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**PHYSICAL EDUCATION AND SPORTS: PLACE OF HAND
HYGIENE IN THE PREVENTION OF DIARRHEAL
DISEASES IN CONGOLESE SCHOOLS****MABASSA David Sylvain, ITOUA OKEMBA Jean, ALONGO Yvon Rock Ghislain,
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University Brazzaville-Congo**ABSTRACT**

The purpose of this study is to educate the educational community about the consequences of hand hygiene in order to reduce the incidence of diarrheal and respiratory diseases. This descriptive study was conducted among 1,700 students and 36 primary school teachers in Brazzaville. Data collection was done through semi-structured interviews with students (Blanchet and Gotman, 1992). This was focused around student adherence to the issue of hygiene rules in PES. On the other hand, the video recordings were focused on EPS lessons in the different classes, in order to analyze the relationship between the practices taught and health education. Finally, a questionnaire on the definition of health education was designed for teachers. The decryption of the results reveals that 85% of pupils in Congolese elementary schools do not wash their hands with soap before eating and after toilets because of insufficient sanitary equipment and hygienic materials in schools. The psychosocial and physical dimension in the field of physical education and sport seems to prevail through respect for the body, self-control, emotions, endurance, resistance, power, as well as certain skills related to the respect of rules of life and play (Loizon, 2009b). Primary teachers find it difficult to see how their teachings can contribute to the definition of health education (Lahire, 1998). Thus, the didactic approach made it possible to apprehend the obstacles or the factors favorable to hygiene in the multiplicity of their sociological, cultural, institutional dimensions. What constitutes the levers for the promotion of handwashing in primary school students.

Key words: *Physical Education and Sports, health education, hand hygiene, disease prevention, students*

I- INTRODUCTION

The school has a special responsibility, in close contact with the family, to ensure the health of the pupils entrusted to it and to promote the harmonious development of their personality. It also participates in the prevention and promotion of health by offering students, throughout their schooling, a health education, in conjunction with the lessons, adapted to both their expectations and their needs for learning and to current public health challenges.

The purpose of this study is to sensitize the educational community about the consequences of poor hygiene and especially hand hygiene, in order to reduce the incidence of diarrheal and respiratory diseases. Hand washing after toileting and before eating could save many more lives than any vaccine, reducing the number of deaths from diarrhea by almost 50% and the number of deaths by 25% acuterespiratory infections (Guinan et al., 2002).

Thus, it is necessary to develop the culture of handwashing soap in primary schools through the organization of health education sessions through the Physical Education and Sports (PES).

Beyond the disciplinary knowledge, the school landscape is today more and more transformed with the prescription in Congo-Brazzaville of new educational programs focusing on health education.

These challenge the teaching world because they are difficult to fit into the field of school subjects; they are considered as a-discipline and are at the same time scientific, political and moral (Lebeaume and Martinand, 2001).

As Merini (2007) reminds us, the PES teacher is often considered as the "specialist" of health issues because he touches the body through physical activities that he uses as a means of enabling pupils to acquire knowledge and develop skills. If the current curricula of the Congolese Physical Education and Sports prescribe to develop particularly this axis of the education with the health, what is it really in the practice at the school level ?

Our study attempts to answer this important research question: what is the knowledge taught in health education in physical education and sports courses in Congo-Brazzaville ? Our objectives are to identify the different objects of knowledge taught in physical education and sports related to health education; - understand the reasons for didactic choices of teachers explain the differences between observed practices and reported practices in health education.

On this point, we start from the following hypothesis: "Primary school students do not wash their hands with soap after the toilet and before, after meals, because of the lack of hygiene, sanitary equipment and precise definition of teachers in health education. " Our study conducted in primary schools in Brazzaville helps us to understand and clarify the relationship that can support physical education and sports and health education from a didactical point of view. It makes an original contribution in that Congolese research that crosses health education and the discipline of physical education and sport by studying teaching practices is almost non-existent. There is therefore a direct link between motor learning, academic achievement, and student health in school (Arwidson et al., 2001).

