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Assessment of Nurses' Knowledge and Attitudes Regarding Deaf-Mute Patients' Care in Healthcare Setting

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Abstract

Introduction: *Communication barrier between nurses and deaf-mute patient is one the stressors in nursing practice because of the disbelief of caregivers which sometime makes angers patients, making caregiver-patient communication more difficult and consequently will hamper the nursing care of patient's outcomes. The knowledge of sign language (SL) among nurses has not seen a place in the development of nursing and medical training curricula in general in Burundi. This inhibits communication between caregivers and deaf-mute patients. Our study aims to assess nurses' knowledge and attitudes regarding deaf-mutes' patients in healthcare settings.*

Methods: *A hospital-based cross-sectional study design was used to assess the nurse's knowledge and attitude regarding deaf-mute patients' care among nurses who work in ICU, Internal medicine and obstetrics and gynecology unit of Gitaga Regional Hospital (GRH) and all nurses of Mushasha Health Center. A convenience sampling method was used to invite all nurses working in these two healthcare facilities to participate in our study. A self-report method involving questionnaire completion with three components addressing demographic data, participants' knowledge and attitudes was used to collect data which were later on analyzed by SPSS version 21.*

Results: *The current study shows that the participants' knowledge regarding nursing care of deaf-mutes' patients were significantly poor among nurses, as they scored less than 32% for all variables used to assess their knowledge, even though their overall knowledge score compared to their demographic characteristics was moderate (51.2%).*

This knowledge was significant related to the age group, length of time in the unity, education level and specific training on health management of deaf-mutes' patients (p-value<0.005). Most of the participants (95.10%) affirm that they did not learn nursing care applied to deaf-mutes' patients and did not know how to differentiate a deaf-mute patient who is sick from those who are not (63.40%).

Their attitude was quite good even though they did not have a good knowledge regarding nursing care of deaf-mutes' patients. They argue that they were confused (41.5%) or could be afraid (31.7%) because it wasn't easy to communicate with deaf-mute patients (97.6%), as majority of them (80.5%) had already got deaf-mute patients in workplace. After all, all our participants said they would like learning sign language to better communicate with their deaf-mutes' patients.

Conclusion: *This study shows a poor knowledge regarding nursing care of deaf-mutes' patients among nurses at GRH and Mushasha health center because of lack of nursing skills in regard to deaf-mute nursing care. This could make nurses confused or afraid when it comes to taking care of deaf-mute patients. Curriculum revision, and in-service training on nursing care of deaf mute were highly recommended as all participants would like to learn sing language.*

Keywords: Deaf-mute, Knowledge, Attitude, Communication, Nurse, Patient

Introduction

People with a deaf-mute disability exist around us and have physical, psychological, relational, security and fulfillment need like others. However, deaf-mutes' patients do not have direct access to information; security; freedom to expression because they cannot express themselves verbally and convince others. The deaf mute must adapt to the life of hearing people, because all their activities except the way of expressing themselves are done like those of other groups of hearing individuals [1].

The interest of communicating is to understand others and to be understood. In healthcare, the caregiver in addition to his nursing practice, is responsible for good communication and understanding of patient's needs. It is not easy to manage the patient's needs who cannot speak and who does not hear. The major problem lies in this patient support which is blocked by communication to meet their needs and is misunderstood by health professionals. This latter is explained by the fact that, in the training of nursing career in Burundi, nowhere can be find specific knowledge for nursing care of deaf-mute patients.

Nursing caregiver relationship is a supporting relationship that is established spontaneously in response to the need of listening to patient or his family requiring the caregiver's ability to welcome emotions and to put in place an attitude adjusted to what the person is going through. This caregiver relationship calls upon nursing attitudes such as active listening, empathy, authenticity and reformulation leading to the creation of trust [1].

Globally, the WHO counts 1.5 billion people with more or less severe hearing loss and at least 700 million people will need rehabilitation services in 2050, according to projections [2]. In developed countries, deafness is the most common sensory deficit and affects 1 to 2 births out of approximately 1,000 and nearly 80% of people are deaf [3, 2].

In France, the information and care unit for the deaf, at Pitié-Salpêtrière, receives nearly 700 patients each year in its active queue and about fifteen consultations intended for these particular patients currently exist, even though all the territory is not covered [4]. Moreover, in 2008, France recorded that complete deafness affects 182,000 people (0.3% of the total population) while hard of hearing affects 1,062,000 [3]. In a health survey in Switzerland in 2007, people with a profound hearing disability would be approximately 80,000 (1.3%) of the general population [1].

In developing countries like Zambia, a study done to determine the prevalence of hearing loss among primary school children in the central area of Lusaka district, showed that hearing loss was 11.5% consistent into conductive hearing loss (87.8%), sensorineural hearing loss (6.8%) and mixed hearing loss (5.4%). Hearing loss was more common in boys (13.8%) than in girls (9.3%) [5].

