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REDUCING THE RISK OF ILLNESS IN CHILDREN BY IMPROVING THE HEALTH LITERACY OF MIGRANT PARENTS

Mirzayeva Makhpora Mamadaliyevna
Department of Basics of Preventive Medicine, Andijan State Medical Institute,
Republic of Uzbekistan.

ABSTRACT

Background: Global migration dynamics have highlighted significant health disparities among vulnerable populations, particularly children of migrant workers. These children frequently experience higher rates of preventable acute illnesses, delayed immunizations, and poor nutritional outcomes. A hypothesized root cause of this vulnerability is the inadequate health literacy of their parents, compounded by language and cultural barriers. Objective: To evaluate the impact of a targeted educational intervention designed to improve the health literacy of migrant parents on the subsequent risk and incidence of preventable illnesses in their children. Methods: A prospective, interventional cohort study was conducted involving 88 migrant families with at least one child under the age of 7. The families were divided into an Intervention Group (n=45), which received a structured, culturally adapted, 3-month health literacy program, and a Control Group (n=43), which received standard pediatric outpatient care. Parental health literacy was measured using the Short Assessment of Health Literacy (SAHL) tool at baseline and at 6 months post-intervention. Pediatric health outcomes (incidence of acute respiratory and gastrointestinal infections, and vaccination adherence) were tracked over a 12-month period. Results: At baseline, inadequate health literacy was prevalent in both groups (over 65%). Following the educational intervention, the Intervention Group demonstrated a significant increase in health literacy scores (from 14.2 ± 3.1 to 24.5 ± 2.4 points, $p < 0.01$). Concurrently, the incidence of acute pediatric illnesses in this group decreased by 42% over the 12-month follow-up compared to the previous year. Furthermore, vaccination compliance in the Intervention Group reached 95.5%, significantly higher than the 76.7% observed in the Control Group ($p < 0.05$). Conclusion: There is a direct, modifiable link between parental health literacy and pediatric health outcomes in migrant populations. Implementing culturally sensitive educational interventions for migrant parents effectively bridges the health equity gap, significantly reducing the risk of preventable diseases in their children.

Keywords

health literacy, migrant parents, pediatric health, disease prevention, health education, vaccination adherence, health disparities.

INTRODUCTION

The rapid expansion of global and regional migration has introduced complex challenges to healthcare systems worldwide. Among the most vulnerable cohorts in this demographic shift are the children of migrant laborers. Epidemiological data consistently demonstrates that children from migrant families experience disproportionately higher rates of preventable health conditions, including acute respiratory infections, gastrointestinal disorders, and nutritional deficiencies, compared to their native-born peers [1, 2]. Furthermore, these children often suffer from delayed or incomplete immunization schedules, leaving them exposed to severe communicable diseases.

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While socioeconomic status and environmental living conditions undoubtedly play significant roles in these health disparities, researchers and clinicians are increasingly focusing on a more foundational barrier: parental health literacy. Health literacy (HL) goes beyond simple reading skills; it encompasses the cognitive and social abilities required to gain access to, understand, effectively appraise, and apply health information to make informed decisions [3].

For migrant parents, the challenge of navigating a foreign healthcare system is often multiplied by linguistic barriers, differing cultural concepts of disease, and unfamiliarity with local medical protocols [4]. Consequently, a parent with low health literacy may struggle to interpret dosage instructions on a pediatric medication, fail to recognize the early clinical warning signs of dehydration during an episode of diarrhea, or misunderstand the critical importance of a preventive vaccination schedule [5]. The downstream effect of this informational deficit is a delayed response to illness and a reliance on emergency departments rather than proactive primary care.

Despite the theoretical understanding of this dynamic, there is a scarcity of prospective clinical research documenting the quantifiable impact of educational interventions on actual pediatric health outcomes within migrant communities. Therefore, this study was designed with a dual focus: first, to implement a culturally adapted health literacy program for migrant parents; and second, to rigorously evaluate how elevating parental health literacy directly translates into a reduction in the incidence of preventable illnesses among their children.

