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Status of Hand Washing for Tunisians Youth: Prevention Measure or Social Mimicry?

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Abstract

Background: Since its independence, Tunisia has made great progress in the prevention of infectious diseases through compulsory vaccination and the normalization of behavior through the instruction of hygiene measures at school. However, social mutations, regional economic disparity and the effect of climate change question the effectiveness of educational interventions at school. Is the current health education model able to cope with new and emerging epidemiological challenges?

Methods: This is a cross-sectional survey elaborated in the form of a questionnaire, which included 261 Tunisian school students. In this study, the analysis focuses on the status of handwashing and its place among the management of infectious risk, the identification of practices perceived to be at risk of contracting an infectious disease, and preventive behaviors adopted by the Tunisian school students.

Results: A results survey analysis reveals that the practices related to personal hygiene occupy the last position, so only 5.7% of the students questioned affirm to adopt measures related to good personal hygiene and washing hands. A significant difference characterizes the preferred prevention measures according to gender, education level and specialty of the study (sig<0.05) with:Female school students at the preparatory and secondary levels are more likely to opt for body hygiene and handwashing in terms of frequency and different situations of everyday life. 21.6% of female students report washing their hands 10 times a day, compared with 6.5% for male students. 14% of literary students and 0% of scientists cite "personal hygiene" in the last position preferred prevention measures. For situations with potential infectious risk: Only 16.5% of secondary school students report washing their hands "After blowing his nose" and 11,8% "after taking public transport". Didactic analysis of recent Life Sciences textbooks reveals the dominance of the biomedical model aimed at the transmission of information on certain infectious risks and prescribing preventive measures. The promotional model is almost absent.

Conclusion: Handwashing is not considered as a preventive measure against infectious diseases but rather as a social imitation. This status of handwashing is correlated with the dominant biomedical model of health education.

Keywords: Health education; Infectious diseases; Risk management; Hand washing; School textbooks; Social conformism; Gender theory; Cognitivism

Abbreviations: WHO: World Health Organization; Unesco: United Nations Educational, Scientific and Cultural Organization

Introduction

Understanding the role of hygiene, particularly in the prevention of infectious diseases at the end of the nineteenth century, has greatly reduced the transmission of these diseases. The practice of hygiene does not only concern the body, but also the food, the environment, the habitat, and therefore includes all that is essential to the well-being and health of the human being.

However, the emergence of vaccines, antibiotics and the major efforts made by the public authorities around water, the environment, and the habitat have led to a loosening of individual attention to hygiene, in particular hands. The school was the privileged place for the diffusion of the hygiene rules in the form of morality lessons. After independence in 1956, hygiene found its place in Tunisian school curricula. The promotion of his teaching meets serious health needs. Its first goal is to spread the rules of hygiene that prevent several diseases of this time.

For most of the last twenty years in Tunisia, the "all antibiotic" period has been followed by an awareness of the need for greater safety and quality of the products used for consumption (food, water, etc). After the cleanliness and the sanitation of the environment, the food industry and catering have had to apply strict rules of staff cleanliness, product conservation, respect for the food chain, to offer quality products. cold, food quality.

This has led to a relative reduction in foodborne infections such as salmonellosis associated with mass catering. Efforts in health care and the normalization of hygiene behaviors have led to the eradication of some infectious diseases, no indigenous cases of malaria have been recorded since 1979. Tuberculosis has been declining steadily over the years. However, the hydatid cyst, brucellosis, and leishmaniasis have not been eradicated. Since 2011, the political situation and the socio-

economic and health disparity have increased the incidence of certain infectious diseases such as hepatitis a, influenza and gastroenteritis.

Hygiene in general and hand hygiene, in particular, have become standard indicators to prevent the spread of epidemic diseases such as gastroenteritis. However, disinfection, adoption of barrier measures (wearing masks, protective clothing, gloves, isolation) and especially hand washing remain weak measures practiced by citizens and particularly the school population. This phenomenon questions the role of the Tunisian school and health education conveyed through life sciences textbooks in the prevention of infectious diseases and promotion to health.

