

<https://doi.org/10.32921/2225-9929-2024-4-59-29-36>

UDC 371.7:613.955

IRSTI 14.25.05;76.33.31

Review article

Strategies for enhancing hygiene culture among students in secondary educational institutions: A literature review

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Abstract

Hygiene culture in secondary educational institutions is essential for promoting student health and preventing the spread of infectious diseases, yet many schools face challenges in maintaining high hygiene standards. In Kazakhstan, secondary schools serve as key platforms for instilling hygiene habits that can extend into adulthood. However, factors such as inadequate infrastructure, limited awareness, and varying cultural attitudes hinder the consistent adoption of good hygiene practices.

This literature review aims to explore strategies to improve hygiene culture in secondary schools by examining interventions from global studies.

A review of the literature from 2014 to 2024 was conducted using databases such as PubMed, CINAHL, Embase, ERIC, Scopus, and Web of Science to identify research on hygiene practices in schools. The review focused on the effectiveness of educational programs, the role of school staff, the adequacy of hygiene facilities, and the involvement of parents and the community.

A multi-faceted approach involving education, infrastructure, and community participation is essential for improving hygiene culture in schools. Regular reinforcement of these practices, alongside the provision of adequate facilities, can lead to lasting improvements in student health and hygiene behavior.

Keywords: Hygiene culture, secondary schools, handwashing, hygienic teaching, behavior.

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J Health Dev 2024; 4 (59): 29-36

Received: 17-09-2024

Accepted: 25-10-2024



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Introduction

Student schools have an elementary hygiene and cleanliness, especially among adolescents who are physically weakened in relation to both physical and social development schools [1]. Creating a culture of good hygiene practices in the educational institutions not only minimizes communication diseases but also promotes healthy living habits that are part and parcel someone's life routine. At the levels of secondary education where the pupils spend all day in class, regret for hygiene measures is even greater [2, 3].

In Kazakhstan, like many other countries, secondary schools serve as a microcosm of society where diverse groups of students converge [4, 5]. These institutions provide a unique opportunity to inculcate essential life skills, including hygiene practices that students can carry into adulthood. However, despite the recognized importance of hygiene, there are significant challenges in ensuring that students consistently adhere to good hygiene practices. These challenges include inadequate infrastructure, limited access to hygiene products, varying levels of awareness and

education among students, and differing cultural attitudes towards hygiene [2, 5, 6]. Moreover, the global landscape has highlighted the importance of hygiene in preventing outbreaks of infectious diseases, as evidenced by the COVID-19 pandemic [7, 8, 9, 10]. This has led to an increased focus on the need for improved hygiene standards in all public spaces, including schools. Children and adolescents are secondary carriers of the virus, not only to adults but also to other children and adolescents, as even the earliest analyses from China showed [11]. In Kazakhstan, where seasonal outbreaks of infectious diseases such as influenza and gastrointestinal infections are common, improving hygiene culture in schools is not only a matter of immediate public health but also a long-term investment in the nation's future [12, 13, 14].

Purpose of the review: to explore the various strategies and approaches that have been identified in the existing body of research as effective in improving the level of hygiene culture among students in secondary educational institutions.

Search Strategy

The methods focus on existing literature on hygiene practices and culture in secondary school settings. This literature search was done within peer reviewed articles, reports and studies about hygiene practices in the contexts of educational institutions. To investigate the connections between strengthening health systems and global service-learning, an integrated evaluation of the literature was carried out. A thorough search of the PubMed, CINAHL, Embase, ERIC, Scopus, and Web of Science databases for international literature from 2014 to 2024 was carried out.

Inclusion criteria consisted of meta-analyses, controlled and original studies, cross-sectional studies, and systematic reviews. Articles lacking an evidence base were excluded. A total of 63 sources met the inclusion criteria. Only peer-reviewed English-language articles were included in the search. Terms include hygienic culture, secondary schools, behavior, hygiene skills, hygienic teaching, infrastructure of schools, developing countries, hand disinfection, handwashing, and water supply.

Methods to enhance the level of hygienic culture among students in secondary educational institutions

After reviewing numerous articles on this topic, methods to enhance the level of hygienic culture among students in secondary educational institutions can be categorized into four major groups. These factors

include the effectiveness of the educational program, the involvement of school and teaching staff, the adequacy of facilities, and the active participation of parents and the broader community (Figure 1).