In Burundi, 1224 (0.1%) represent part of the deaf mute compared to the total population [6]. During our nursing practice in healthcare setting, we do observed more situations of deaf-mute patients whose management is limited due to lack of good communication and have given us an impulse of trying to understand the extent of the problem and to acquire knowledge on the subject in order to analyze the caregiver and patient relationship in regard to nursing care of deaf-mute patients in the two healthcare of Burundi.

The main objective of this study was conducted to contribute to the nursing care of deaf-mutes' patients in healthcare setting and the following specific objectives were addressed to (1) determine the level of nurses' knowledge regarding nursing care of deaf-mutes' patients, (2) assess the nurses' attitude when caring for deaf-mute patients in healthcare setting, (3) Identify demographic factors that may be associated with the nurses' knowledge and attitude regarding deaf-mutes' nursing care.

Theoretical Framework

Travelbee's Human-to-Human Relationship Model was used to support our study. She believes that "every human being suffers because he is a human being, and suffering is an intrinsic aspect of the human condition", and nursing is an interpersonal connection, whereby the nurse facilitates the progress of a patient, a family, or a community in preventing or coping with an illness or with suffering in ways that could lead to finding meaning with the experience [7].

For patients with impaired hearing and communication, this interpersonal connection is perturbed and there won't be any patient-caregiver relationship anymore. The nurse either refer to physical exam without any anamneses for the patient or family members, while nurses and other healthcare providers could consider this interpersonal relationship as the pillar of nursing process. Thus, if the interpersonal Relationship do not exist anymore and this could affect the patient's health outcome, because there wasn't any adequate nursing process to respond to the patient's needs resulting to prolonged hospital stays or death due to lack of communication.

Methods

This study was carried out at Gitaga Regional Hospital (GRH) and the Mushasha Health Center, Burundi in October 2021 among nurses for the purpose of assessing nurses' Knowledge and attitudes regarding deaf-mute patients' care in healthcare setting for the period of two months. GRH is a public institution with 321 beds and serves as the second level hospital for national referrals and is in the central position of Burundi, in the province and commune of Gitega in the northern part of the urban area of Gitega in MUSINZIRA district with 158 nurses out of 318 staffs.

Mushasha Health Center is in the province and commune of Gitega, in Mushasha district, Burundi. The two care facilities were chosen because Mushasha health center is the nearest health center to the so-called Centre d'Education Spécialisée pour Déficients Auditifs Notre Damme de la persévérance (CESDA / NDP) of Gitega, whilst GRH is the national reference hospital which is near to the said center.

The participants of this study were nurses who work in the Gyneco-obstetric unit, intensive care unit and internal medicines unit of HRG and all nurses of Mushasha Health Center. Those three units of HRG were selected as they are the most one whereby interpersonal relationship is more concerned and in health center, it is the place where patient go first for most primary care.

A hospital-based cross-sectional study design was used to assess the nurse's knowledge and attitude regarding deaf-mute patients' care among nurses who work in ICU, Internal medicine and obstetrics and gynecology unit of GHR and all nurses of Mushasha Health Center. The GRH counts 158 nurses within 7 works in ICU, 17 in Internal medicine and 17 in obstetrics and gynecology unit, whilst Mushasha Health Center counts 9 nurses. As the number of nurses working these selected services was small (50 nurses in these two institutions), convenience sampling method was used in this study to include all of them (N equal to simple size: N=50).

A self-report method involving questionnaire completion with three components addressing demographic data, participants' knowledge and attitudes was used to collect data. It had 16 items divided into three sections: demographic data section with 6 items exploring the participants' socio-demographic characteristics, section two of the nurse's knowledge regarding nursing care of deaf-mutes' patients, with six questions while section three on the nurse's attitude when caring for deaf-mute patients in healthcare setting with four items.

The questionnaire was designed by authors in French, later on in English. Participants had used a French questionnaire as this is the language of professionals used in Burundi. A Statistical Package for Social Scientists version 21.0 software (SPSS) was used to analyze the data which were presented as a frequency table and bar graphs.

Bivariate analysis was used to measure the relationship between two variables at different levels and the linearity test (Chi-squared test) for measures observed on two groups and more than two groups. Indeed, our dependent variable being qualitative (nurses' knowledge and attitude) and the independent variables categorical (demographic characteristics). All results were tested at a 0.05 level of confidence.

The score of the results were classified refer to the items' scored by participants in each section of variables. It was good/ high for those who scored more than 55%, poor/ low for those who scored less than 45% and moderate for the score between 45 and 55% of the items of the questionnaire. Ethical principles had been respected where an informed consent form was attached to the questionnaire, participants were given a choice whether to participate in the survey or not and the authorization to carry out the study was required from Hope Africa University, Gitaga Regional Hospital Superintendent and Medical Superintendent of Gitega Health District.