Health education in Life Sciences curricula aims at acquiring the knowledge and skills needed to prevent infectious risks. The textbook is a didactic help through which, the society can guarantee the didactic, scientific, educational and professional competence of the teachers. Besides, the influence of Textbooks seems even more dominating in developing countries.

It should be recalled that health education covets the acquisition of scientific information, the adoption of good health practices and the development of skills and psychosocial skills, such as self-knowledge, self-esteem, respect for self and others, critical thinking, personal judgment, resistance to pressure (peers, media), and the ability to communicate. Socio-economic inequality, political uncertainty, and climate change require the development of real autonomy for our citizens in the face of invisible, unpredictable and often unprecedented infectious risks. The need for education in autonomy and all the more urgent with the increased risk of bacterial multidrug resistance. Cognitive emancipation through the innovation of new promotional approaches should be complementary to biomedical research (race for antibiotics and the track of bacteriophages)

In this study, several questions were asked to Tunisian school students to explore their perceptions, attitudes, and behaviors about the concept of hygiene. Our objectives are assessing their ability to manage infectious risks, the status of handwashing (preventive measure or behavioral mimicry) and the role of health education as it is currently conducted in Tunisia in the prevention of infectious diseases.

Research Methodology

A cross-sectional survey elaborated in the form of a questionnaire, which included 261 Tunisian school students' residents in different regions of the country and from different educational levels: in the 9th year of preparatory schools and 2nd, 3rd year (Experimental and Letters section) and 4th experimental section of secondary schools. School students are asked on several themes in the term of the perceptions, attitudes, and behaviors of different infectious risks, in the form of questions concerning zoonoses, seasonal flu, pneumonia, rhino-pharyngitis, vaccination and hygiene measures. In this work, we are interested in the prevention strategies envisaged by Tunisian school students (hygiene, avoidance, barrier, vaccination, homeopathy) and especially handwashing.

Genesis of the survey

Our questionnaire is based on KABP-type surveys (Knowledge, Attitude, Behavior, and Practice), used by social epidemiological studies to assess the perceptions, attitudes, and behaviors of populations concerning infectious risks in general. Given the subject of our study, we will adapt this tool to explore the perception of the school population for some examples of infectious risks. Also, the KVP model (knowledge, values, practices), [1] which analyzes, on the one hand, the initial references of the transposition and on the other hand the programs and textbooks, we will be useful to evaluate the achievement of the aims of the education to health, conveyed by Tunisian Life Sciences curricula.

From a theoretical point of view, different approaches have been used to understand how risk perception is constructed. Schematically, three approaches are generally distinguished [2-4]. The first developed by Slovic in 1975 and Fischhoff in 1978 [5,6] is a psychometric approach to risk that proposes a cognitive stimulus/personality/response model that is very focused on the individual dimension of risk and the use of risk assessment scales.

The cultural and societal approach to risk put forward by Douglas and Wildawsky in 1982 [7] introduces the dimension of the social context and in particular the belonging of individuals to social groups as an explanatory dimension of risk perception. Finally, the more recent constructivist approach [8] proposes a theory of social risk amplification that emphasizes the notions of value systems and social imitation to which individuals are subjected.

Infectious risks are generally complex, multifactorial, unpredictable. In this sense, we opt for the multidimensional definition of risk [4] emphasizing the importance of reconciling the quantitative and constructivist components. Indeed, the quantitative component quantifies the potential for damage, while the constructivist component accounts for risk understood as representing individual and collective concerns that reflect social pluralism.

We believe that the development of the psychosocial skills advocated by the promotional model of health education participates in empowering learners against infectious diseases through the acquisition of capacities for reasonable perception (quantification and qualification) and adequate management of infectious risks. We are adapting the multidimensional definition of riskto develop our abilities assessment grid [4] (Figure 1).