II- METHODOLOGY

To carry out this cross-sectional descriptive study, a survey was conducted during the 2017-2018 school year in Brazzaville primary schools. The choice of the six primary schools selected, was justified by the following criteria: - be a public school, existence of a complete cycle from CP1 to CM2, regular practice of Physical

Education and Sports, presence of sports facilities. The source population was made up of 3820 pupils in 36 pedagogical classes. A sample of 36 teachers and 1,700 male and female students aged 6 to 11 years was retained after the draw.

II-1: Data collection

In order to provide answers to our research question, we diversified the data collection to increase validity (Pourtois and Desmet, 1997). We used three types of data according to Van der Maren (1996):

Data invoked in the form of video recording lessons of Physical Education and Sports to access real practices. Each teacher has been warned beforehand that it will be filmed on one or more lessons depending on the context, but without being informed of the specific study theme so as not to distort the data collection.

Evoked data: the 36 selected teachers completed a questionnaire asking them to define the notion of health education.

Data generated with semi-structured interviews with 1700 students were conducted after classes. These three-step interviews allowed us to access the basic rules of healthy lifestyle of students by first questioning them on the hygiene of the hands, then in a second time to collect their representations in relation with the education to health and, at the third stage, to encourage students' support for Physical and Sports Education, to see how students include health education in physical and sports education? His interviews gave us access to the meanings given by the student to his hygiene behavior (Laplanche and Pontalis, 2002).

This allowed us to compare the data collected on school health and the discourse declared by the students. Thus, we analyzed real practices, declared practices, to identify the objects of knowledge taught about health education.

Regarding the validity of our analyzes, we proceeded to a triangulation of the data by varying the sources (video, interviews, questionnaires) when the contexts of study allowed it. Also, a look was crossed by all the experimenters in order to harmonize the points of view. To ensure the fidelity of the data, the full reports of the video sessions and interviews were returned to the relevant stakeholders for verification purposes, as were the interpretations (Albarelo, 2011).

II-2 : Data processing

For the treatment of video-driven physical education and sport lessons, we first coded from the analysis grid with the different categories of knowledge. To respect the unity of meaning of communication, each lesson in physical education and sport was divided into didactic episodes (Altet, 1994).

The analysis of the content of the teachers' speech in the lessons and the questionnaire was carried out using differentiating criteria and indicators (Bardin, 1998). Each object of knowledge was therefore listed in the different categories of knowledge identified in each of the didactic dimensions.

For interviews with students, we used the analysis grid for coding responses when handling hand hygiene questions. This allowed us to compare the data collected, ie the classroom discourse (the knowledge actually taught) and the interviews with the students (the declared knowledge of hygiene).

III-RESULTS

III-1 : Analysis of interviews with students

III-1-1 : age features

Table III-1: Distribution of the ages of the sample

age (year)	effective	frequency(%)
6	532,1	31,30
7	634,1	37,30
8	249,9	14,70
9	102	6
10	96,9	5,70
11	85	5
Total	1700	100

Table III-2: Distribution of the sample by sex

Sex	Effective	Frequency (%)
Male	185	61,7
Female	115	38,3
Total	1700	100

Table III-3: Distribution of the sample by schools

Schools	Effective	Frequency (%)
Elementary school of Gamakosso	306	18
Elementary school of Makabadilou	289	17
Elementary school of Saboukoulou	255	15,0
Elementary school Mabilia ma Nganga	317,9	18,7
Elementary school Intsali Sadelmi	277,1	16,3
Elementary school of Mafouta	255	15
Total	1700	100

The survey was conducted at 18.7% in Mabilia ma Nganga school.

III-1-2: Determination of students' level of knowledge and practice of handwashing

Table III-4: Knowledge of pupils for interpretation of washing hands

Interpretation of handwashing	effective	frequency (%)
Wash hands with soap and water	1331,1	78,3
Wash hands with only water	368,9	21,7
Total	1700	100

In our study **78,3%** of pupils declare to wash hands with water and soap.

Table III-5 : knowledge of the difference between simple handwashing and hygienic washing of hands

The difference between simple handwashing and hygienic handwashing	effective	frequency (%)
Yes	515,1	30,3
No	1184,9	69,7
Total	1700	100

The difference between the simple washing of the hands and the hygienic washing of the hands is not known by 69.7% of the pupils.

Tableau III-6 : students' knowledge of the type of soap used for hygienic hand washing

Type of soap used for hygienic hand washing	effectif	fréquence (%)
Yes	663	39
No	1207	71
Total	1700	100

Students do not know the type of soap used for hygienic hand washing in 71% of cases.