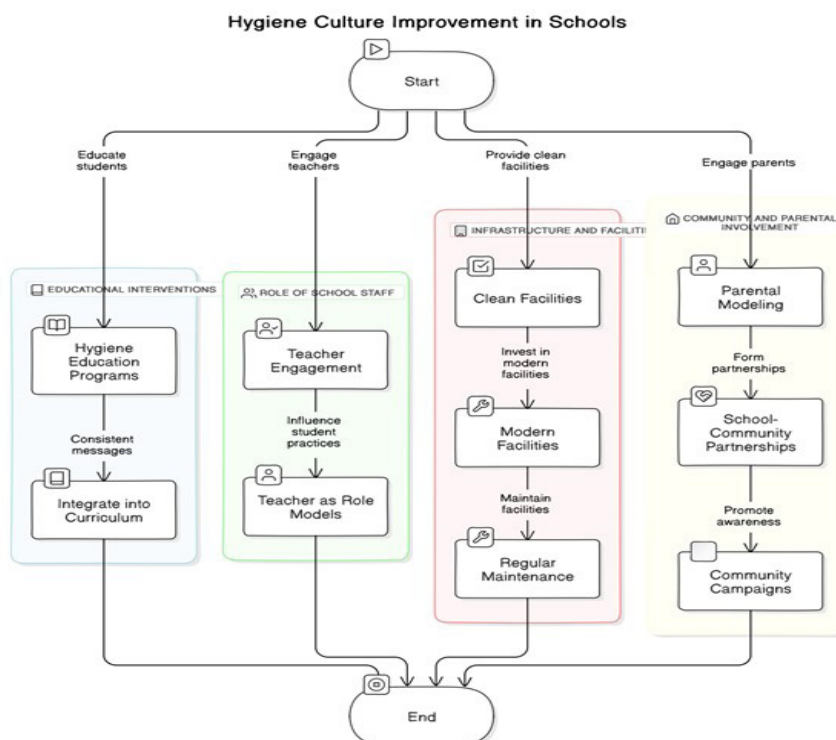


Figure 1 - The scheme for improving hygiene in secondary schools

Educational interventions

Educational initiatives are among the most effective ways to improve cleanliness culture in schools. A considerable body of research has been conducted on the effectiveness of handwashing in reducing the risk of infectious diseases among children. These studies explore how regular hand hygiene practices can serve as a preventive measure, potentially lowering the incidence of illnesses such as diarrhea and respiratory infections in pediatric populations. Infectious diseases are particularly prevalent among children in developing countries, which has led to a significant focus on research in these regions. The concentrated efforts aim to address the unique challenges faced in these settings and to identify effective strategies for improving child health outcomes [15, 16, 17, 18, 19, 20, 21]. For example, a study in New Delhi, India, found that handwashing behavior significantly reduces the odds of diarrhea and respiratory infections among low-income community children. The study, part of a larger intervention study, involved 272 mother-child dyads from six schools. The findings showed that handwashing before and after preparing food, after defecation, and after cleaning dishes significantly reduced the odds of diarrhea and respiratory infections. However, there was a low prevalence of handwashing at critical time-points and a poor perception of its benefits [22].

A systematic review of eight studies aimed to synthesize evidence on the effect of handwashing promotion interventions targeting schoolchildren on diarrhea, soil-transmitted helminthic infections, and handwashing behavior in low- and middle-income countries. The review found that none of the studies were of high quality and the majorities were at high risk of bias. The reported effect of child-targeted handwashing interventions varied between studies, and no one approach to promoting handwashing among children appeared most effective [23].

One of the key challenges highlighted in the study is the lack of prioritization of handwashing with soap interventions for older children. The research involved in-depth interviews with 25 practitioners across 11 nongovernmental organizations, identifying twelve themes related to perceived challenges: lack of prioritization, funding inconsistency, insufficient formative research, resource demand, unengaging intervention content, non-enabling physical environments, availability of skilled implementers, reaching out-of-school children, community mistrust, lack of coordination, lack of evaluation rigor, and failure to assign older children's handwashing with soap as a primary outcome [24].