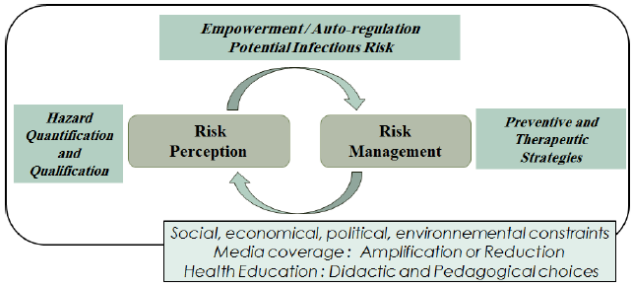


Figure 1: Infectious risk perception and management process.

In this study, the analysis focuses on the status of handwashing and its place among the management of infectious risk, the identification of practices perceived to be at risk of contracting an infectious disease, and preventive behaviors adopted by the Tunisian school students.

Sampling

The population concerned, are Tunisian students aged between 14 to 20 years old, educated in preparatory and secondary schools in the

North, Center, and South of the country. The sample is representative of grade levels; 9th -year preparatory school, 2nd and 3rd year (experimental sciences and letters section) and 4th -year experimental sciences section (Tables 1 and 2).

Crossover variables

the main variables used to characterize the knowledge, beliefs, attitudes, and behaviors of the students surveyed are socio-demographic and didactic variables (gender, a region of residence, study specialty and grade level, etc.).

Statistical method

The statistical analyzes were produced by the SPSS® software (Version 20) allowing the calculation of the variances of the unequal probabilities in the sample and the statistics presented in this study. In the text, the threshold of significance retained is 5%. Thus, when a difference is declared "significant", this means that the observed difference would have less than five chances to occur if one hundred different samples were randomly drawn from the observed population. It is possible to conclude that the difference is probably not due to chance. In the sections dealing with its declarative data, bivariate analyses were used to study the impact of sociodemographic and didactic variables on the perception and management of infectious risks.

Variables		Numbers	% Percentages
Total		100	100
Gender	Male	41	41
	Female	59	59
Region	Tunis	43	43
	Ben Arous	57	57

Table 1: Structure of the sample obtained in pupils 9th of preparatory school: by Gender and Region of residence, for an age group (14-16) (n=100).

Variables		Numbers	% Percentages
Total		161	100
Gender	Male	36	22,4
	Female	125	77,6
Study and School-level	2nd Sciences	19	11,8
	2nd Letters	18	11,2
	3rd Sciences	25	15,5
	3rd Letters	67	41,6
	4th Sciences	32	19,9
	Kef	30	18,6
	Seliana	26	16,1
Region	Kairouan	23	14,3
	Gafsa	40	24,8
	Tataouine	42	26,1

Table 2: Structure of the sample obtained in secondary school students by Gender, Study specialty, Grade level and Region of residence for an age group (16-20 years) (n=161).

Survey Results: Infectious Risk Management

What are the preventive strategies envisaged by secondary school students against infectious diseases?

Among the answers to the question concerning the means adopted in daily life to protect themselves from infectious diseases (Figure 2), We notice that the practices related to personal hygiene occupy the last position, so only (5.7%) of the students questioned affirm to adopt measures related to the personal hygiene (good personal hygiene or washing hands), the finding is not surprising since only (1.9%) of them fear the transmission of infectious diseases through the skin (hands).

The behaviors related to the hygiene of life (to have a good nutritional equilibrium, a good food hygiene, to practice a sport, to avoid tobacco or the alcohol, or to protect oneself from the cold), arrive at the top of the ranking (33,3%), antibiotic use is in second place with (25.2%).

Preventive or early treatment practices (such as being up to date with vaccinations, taking homeopathic treatment and vitamins) are cited by (15.7%) secondary school students interrogated.

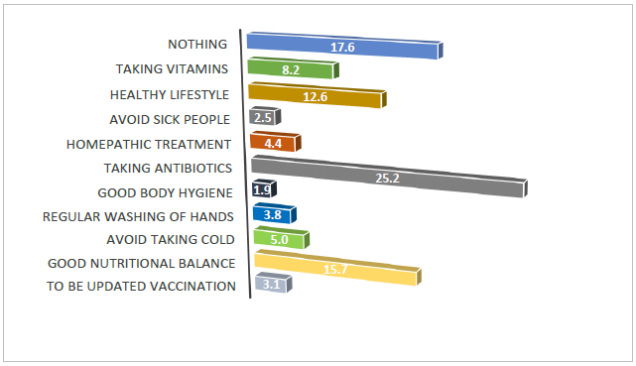


Figure 2: Preventive measures favored by secondary school students against infectious diseases.

