, Z., & Karimi, F. (2022). Challenges of health education in primary schools. *Public Health Journal*, 10(2), 112-125.
- Rahimi, A., et al. (2022). Evaluation of health education programs in Iranian primary schools. *Journal of Health Education & Promotion*, 10(3), 45-56.
- Ahmadi, P., & Mohammadi, R. (2022). *Evaluating Personal Hygiene Education Effectiveness in Mashhad Schools*. Mashhad: Ferdowsi University Press.
- Khorshidi, M., & Noroozi, R. (2021). Health Education Efficacy Under Energy Imbalance Conditions. *Journal of Educational Psychology*, 12(4), 67-78.
- Abedi, H., & Noroozi, R. (2021). *Health Education's Role in Sustainable Development*. University of Tehran Press.

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