Table III-7 : knowledge of students about the spread of soap

knowledge about soap spreading	effectif	frequency (%)
Directly on the hands without wetting them	629	37
After wet hands	1071	63
Total	1700	100

Students wet their hands before soaping in 63% of cases

Table III-8 : students knowledge about hand massage time with soap during simple hand washing

knowledge of massage time	effective	frequency (%)
Yes (30 seconds)	187	11
No	1513	89
Total	1700	100

Hand massage time with soap is not known in 89% of cases.

Table III-9 : students' knowledge of the meaning of rinsing hands

The sense of rinsing hands	Effective	frequency (%)
Yes (nails to the elbows)	583,1	34,3
No	1116,9	65,7
Total	1700	100

Rinsing hands from the nails to the elbows is not known by 65.7% of students.

Table III-10 : students' knowledge of wiping their hands after rinsing

knowledge of wiping hands after rinsing	effective	frequency (%)
Yes	1122	66
No	578	34
Total	1700	100

According to 66% of students, hands should be wiped after rinsing.

III-1-3: Behavior of students after washing hands

Table III-11: The type of towel used by students

Type of hand towel	effective	frequency (%)
Disposable	493	29
multiple use	402,9	23,70
No towel	758,2	44, 60
Other	45,9	2, 70
Total	1700	100

In 44.6% of cases, do not use a towel.

Table III-12 : Student behavior on water used for handwashing

used water	effective	frequency (%)
all water at your fingertips	198,9	11,7
potable water	1501,1	88,3
Total	1700	100

The use of drinking water is a habit for 88.3% of students.

Table III-13 : Student behavior on the type of hand-washing performed at the toilet

type of hand washing	effective	frequency (%)
do not wash your hands	708,9	41,7
a wash without soap	51	3
a simple washing of the hands	260,1	15,3
hygienic hand washing	680	40
Total	1700	100

Pupils do not wash their hands when leaving the bathroom in 41.7% of cases.

Table III-14 : Student behavior on the type of hand washing practiced before and after meals

type of hand washing	effective	frequency (%)
hygienic hand washing	44,2	2,6
washing of the hands	544	32
a wash without soap	341,7	20,1
do not wash your hands	770,1	45,3
Total	1700	100

Students do not wash their hands before and after meals in 45.3% of cases.

Table III-15 : Pupil behaviors on the type of hand washing performed after any septic act

type of hand washing	effective	frequency (%)
hygienic hand washing	90,1	5,3
washing of the hands	1326	78
a wash without soap	68	4
do not wash your hands	215,9	12,7
Total	1700	100

In our study, 78% of students know that a simple hand washing is necessary after any septic act

III-1-4: Identification of the means and / or equipment available for handwashing

Table III-16 : Availability of water points in schools

water point availability	effective	frequency (%)
Yes	1190	70
No	510	30
Total	1700	100

In 70% of the cases, there is water available in schools.

Table III-17 : type of water point available in schools

type of water point available	effective	frequency (%)
classic faucet with washbasin	47,6	2,8
robinet sans lavabo tap without sink	340	20
Pump	1144,1	67,3
Well	11,9	0,7
no water point	156,4	9,2
Total	1700	100

The pump is the available point of water in 67.3% of cases.

Table III-18 : type of soap available and used by the student

type de savon disponible type of soap available	effective	frequency (%)
Ordinary	1171,3	68,9
Solid antiseptic	136	8
Liquid antiseptic	256,7	15,1
Detergent	34	2
Other	102	6
Total	1700	100

Regular soap is more used to 68.9% by students.

III-2: Analysis of the video images of the lesson of Physical Education and Sports

By analyzing the video images of the lesson to identify knowledge objects related to health education, we note that the psychosocial dimension is predominant, with many of the remarks and instructions related to the rules. Two categories of rules were taught to students. A first category composed of frequent critics to remind respect for the rules of life in society. A second category based on the respect of the specific rules of physical activity and sport (APS) concerned. In the event that the rules are not respected, the teacher promises sanctions in the form of penalties for the teams. We find that the psychosocial dimension is largely dominant. Real practice is therefore rich in knowledge taught in the field of health education.