A significant difference characterizes the preferred prevention measures according to the level of education and the study specialty (sig<0.05) with:

- (39.6%) students in the scientific specialty claim to adopt a "good nutritional balance" to protect against infectious diseases versus (35.8%) literary school students, and respectively (69.1%) opted for an "antibiotic intake" versus (41.9%).
- The third position is put forward a "healthy lifestyle" (no tobacco, no alcohol, sports practice, etc.) for (16%) students 2nd and 3rd levels Science versus (15.6%) students 2nd and 3rd levels Letters.
- "Vaccination" is then evoked by (15.8%) secondary school students at scientific levels versus (7.1%) for literary, as a means of protection against infectious diseases.

As a final option, "body hygiene" (Good body hygiene or handwashing) is cited by (14.7%) literary secondary school students versus (0%) for scientists.

Female students in preparatory and secondary school are more likely to opt for body hygiene and handwashing both in terms of frequency (Figure 3) and in different everyday situations:

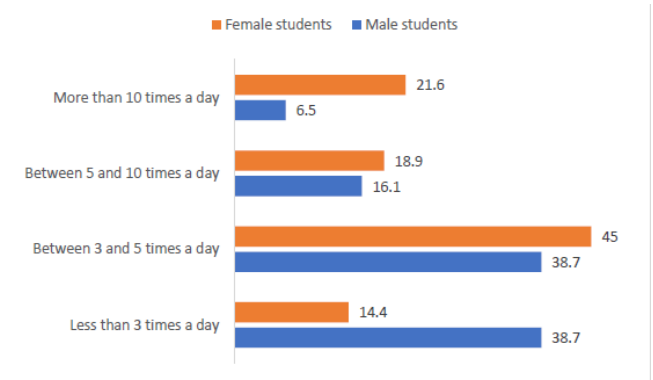


Figure 3: Frequency handwashing reported by gender.

Special-case of handwashing

If only (3.8%) of the school students questioned mention the regular washing of the hands as a means of prevention of infectious diseases, the declared behaviors concerning daily hygiene reach higher rates (Figure 4).

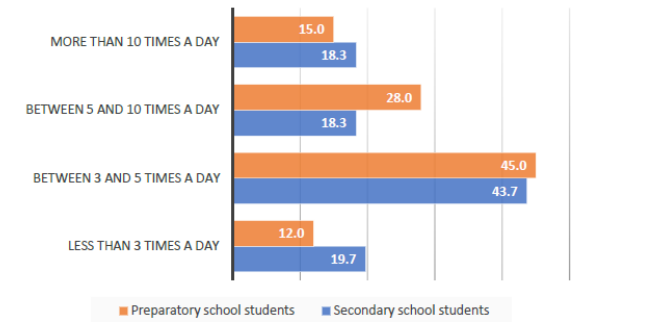


Figure 4: Frequency of handwashing declared by preparatory and secondary school students.

Frequency of hand washing

(36% of secondary school students surveyed vs. 43% of preparatory school students) report washing them at least five times a day; respectively (20% vs 12%) less than 3 times a day, between 3 and 5 times a day (44% vs. 45%), between 5 and 10 times a day (18% vs. 28%), more than 10 times per day (18% vs. 15%).

Hand washing according to potential risk situations

Situations relating to everyday hygiene behaviors were then proposed to school students. They were asked to answer the question: "In each of the following situations in your daily life, tell me very frankly if you wash your hands always, often, rarely, or never ..." (Figure 5):

- Thus, (61%) secondary school students claim to wash "systematically" hands "after going to the bathroom" versus (89%) reported by preparatory school students.
- (41.9%) secondary school students "systematically before cooking".
- "After blowing your nose" and "after taking public transport" lead to less systematic hand washing, by secondary school students (16.5%) and (11.8%) versus (53%) and (13%) for preparatory school students.