Television programs can play a crucial role in promoting hygiene practices among adolescents, as demonstrated by the No Germs on Me Social Marketing Campaign, which aimed to encourage handwashing with soap in remote Australian Aboriginal communities. Using the Theory of Planned Behavior, a study evaluated the campaign's mass media component, focusing on the effectiveness of televised commercials. Surveys conducted in six communities before and after the campaign revealed that, despite low home television access, 77% of participants

Role of school staff and teachers

The involvement of teachers and school staff is crucial in promoting and maintaining hygiene culture. Teachers serve as role models for students, and their attitudes and behaviors can significantly influence student practices. Studies have shown that when teachers actively engage in hygiene promotion - such as supervising handwashing or

saw the commercials. Moreover, 75% found the commercials to be both acceptable and understandable. However, caution is needed in interpreting these findings due to limitations in the study's design [25].

Educational interventions may encompass a range of programs, including health information broadcasts via television, illustrated posters demonstrating proper handwashing techniques, and various educational books. These approaches are designed to enhance awareness and promote effective hand hygiene practices among children and their caregivers. Peer education, where peers teach each other about health, is gaining popularity in schools due to adolescents preferring to seek help for health-related concerns from their peers. A review of 2125 studies found that most interventions focused on sex education/HIV prevention, promoting healthy lifestyles, and alcohol, smoking, and substance use. Of these, 91.8% reported peer learner outcomes, while only 32.4% reported peer educator outcomes. Many studies were rated as poor quality due to unrepresentative samples and incomplete data. While some interventions show evidence for effectiveness, there is a need for more robust, high-quality evaluations using standardized health knowledge and behavior measures to make more confident conclusions [26].

Not only is teaching hygiene crucial, but consistently reinforcing and monitoring these behaviors are equally essential for long-term success. Researchers investigated how educational interventions, including motivational talks and practical lessons, influenced teenagers' oral hygiene habits. The study found a significant improvement in oral health immediately after the sessions, with the Gingival Index decreasing. However, six months later, oral health deteriorated, indicating that without ongoing reinforcement, the positive effects faded over time. This emphasizes the importance of continuous education and monitoring to maintain lasting hygiene habits among adolescents [27].

Hand hygiene habits can vary between boys and girls, which matters when showing teens how to clean their hands. The Polish Adolescents' COVID-19 Experience (PLACE-19) Study asked 2,323 high school students about what they knew and believed about hand hygiene and ways to protect themselves during the pandemic. The results showed that while most students had the right information; girls seemed to understand it better than boys. Most students said they took steps to stay safe, like staying home washing their hands, using alcohol-based hand sanitizers, keeping away from sick people, and not going to public places. Girls were better at washing their hands and said they washed their hands when needed more often than boys did. Boys often gave reasons for not washing their hands, while girls talked about side effects and social situations that made it hard to do so. The research highlights how important it is to focus on teaching people about hand washing during COVID-19. This can help people wash their hands better and stop diseases from spreading so much [28].

discussing the importance of cleanliness—students are more likely to adopt these practices [17, 29, 30, 31]. In the context of Kazakhstan, where teachers are highly respected, their involvement in hygiene education could have a profound impact on student behavior.

A program in Bihar, India, trained teachers to teach children about handwashing with soap. The "School of Five" program, which included interactive stories, games, songs, behavioral diaries, and public commitment, was implemented in ten primary schools. The children in the treatment reported 15.1% more handwashing with soap on key occasions (35.2%) than the control group (20.1%). The program increased handwashing rates at home and school, but the impact on key occasions in schools was much higher. Promoting handwashing through teachers in schools may be an effective way to achieve behavior change at scale [32].

If all high school programs provide some type of hygiene courses, which will make a positive impact in lives. A new study of the introduction of school-based handwashing programs in primary schools underlines both the opportunities and difficulties associated with these initiatives, particularly where resources are low. However, teachers experienced complex hardships alongside the expression of hopeful expectations and engaged with broader possibilities in promoting hygiene due to water constraints that fluctuated over time causing an unsustainable amount of labor from their side. These results indicate that these programs need the support and resources to be successful, highlighting the necessity of integrating hygiene education into all school levels as also in upper secondary schools [33].