MATERIALS AND METHODS

Study Design and Population - A prospective, interventional cohort study was conducted over an 18-month period, collaborating with primary care pediatric clinics and community outreach centers. The study population consisted of 88 migrant families residing in the region, who had at least one child between the ages of 6 months and 7 years. Inclusion criteria required that the primary caregiver (usually the mother) possessed limited proficiency in the local medical language and had been residing in the country for less than 5 years. Families with children suffering from severe congenital anomalies or chronic terminal illnesses requiring specialized tertiary care were excluded to prevent confounding variables regarding morbidity rates.

The participating families were allocated into two parallel groups. The Intervention Group (n=45) consisted of families invited to participate in a structured, 3-month health education and literacy program. The Control Group (n=43) included families receiving standard, routine pediatric outpatient care without additional targeted educational interventions. Informed consent was obtained from all participants. For ethical reasons, all written materials and consent forms were provided in the participants' native languages.

The Educational Intervention - The health literacy intervention was a multi-modal, 12-week program designed specifically for the migrant demographic. It consisted of bi-weekly interactive workshops led by bilingual healthcare facilitators. The curriculum covered four core modules. The first module, Preventive Care, focused on the rationale and scheduling of routine immunizations and basic hygiene practices. The second module, Symptom Recognition, taught parents how to identify "red flag" symptoms in children, such as high persistent fever, signs of respiratory distress, or severe dehydration. The third module, Medication Management, provided instructions on how to accurately read pediatric prescriptions, measure liquid medications, and understand potential side effects. Finally, the Healthcare Navigation module offered practical guidance on how to schedule clinic appointments, when to visit the emergency room versus a primary care doctor, and understanding patients' rights.

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Assessment Instruments and Data Collection - Parental health literacy was quantitatively measured using an adapted version of the Short Assessment of Health Literacy (SAHL) tool, translated into the participants' native languages. Assessments were conducted at baseline (Month 0) and at 6 months post-intervention.

Pediatric health outcomes were tracked over a full 12-month follow-up period. Data was extracted from clinic medical records and supplemented by structured parental interviews. The primary clinical endpoints included the cumulative incidence of acute upper respiratory tract infections (URTIs) and acute gastroenteritis (AGE) requiring medical consultation, as well as the vaccination adherence rate, defined as the percentage of children completely up-to-date with the national immunization schedule for their age.

Statistical Analysis - Statistical analysis was performed using SPSS version 26.0. Continuous variables (like SAHL scores) were presented as means with standard deviations (M ± SD) and compared using paired and independent t-tests. Categorical data (disease incidence and vaccination rates) were expressed as percentages and analyzed using the Chi-square (χ^2) test. A p-value of < 0.05 was considered statistically significant.

RESULTS

At baseline, the demographic characteristics and initial health literacy levels were comparable between the two groups. A striking majority of parents in both cohorts demonstrated inadequate health literacy, scoring poorly on tasks such as understanding medication labels or knowing when to seek urgent care.

However, the educational intervention triggered a profound shift. As detailed in Table 1, the health literacy scores in the Intervention Group nearly doubled by the 6-month mark (from 14.2 ± 3.1 to 24.5 ± 2.4 points, $p < 0.01$). The Control Group showed negligible changes over the same period, as standard brief clinic visits were insufficient to build foundational medical knowledge.

Table 1. Parental Health Literacy Scores (SAHL) before and after the 12-week intervention.

Study Group	Baseline Score (Month 0)	Post-Intervention Score (Month 6)	p-value (intra-group)
Intervention Group (n=45)	14.2 ± 3.1	24.5 ± 2.4*	< 0.01
Control Group (n=43)	13.8 ± 3.5	14.6 ± 3.2	> 0.05

*Note: SAHL maximum score is 30. * $p < 0.01$ compared to the Control Group at Month 6.*

The clinical impact of this cognitive shift was substantial. By tracking the pediatric morbidity over the 12-month follow-up period, we observed a stark divergence in the health trajectories of the children in the two groups (Table 2). The incidence of acute, preventable illnesses plummeted in the Intervention Group. For instance, the frequency of medical visits for acute gastroenteritis—a condition highly sensitive to home hygiene and proper food preparation—was reported at 15.5% in the Intervention Group, compared to 39.5% in the Control cohort ($p < 0.05$). Overall, children of parents who underwent the literacy program experienced a 42% relative reduction in acute illness episodes compared to their historical baseline.