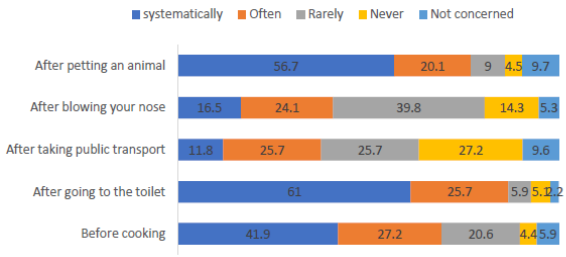


Figure 5: Frequency of handwashing according to different situations.

Control of infectious risk in schools: individual responsibility or collective responsibility?

Some questions suggested to the student to project themselves in the future and to pronounce "the possible control of the infectious diseases in the Tunisian school". Only 15% of secondary school students surveyed believe that at school the risks related to infectious diseases can be completely controlled one day, more than half are convinced that this risk is increasing (Figures 6 and 7).

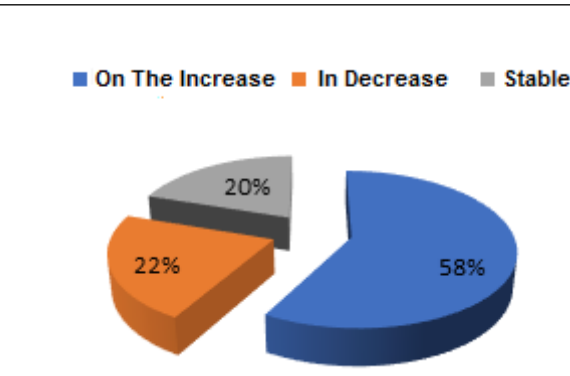


Figure 6: Perception of the infectious disease's evolution in Tunisian schools.

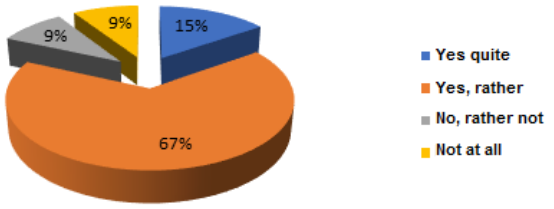


Figure 7: Perception of the possibility infectious diseases controlling at school.

Among those who think that the risk of infection will one day be controlled, three solutions are particularly envisaged:

- "More information on infectious diseases" (39%),
- "Hygiene of premises and people" (24%), and the
- "Training of Educational Personnel" (17%) (Figure 8)

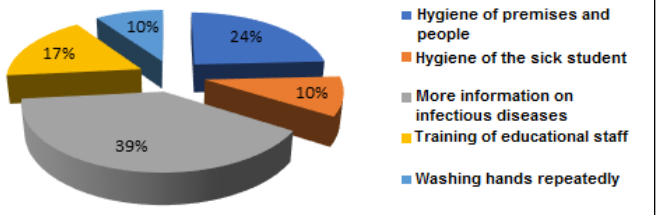


Figure 8: Solutions favored by students to control infectious diseases at school.

Among those who think that the infectious risk cannot be totally controlled, the reasons given are:

- Impossibility of perfect hygiene in school (41%),
- Infectious diseases always adapt to their environment" (26%) and "Student gathering promotes infectious diseases (20%) (Figure 9).

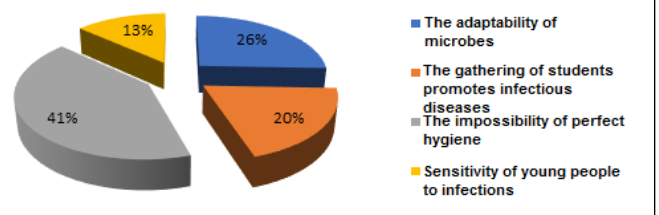
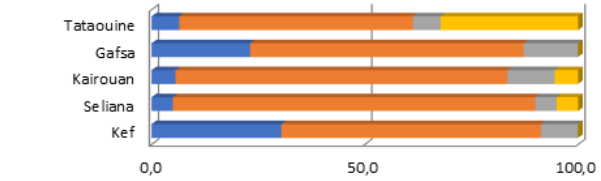


Figure 9: Reasons reported by students explaining the impossibility of controlling infectious diseases at school.