Infrastructure and facilities

The availability of clean and accessible hygiene facilities is a fundamental requirement for promoting hygiene culture in schools. Research indicates that students are more likely to practice good hygiene when they have access to well-maintained restrooms, handwashing stations, and hygiene supplies such as soap and hand sanitizers [37, 38, 39, 40]. Schools should prioritize the regular maintenance of hygiene facilities and consider implementing innovative solutions like sensor-operated handwashing stations to encourage their use.

Despite global efforts to improve water, sanitation, and hygiene (WASH) access, one-third of schools worldwide still lack adequate WASH services [41]. This lack can lead to disease spread and increased school absences, particularly among women. Insufficient financing and budgeting hinder successful WASH programs [42, 43, 44, 45].

A systematic review of research on school-based water, sanitation, and hygiene services in low- and middle-income countries reveals that dysfunctional accountability and information sharing mechanisms drive service delivery failures. Interventions focusing on increasing financial resources have negligible impact on sustainability outcomes [46]. Sustainable service delivery depends on resources, information, and accountability. The study highlights the importance of interdisciplinary collaboration and local expertise in designing WASH programming that aligns with sociocultural and institutional norms for sustainable impact [47].

A study conducted in 14 low- and middle-income countries (LMICs) found that 51% of schools had basic water services, 28% had basic sanitation services, 12% had basic handwashing facilities, and 26% had menstrual hygiene management materials. Factors such as lack of community support, parent-teacher associations supporting hygiene, and external support were associated with better access. Schools with basic sanitation services, health clubs, management materials curriculum, designated focal person, or school funds for WASH were more likely to have MHM materials. The study concluded that improved institutional

Makarova et al. discuss negative health trends in children, adolescents, and young adults and the link between them and the younger generation's health culture. They propose fostering a healthy living culture among students, emphasizing hygienic training for future educators. This training enhances students' hygienic literacy and prepares them to effectively educate children about health and hygiene [34].

Mirko Soldo et al. conducted a study to evaluate the impact of motivational lectures and practical training on oral hygiene education for adolescents. It showed a very positive oral hygiene post-enlightenment. But six months after the education, hygiene levels also started to decrease. This decline points to the necessity for continuous and consistent educational programs in good oral hygiene [35]. Likewise, handwashing habits might need long and consistent educational efforts in school settings as well [36]. The gains from getting people to wash their hands more are immediate, but making those changes long-lasting and giving them the best value requires sustained education. Sustained and improved handwashing practices at the school level will require regular refreshers or reinforcement of education programs.

management, external support, accountability mechanisms, and enhanced training and hygiene curriculum will support sustained WASH service delivery in LMICs [48].

The presence of adequate hygiene facilities has been shown to directly correlate with better hygiene practices among students. A study by Sarah Bick et al. revealed that schools equipped with well-maintained hygiene facilities reported lower rates of absenteeism due to illness. The study highlighted that the mere availability of facilities is not sufficient; their maintenance and cleanliness are equally crucial in promoting consistent use by students. Schools with clean restrooms and readily accessible handwashing stations saw higher instances of students washing their hands regularly, thereby reducing the transmission of germs and illnesses [49].

Furthermore, a report by UNICEF (2019) emphasized that access to clean water, sanitation, and hygiene facilities in schools is critical for reducing the incidence of waterborne diseases among students. The report noted that schools lacking these basic facilities often face higher rates of student absenteeism, particularly among girls during menstruation. This highlights the broader implications of inadequate hygiene facilities on student health and educational outcomes [50].

Infrastructure of a school is an indication that the institution takes care of its students' health and safety seriously. If a school is able to take care about hygiene facilities, that already create an attitude in the mind of students that thing how this much important for our daily life. This in turn, also shapes the behavior of students and makes them more likely to adopt good hygiene habits both inside and outside school. A study by McMichael and et al. highlighted that students who had access to clean and well-maintained hygiene facilities at school were more likely to practice good hygiene habits at home, demonstrating the long-lasting impact of school infrastructure on student behavior [47].