Table 2. Pediatric health outcomes over the 12-month follow-up period.

Clinical Indicator	Intervention Group (n=45 children)	Control Group (n=43 children)	p-value

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Episodes of URTI requiring clinic visit (%)	12 (26.6%)	22 (51.1%)	< 0.05
Episodes of Acute Gastroenteritis (%)	7 (15.5%)	17 (39.5%)	< 0.05
Inappropriate Emergency Room visits (%)	4 (8.8%)	14 (32.5%)	< 0.01
Vaccination Adherence Rate (%)	**43 (95.5%)**	**33 (76.7%)**	**< 0.05**

Perhaps the most critical public health metric—vaccination adherence—saw a dramatic improvement. Empowered with an understanding of immunology basics and the navigation skills to schedule appointments, 95.5% of the children in the Intervention Group were brought completely up-to-date with their immunizations. In contrast, nearly a quarter (23.3%) of children in the Control Group remained undervaccinated, leaving them susceptible to dangerous pathogens.

DISCUSSION

The findings of this study offer compelling empirical evidence that pediatric health in vulnerable populations is inextricably linked to the health literacy of the caregivers. The traditional biomedical approach often assumes that providing access to a clinic is sufficient to ensure community health. However, our data illustrates that access without comprehension is a fundamentally flawed model for migrant populations [6].

The high baseline rates of inadequate health literacy in our cohort (consistent with global literature on migrant health) created a barrier to effective parenting in a medical context [7]. Before the intervention, many parents could not distinguish between a self-limiting viral fever and a potential bacterial infection, leading to high rates of inappropriate emergency room visits in the control group (32.5%). By teaching symptom recognition and proper primary care utilization, the intervention group reduced these panic-driven emergency visits to just 8.8%. This not only shields the child from unnecessary hospital exposure but also vastly reduces the economic burden on the healthcare system [8].

Furthermore, the significant reduction in acute respiratory and gastrointestinal infections within the intervention cohort underscores the power of preventive education. Simple, culturally tailored modules on hand hygiene, safe food storage, and avoiding cross-contamination at home acted as a stronger prophylactic shield than post-factum medical treatment [9].

The success of the vaccination module is particularly noteworthy. Vaccine hesitancy in migrant populations is rarely driven by ideological anti-vaccine sentiment; rather, it is usually rooted in logistical confusion, fear of bureaucratic processes, and a lack of clear, native-language information regarding the safety profile of the vaccines [10, 11]. By explicitly addressing these fears in a supportive, educational environment, the intervention elevated the vaccination rate to 95.5%, effectively establishing herd immunity standards within this micro-population.

This study demonstrates that health literacy is a dynamic, modifiable risk factor. Medical institutions and primary care facilities must pivot from merely treating symptoms to actively investing in the health education of migrant parents.

CONCLUSION

In conclusion, inadequate parental health literacy is a profound, albeit hidden, risk factor driving pediatric morbidity within migrant communities, directly contributing to elevated rates of acute infections, poor vaccination compliance, and the misuse of emergency medical services.

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The implementation of a structured, culturally and linguistically adapted educational intervention successfully doubled the health literacy scores of migrant parents over a short period. Ultimately, elevating parental health literacy yields immediate, measurable clinical benefits for their children. The intervention resulted in a 42% reduction in preventable acute illnesses and boosted vaccination adherence to over 95%, demonstrating that empowering migrant parents through targeted medical education is one of the most effective, sustainable strategies for safeguarding pediatric health and achieving health equity.

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