The following analysis focuses specifically on two sub-groups of students in extreme positions, the first group having said that the risks of infectious diseases may one day be "perfectly" under control, the second group comprising the students who responded to the opposite "no, not at all", shows that a significant difference ($p<0.05$) is observed according to the region of residence.

Indeed, (30.4%) of high school students living in the Kef region believe that the risk of infectious diseases will be in the future "completely" under control and (23.1%) in Gafsa agree. While only (6.5%), (5.6%) and (5%) think it possible respectively in the regions of Tataouine, Kairouan, and Seliana (Figure 10).



	Kef	Seliana	Kairouan	Gafsa	Tataouine
Yes quite	30,4	5	5,6	23,1	6,5
Yes, rather	60,9	85	77,8	64,1	54,8
No, rather not	8,7	5	11,1	12,8	6,5
Not at all	0,0	5	5,6	0	32,3

Figure 10: Perception of the possibility infectious diseases controlling at school, by region of residence.

Discussion

As early as 1847, Semmelweis carried out the first intervention trial on the role of handwashing in the prevention of puerperal fevers (perinatal infections caused by group A *Streptococcus*). Since the end of the 19th century, hand washing has become the rule before any invasive surgical or medical action. More recently, various intervention trials in the community [9] in schools, nurseries, and students have confirmed that regular handwashing limits the frequency of seasonal infections, especially gastrointestinal infections. enteritis, but also the transmission of certain ENT and respiratory infections (especially rhinovirus) [10].

Stone wrote in 2001 that the effectiveness of handwashing to prevent infections is such that, if it were a new drug, it would be used by everyone [11].

This assertion is confirmed by a literature review on the evaluation of physical interventions to interrupt or reduce the spread of respiratory viruses: handwashing more than ten times a day would be an extremely effective intervention and four people who wash their hands more than ten times a day would prevent a case of influenza, especially in young children [12].

In this survey, the importance of hygiene to protect against infectious diseases seems to be no ingrained in the minds of students surveyed as cited as the last measure of prevention of infectious diseases. So, only (5.7%) among them mention good body hygiene and handwashing as practices of prevention of infectious diseases.

This result can be explained in part by the dominant biomedical model (Dualist: cause-effect) in the life sciences manuals, a transmissive approach focused on the acquisition of information rather than on the development of psychosocial skills and empowerment.

Paradoxically, health education, although it is a hygiene education in the Tunisian textbooks of Life Sciences and despite a repeat prescription of handwashing through injunctions, moralizing or paternalistic speeches, sometimes calling on unconscious mechanisms

of decision-making (fear), we must believe that students do not consider it as a preventive measure against infectious diseases but rather as a means of acceptability, imitation, and social conformity. So, yes Tunisian students wash their hands but for reasons that escape them. Which explains the variations of this practice according to the situations:

Hand hygiene, a practice that is moderately widespread and varies depending on the situation

- Washing the hands after going to the bathroom and before going to the table is a classic message delivered from childhood as a basic principle of good education and cleanliness. It is, therefore, more in line with social norms than with the protection against infectious diseases.
- Washing hands after taking public transport concern a more urban school population. However, the frequency of use of the transport was not requested, it was not possible to see if it was correlated with the fact of washing more often hands. Washing after taking public transportation means having access to sinks and soap, and ways to dry hands, which is not always possible. Secondary school students, in particular, report washing their hands less often, but are also probably the ones who spend the most time away from home, take the most public transport and frequent places where accessibility to sanitary facilities, as well as their cleanliness, are not always ideal (schools, etc).
- Hand washing after taking care of an animal is surprisingly common among the students interviewed. Presumably, it could be more about those who have no animals than the students who own an animal, living closely with this companion, and not planning to wash their hands with each caress. The possibility of transmitting infectious diseases of animal origin is probably assimilated by the entire school population, which could partly explain this result.
- Washing hands after sneezing is a practice that is much less established in students' habits. More difficult to implement, hand hygiene in the prevention of respiratory infectious diseases seems even less well known than in the prevention of gastrointestinal diseases (oral-fecal transmission is frequent with dirty hands). Educating the transmission modes of his diseases could be a lever for their management by students.