Equally, the design and access of hygiene facilities can help schools to be inclusive. Handbasin access is also critical for some students with disabilities to participate in just being able use the toilet or wash hands independently. It

Community and parental involvement

The involvement of parents and the community plays a significant role in reinforcing hygiene practices taught at school. When parents model good hygiene practices at home and support school initiatives, students are more likely to carry these behaviors into their daily routines. It can include engaging parents through workshops, informational sessions, and school-community partnerships could strengthen the impact of school-based hygiene education [54].

Despite the training lessons and efforts by teachers at school, without reminders and support from parents, it is unlikely that children will develop lasting habits. For example, Le Thi Thanh Xuan et al. conducted a study on handwashing with soap (HWWS) among multi-ethnic primary schoolchildren in rural communes. The study, which involved collaboration with schoolteachers and collection of qualitative data, revealed that children were enthusiastic about the HWWS sessions, regardless of ethnicity or gender. However, challenges included a limited focus on hygiene in the school curriculum, insufficient time allocated for practical teaching, and a lack of regular reminders at home. The study concluded that while engaging teachers and using active teaching methods can effectively promote HWWS, significant investments in water and hygiene infrastructure are not necessary. Nonetheless, continuous parental support and reminders are crucial for reinforcing these habits beyond the school setting [55].

Ajay Kumar Rajbhandari et al. conducted a cross-sectional study from July to September 2023 to evaluate personal hygiene knowledge and practices among secondary school children. The study, involving 115 participants, found that most students practiced good hygiene, including daily bathing and tooth brushing, and understood the importance of hygiene for health. However, there were notable gaps in consistent handwashing before meals and after defecation. The study emphasizes the need for increased awareness and education on personal hygiene through coordinated efforts by parents, teachers, and media, along with ongoing monitoring to enhance hygiene practices among schoolchildren [56].

Education is the cornerstone of behavior change, and this principle holds true for personal hygiene practices. Effective parent education can significantly enhance the impact of school-based hygiene programs. Schools can host seminars and workshops specifically designed for parents,

Conclusion

Effective interventions are crucial for establishing a culture of hygiene among secondary school students, which can help in promoting student wellness and preventing diseases. This review emphasizes the need for a comprehensive approach that includes educational programs, active involvement of school staff, adequate infrastructure, and parental engagement. Teaching proper hygiene practices, like handwashing, is essential, but must be supported by accessible facilities and consistent reinforcement from teachers and parents. Schools, families and communities working together is essential to sustaining these efforts – having children develop hygiene habits that they will take into adulthood as well delivers better public health outcomes.

ensures all children are given food regardless of their social standing in the school promoting health but also respect for every community members [51, 52, 53].

aiming to increase their understanding of the importance of hygiene and how they can support these practices at home. These sessions should be interactive, allowing parents to engage with the material actively and ask questions [57, 58, 59].

Additionally, providing parents with educational materials such as pamphlets, brochures, and digital resources can be highly beneficial. These materials should offer clear and actionable information on personal hygiene practices, making it easier for parents to integrate these practices into daily routines. For instance, simple guidelines on effective handwashing, dental care, and personal cleanliness can empower parents to support their children in maintaining good hygiene. Maintaining regular communication with parents is another crucial strategy for promoting hygiene practices. Schools can use various methods, including newsletters, emails, and school apps, to keep parents informed about ongoing hygiene initiatives and their importance. Regular updates ensure that parents are aware of the programs in place and their role in reinforcing these practices at home [60].

Sharing success stories and positive outcomes from hygiene programs can motivate parents and demonstrate the tangible benefits of their involvement. When parents see the positive impact of hygiene education on their children's health and well-being, they are more likely to engage actively in supporting these practices [55]. Creating feedback channels where parents can voice their concerns and share their experiences is also essential. By providing a platform for parents to communicate with school staff, schools can address any issues or challenges that arise and adjust their programs accordingly. This two-way communication fosters a collaborative approach to hygiene education, ensuring that both schools and parents work together to achieve the best outcomes for students [61].

Despite the benefits, implementing these strategies may face several challenges. One major issue is ensuring consistent parental engagement, especially in communities where parents may have limited time due to work or other commitments. To address this, schools can offer flexible meeting times and provide online resources that parents can access at their convenience [56, 62, 63].

Conflict of interest. The authors declare the absence of obvious and potential conflicts of interest related to the content of this article.

Funding. No external sources.