Concerning the affective dimension, we note the search for the development of a knowledge to be with the others during the lessons filmed. It manifests itself above all in the respect of the partner and the adversary, as well with regard to the rules of the APS as the respect of the physical integrity of the other.

In addition, throughout the lesson, the teacher insists a lot on body information. This work on sensations is dominant during filmed sessions, especially in cooperative relationships, and then extends into the relaxation and stretching phases with instructions on the control of breathing.

Finally, the critical dimension is not forgotten in the APS classified in the physical activities at risk, considering the potential accidents. The teacher gives many safety instructions and makes many remarks to limit the risks. His instructions are given before performing the task. We also identify many of the taught skills that relate to health education with a less remarkable body dimension.

III-3: Content analysis of teachers' answers to the question "What do you think it means to be in good health? Could you give a definition in a few lines? "

(Poggiet al., 2009)

Categories	Illustrations
Hygiene of life (diet, sleep, etc.)	Healthy and varied diet, restorative sleep, satisfaction of vital needs (drinking, eating, sleeping, washing, dressing, rent), respecting the biological clock, not being overweight, having a balanced rest.
Bien-être Welfare	Feel good, be good about yourself, be in shape, have no problem, be moral, have a good mood, be upbeat, be optimistic, be happy, have fun, laugh, enjoy life, happy to to live, to smile, to feel good in one's head, to be gay, to have no problem, to live fully, to be well emotional, to live well, to take care of oneself.
Welfare psychological	Being in good mental and intellectual shape, psychological health, having good intellectual resistance, psychic integrity, having mental balance.
Body well-being and physics	Healthy body, physical health, physical fitness, physical well-being, being good in one's body, having all one's physical faculties, being in harmony with one's body
Absence of pain,	Being active, active life, having energy, having a good tone, dynamism, having energy, practicing various activities
Disease, drugs tired, weakness	No sickness, no medication, no sickness or depression, no tiredness, one who is doing well, having a functioning body, regular functioning of all organs, normal functioning of the body.
Sport and APSA	Playing sports, being in good health, having good physical resistance, physical integrity, being at the best of one's physical abilities, being able to practice all sports without any problem.
Terms of life and success school	Do not have problems, environmental well being, academic success.
autonomy, freedom	Live without help, free choice, no constraints, no disability, be independent, do not need someone to live, do whatever you want.
Harmony, balanced	Mental balance, being in harmony with one's body and mind, being in balance with oneself, combining forces, elements, harmonious and balanced distribution, achieving all that one wishes to do.

IV-DISCUSSION

IV-1: Analysis of semi-structured interviews with students

IV-1-1: Determination of level of knowledge and practice of hand washing among students

Reading the results obtained in Tables 4, 5, 6, 7, 8, 9, 10, relating to the determination of the level of knowledge and the practice of washing hands, shows statistically that:

- 78.3% of students say to wash their hands with water and soap;
- 69.7% of students do not distinguish between simple hand washing and hygienich and washing;
- 71% of cases do not know the type of soap used for hygienic hand washing;
- 63% of cases wet hands before soaping;

- 89% of cases do not know the time of hand massage with soap;
- 65.7% of students do not know how to rinse their hands from the nails to the elbows;
- 66% of students say the hands should be wiped after rinsing.

This attitude can probably be explained by the low level of knowledge of hygiene rules. In the same vein, an English study also concluded that one of the key factors in hygiene was the protection of its students (Curtis, 2003). We also note that people who tend to practice social distance in case of influenza or having a good level of knowledge about its transmission tend to wash their hands more generally. This trend is found among people with a high level of education, however, there is a slight decrease in people with higher Bacculaureate +2 in this practice.

IV-1-2: Behavior of students after washing hands

The analysis of the results obtained in Tables 11, 12, 13, 14,15 concerning student behavior after hand washing indicates that:

- 44.6% of cases do not use a towel;
- 88.3% of students use drinking water as a household habit;
- 41.7% of students do not wash their hands out of the toilet;
- 45.3% of students do not wash their hands before and after meals;
- 78% of students know that a simple hand washing is necessary after any septic act.