More observed by female students

Hygiene practices to protect against infectious diseases, including handwashing, depend on many factors. These declared practices are more frequent in the female school population: they take more precautions than their male counterparts, either before preparing the kitchen, after going to the toilet, and they perceive the risks and the need for cleanliness. and hygiene more acute than young men. Hygiene is indeed an important element of the well-being and the image given to others; the appearance of cleanliness, the pleasant smell, the care. For example, according to Curtis study [13], one of the key factors in hygiene seems to be to want to make a good impression on others and in particular from one point of view. aesthetic.

Female students tend to adopt more preventive behaviors and therefore seem more aware of serious illnesses. They are also more worried about the risks that may affect their loved ones. The hypotheses put forward to explain this differentiated perception by gender are both biological and social.

Indeed, these future women are more concerned with human health because they have the biological capacity to give life, then the social function to maintain it. The social role assigned to women assigns them responsibility for the family sphere and all that relates to it, including food, care for children and the elderly. Women often feel confident about family health and are therefore more aware of infectious diseases.

More observed by scientific students

If this hygiene behavior (washing of hands) evoked by high school students, varies according to the situations related to daily life, the difference is also significant according to the school level and the study specialty ($p<0.05$). During their schooling, Tunisian school students received information concerning food hygiene and the risks of biological intoxication, which explains in part that they are sensitive to the parasitic risks transmitted by domestic animals (Toxoplasmosis, Oxyurosis). However, the regression of this perception from a grade level to a higher-grade level is explained by the limitations of the dominant biomedical model in the Life Sciences textbooks.

Produced knowledge is punctual. Focused on the transmission of notions, the content of textbooks not having the vocation to develop psychosocial skills and empowerment, does not allow students to consider (qualification and quantification) the risk of infection by taking public transport or going to high-traffic public places. Unable to mobilize, their knowledge in real situations, students are neither critical nor autonomous in the face of often unprecedented infectious risks. So, they do not perceive the need to wash their hands.

On the other hand, it has been suggested in different studies that knowledge alone is not enough to promote good hygiene behaviors, even if they improve them [14]. Thus, regarding handwashing before preparing meals, a study carried out in Spain with students [15] indicated that despite a very good knowledge of the importance of handwashing before meal preparation and good knowledge of the pathogens responsible for foodborne infections, only a quarter of them said to wash their hands with soap and water.

Some discrepancies between statements and practices

Other studies reveal multiple factors related to the adoption of "good hygiene". For example, a large study in South Korea [16] aimed at assessing public knowledge of the importance of handwashing and comparing current handwashing perceptions and behaviors highlighted that the presence of other people, during the observation, increased the frequency of the practice.

It shows that 94% of those surveyed claimed to wash their hands routinely or most of the time after using public toilets, but only 63.4% of those surveyed actually did so. It is therefore important to note that while the notions of basic hygiene seem to be moderately rooted in people's minds and speech, the distance between statements and the reality of practices must be considered. There is no doubt, in this survey based on declarations, a bias of social desirability.

In the literature, it has been shown that this lack of cleanliness reflects particular attitudes, behaviors, and beliefs about hand hygiene and that the solutions to change them are not simple [17]. Indeed, even knowing the risk of contamination of the hands and transmission in everyday situations, since shaking hands is known as a mode of transmission, however, the role of the social link that the handshake is hard to give up.