Contribution of the authors. All authors contributed to the study conception and design. Material preparation, data collection and analysis were performed by U.K. The first draft of the manuscript was written by U.K. Conceptualization: A.O; Writing - original draft preparation: A.O. All authors agreed to the final version of the manuscript and signed a copyright release form.

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Жалпы орта білім беру мекемелері оқушыларының гигиеналық мәдениетін арттыру стратегиялары: Әдебиетке шолу

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Түйіндеме

Жалпы орта білім беру мекемелеріндегі гигиеналық мәдениет оқушылардың денсаулығын нығайту және жұқпалы аурулардың таралуын болдырмау үшін өте маңызды. Дегенмен көптеген мектептер жоғары гигиеналық стандарттарды сақтауда қиындықтарға тап болады. Қазақстанда жалпы білім беретін мектептер ересектерге дейін созылуы мүмкін гигиеналық әдеттерді тәрбиелеудің негізгі ортасы болып табылады. Жеткіліксіз инфрақұрылым, шектеулі хабардарлық және әртүрлі мәдени көзқарастар сияқты факторлар жақсы гигиеналық тәжірибелерді дәйекті түрде қабылдауға кедергі келтіреді.

Бұл әдебиеттік шолу жаһандық зерттеулердің интервенцияларын зерделеу арқылы жалпы орта білім беру мекемелерінде гигиеналық мәдениетті жақсарту стратегияларын зерттеуге бағытталған.

Мектептердегі гигиеналық тәжірибелер бойынша зерттеулерді анықтау үшін PubMed, CINAHL, Embase, ERIC, Scopus және Web of Science сияқты дерекқорларды пайдалана отырып, 2014-2024 жылдар аралығындағы әдебиеттерге жүйелі шолу жүргізілді. Шолуда білім беру бағдарламаларының тиімділігі, мектеп ұжымының рөлі, санитарлық-гигиеналық базаның талапқа сай болуы, ата-аналар мен қоғамды тарту мәселелеріне назар аударылды.

Мектептердегі гигиеналық мәдениетті арттыру үшін білім беруді, инфрақұрылымды және қоғамдастықтың қатысуын қамтитын көп қырлы тәсіл өте маңызды. Бұл тәжірибелерді жүйелі түрде күшейту, сәйкес құралдармен қамтамасыз етумен қатар, студенттердің денсаулығы мен гигиеналық мінез-құлқының тұрақты жақсаруына әкелуі мүмкін.

Түйін сөздер: гигиеналық мәдениет, жалпы орта білім беру мекемелер, қол жуу, гигиеналық оқыту, мінез-құлық.

Стратегии повышения гигиенической культуры учащихся средних общеобразовательных учреждений: Обзор литературы

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Резюме

Гигиеническая культура в общеобразовательных учреждениях необходима для укрепления здоровья учащихся и предотвращения распространения инфекционных заболеваний, однако многие школы сталкиваются с проблемами в поддержании высоких гигиенических стандартов. В Казахстане средние школы служат ключевой платформой для привития гигиенических привычек, которые могут сохраниться во взрослой жизни. Однако такие факторы, как неадекватная инфраструктура, ограниченная осведомленность и различные культурные установки, препятствуют последовательному внедрению надлежащей гигиенической практики.

Цель данного обзора литературы - изучить стратегии повышения уровня гигиенической культуры средних общеобразовательных учреждений путем анализа мероприятий, проведенных в рамках глобальных исследований.

Был проведен систематический обзор литературы за период с 2014 по 2024 год с использованием таких баз данных, как PubMed, CINAHL, Embase, ERIC, Scopus и Web of Science, с целью выявления исследований, посвященных гигиеническим практикам в школах. Основное внимание в обзоре уделялось эффективности образовательных программ, роли школьного персонала, адекватности санитарно-гигиенических условий, а также вовлечению родителей и общественности.

Для повышения уровня гигиенической культуры в школах необходим многогранный подход, включающий образование, инфраструктуру и участие общественности. Регулярное укрепление этих практик, наряду с обеспечением надлежащих условий, может привести к долгосрочному улучшению здоровья и гигиенического поведения учащихся.

Ключевые слова: гигиеническая культура, общеобразовательные школы, мытье рук, гигиеническое обучение, поведение.