This is safely explained that students do not have good habits for lack of hygiene culture. In this regard, an observational study carried out among health personnel and the general public on the practice of washing hands after toilets confirms this state of affairs (Hateley et al., 1999). In addition, in the Health Barometer, having a child under 4 increases the declaration of hand washing after the toilet, after blowing.

IV-1-3: Identification of the means and / or materials available for hand washing

The recording of the results obtained in tables 16, 17, 18 on the identification of the means and / or materials available for hand washing noted that:

- in 70% of cases, there is no water available in schools;
- in 67.3% of cases, the pump remains the available water point in schools;
- 68.9% of cases, ordinary soap is the most used by students in schools.

These rudimentary means still show that our schools are confronted with modern infrastructures and the quality of drinking water and soap. Our results corroborate with other studies that have revealed multiple factors related to the adoption of good hand hygiene. For example, a large study in South Korea (Jeong et al, 2007), aimed at assessing public knowledge of the importance of hand washing, found that the presence of other people during observation increased the frequency of the practice. In the literature, material obstacles have also been identified (Kesavan, 1999, Lopez-Quintero, 2009), such as the lack of sinks in the right places, the absence of soap or towels for dry hands but also lack of time and / or forgetfulness.

IV-2: Analysis of the video recordings of the lesson of Physical Education and Sports

The analysis of video images of PSE lessons has shown that primary school teachers have difficulty in perceiving how their teachings can contribute to health education. The didactic-health approach by the determinants is unfamiliar to them and from their point of view, those who can approach it in their teaching, are the teachers of Physical Education and Sports.

Regarding the link between PSE and health education, the teacher of PSE should teach, according to Tribalat (2005), three broad categories of knowledge. A first category with knowledge of health related to our theoretical knowledge such as knowledge about the body or the energy system. A second category with knowledge for his health (eat well, wash well); and finally, knowledge to act on oneself while respecting one's physical integrity and that of others who would be more knowledgeable, such as designing training programs or knowing how to warm up.

In this context, Profédus (2010) reveals that "the professional activity of primary school teachers is not limited to the application of prescriptive texts". She is dependent on personal parameters such as their representations or their habits of life, as well as taking into account the needs and expectations of their students.

IV-3 : Content interpretation of teachers' answers to the question "What do you think it means to be in good health? Could you give a definition in a few lines? "

Beyond the simple question of definition on health education, our study questions teachers of Physical Education and Sport on how to manage the relationship between public and private space, between the singular, the universal and the socialization. The results show that the bridges between these different spaces are not woven in the same way according to the sociological profiles of the teachers. Defining health education in school therefore requires a more general interest in the situations of adjustment / maladjustment between incorporated habitus and school learning situations, between family socialization and school socialization.

The results suggest that the model of a "plural actor" (Lahire, 1998), capable of mobilizing a plurality of definitions, helps to understand what makes teachers act. They accept that their students go through different hygiene experiences, be they academic, medical, environmental or family.

The unifying habitus model advocated by Bourdieu (1979) seems to be more appropriate for explaining the health conceptions and practices of pupils from different backgrounds who, in the specific field of health education, tend to preserve the monopoly of school socialization. The plural actor model (op.cit), certainly attractive in that it increases by diversifying the room for maneuver of social actors, is not yet operational to explain and understand the definition of education to the health. These few definitions invite to a diversification of the methods of taking charge of a health education in Physical Education and Sports.

CONCLUSION

The purpose of our study was to ascertain whether primary school students had a close knowledge of the relationship between health education and physical and sports education. The assumption that students do not observe the rules of hand hygiene has been verified. As proof, the results obtained show that:

- the students do not wash their hands with soap before and after eating, after the toilet;
- the Congolese primary schools do not have enough hygiene equipment, sanitary facilities and equipment;
- primary school teachers have difficulty in perceiving the definition of health education;

Thus, the analysis of the knowledge taught in Physical Education and Sport shows that health education is provided in the lessons of Physical Education and Sports in relation to the body, psychosocial and critical dimensions.

The link between Physical Education and Sport and Health Education seems to be obvious for primary school teachers. The identification and implementation of the knowledge taught in Physical Education and Sports meet the definition of health education. This difficulty in precisely defining health education has already been identified among PSE trainers (Loizon, 2009b) and among PSE teachers (Cogérino, 1999, Turcotte et al., 2007).

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