Barriers to handwashing

Both structural and organizational defects characterize a significant number of Tunisian schools such as the lack of sinks in the appropriate places, the absence of soap, the absence of towels to wipe hands or hand dryers or even the need in collective toilets to wait to wash and dry hands. These observations apply to the rural and urban school population with increased inequalities in certain regions of Tunisia where the lack of drinking water in schools is a major risk factor for student health. This could be the case when it comes to washing hands after coughing or sneezing, or just for someone who does not have access to a sink after taking public transportation.

Control of infectious risk in schools: individual responsibility and collective responsibility?

Infectious agents are constantly evolving and their development may be partly linked to human activity [18]. Globalization, climate change and the phenomena of economic and political migration contribute to the incidence of its diseases. It, therefore, seems illusory to think completely control infectious risks. The Tunisian post-revolution school in a reality of regional inequality and uncertain socio-economic future is no exception. For the perception of risks moreover fits more globally in the relationship with the world and the vision of the society to which the individual adheres. Slovic took up this dimension of "worldview" in his writings [6,7], linking it more directly to feelings.

In this survey, some questions proposed to the students to project themselves in the future and to pronounce on the possible control of the infectious diseases in the Tunisian school. It is interesting to note that in addition to environmental reasons, the responsibility of the educational actors is strongly questioned in this impossibility to control the infectious risks [19-22].

An analysis focused specifically on two sub-groups of students in extreme positions, the first group having answered that the risks related to infectious diseases will one day be "perfectly" controlled, the second group comprising the students who responded to the opposite "no, not at all", highlights that a significant difference is observed according to the region of residence [23-26].

Beyond sociodemographic and didactic characteristics, other perceptions and attitudes are correlated with the belief of possible control of infectious diseases. Thus, it appears that the perception of risks is part of a form of relationship with the world marked by feelings such as fatalism or confidence in the future and conceptions of society such as:

- The lack of trust towards public institutions to protect citizens.
- The representation of the individual, in our case the student as a responsible or selfish person.

Conclusion

Handwashing is not really considered as a preventive measure against infectious diseases but rather as a social imitation. This status of handwashing is correlated with the dominant biomedical model of health education. Implementing hygiene measures to reduce the spread of infectious diseases, particularly respiratory viral infections, hepatitis A and gastroenteritis, should be a priority for health and education Tunisian policymakers. These are simple, low-cost measures for the community and even less for the health system. However, they require an education of the entire population at school to understand the modes of disease transmission and simple ways to protect themselves.

In addition to its notional function, health education as a health promotion tool should evolve from a hygienist education towards the education of choice and learner autonomy in the face of invisible risks, new or emergent and often complex.

We believe that a health education (promotional model), through the development of psychosocial skills (Actor health, critical, creative, responsible, empathic, self-confidence, relationship to the other,), promotes a reasoned perception of risk and a more objective relationship with its environment and health. The development of psychosocial skills seems essential to acquire a reasoned perception of infectious risk and to put into action the knowledge acquired in everyday life. Indeed, the optimizing the management of infectious risks by students (future adults) would depend on:

- Development of a skills framework reference for health education.
- Consider a multidisciplinary health education.
- Evolution of the current biomedical model towards the promotional model.
- Adherence to a style of participatory education.
- Integration of the concept of human microbiota in the textbooks of the Life Sciences.
- Consider social practices of reference in the teaching-learning of the prevention of infectious diseases.
- Reduction of the vertical disparity between the different specialties and sections.
- Promote project and investigation pedagogies involving families, civil society and health professionals.
- Raising the awareness of education stakeholders to the concepts and objectives of health education.

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Ethics Approval

For our study, we had ethical approval at the CEBM of the Pasteur Institute of Tunis under the reference 2019/3 / E / UVT_ISEFC / V1.

Informed Consent

Informed consent was obtained from all individual participants included in the study. For participants under the age of 19, written parental consent was obtained.

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Availability of Data and Materials

The data presented in this paper are freely available upon request.

Authors' Contributions

FM wrote the manuscript. IM and LM provided advice and critically reviewed the manuscript. All authors read and approved the final manuscript.

Consent For Publication

Not applicable.

Competing Interests

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

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