Results

A qualitative study design was conducted to assess the nurse's knowledge and attitude regarding deaf-mute patients' care among nurses who work in ICU, Internal medicine and obstetrics and gynecology unit of GHR and all nurses of Mushasha Health Center, where 41 questionnaires (82%) were filled out and returned to the researchers among 50 ones that had been distributed during our time of data collection.

Table 1. Demographic Datas

During our study, results show that majority of participants were female (97.6%) and their age ranged from 26-63 years ($\bar{x}$ =40.2 years). Most of our participants were 6-10years (39,1%), while. 31,7%, 26,8%, 2,4% had respectively 1-5 years, more than 10 years and less than one year. Only one of the participants had master's degree in nursing (MSN), other had bachelor's degree in nursing (BSN) (19,5%) and a vocational secondary school in nursing with four years of training (56,1%) and (22.0%) for those with two years of nursing training (A3 diploma).

The majority of our participants were nurses working in the hospital of Gitega (78%), while 22% were nurses who work in Mushasha Health center. Among 78% nurses who work in Gitega hospital, 38.2% were in gynecology and obstetrics unit, while 32.4% and 29.4% were respectively in ICU and internal medicine (Table 1).

Table 1: Demographic Datas

Characteristics		Frequency (N = 41)
Age	Range Mean	26-63 years 40.2 years
	20-30 years 31-40 years 41-50 years More than 50 years	3 (7.3%) 21(51.2%) 10 (24.4%) 7 (17.1%
Sex	Male Female	1 (2.4%) 40 (97.6%)
Period	Less than one year 1-5 years 6-10 years More than 10 years	1 (2,4%) 13 (31,7%) 16 (39,1%) 11 (26,8%)
Education Level	A_3 diploma A_2 diploma BSN degree MSN degree	9 (22,0%) 23 (56,1%) 8 (19,5%) 1 (2,4%)

Workplace	Gitaga Regional Hospital Mushasha Health Center	32 (78%) 9 (22%)
Hospital's work service unit	Gynecology and obstetrics unit Intensive care unit Internal medicines unit	16 (38,2%) 13 (32,4%) 12 (29,4%)

Nurse's Knowledge Regarding Nursing Care of Deaf-Mutes' Patients

The participants' knowledge regarding nursing care of deaf-mutes' patients were significantly poor, as they scored less than 32% for all variables used to assess their knowledge. Only few of them (4.90%) said that they had learned nursing care applied to deaf-mutes' patients, while 95.10% did not, 4.90% had some specific nursing training regarding the health management of deaf-mutes' patients. 31.70% argue that their interpersonal relationship skill based on empathy was satisfied with deaf-mute patients. 14.60% said that they know the causes of deafness and dumbness, however, no one gave any examples of them. 22% of the participants said that they know how to differentiate a deaf-mute patient who is sick from those who are not, sometimes 14.30% could differentiate while majority 63.40% did not know (Figure 1).

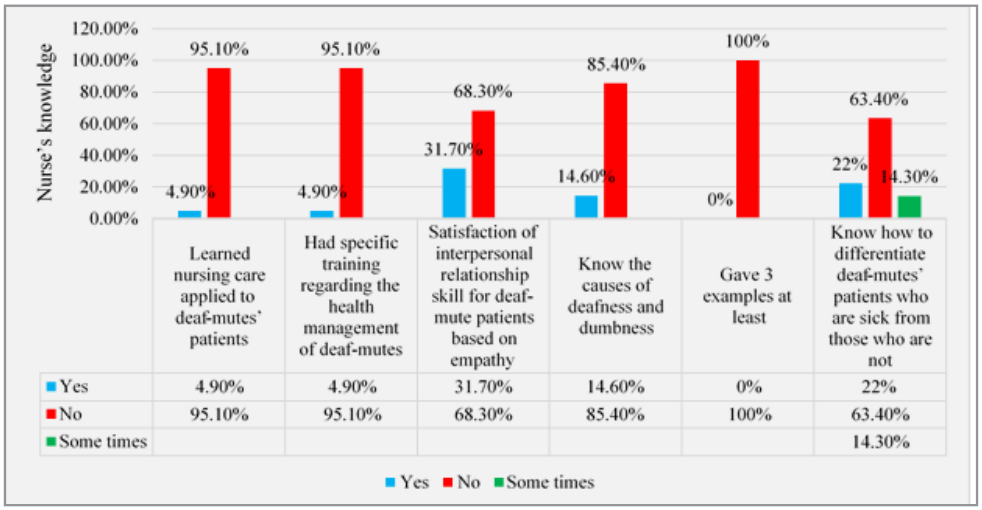

Figure 1: Distribution of participants knowledge regarding nursing care of deaf-mutes' patients

Table 2: Distribution of participants' knowledge with their demographic characteristics

Variables	Frequency (N=41)			
	Modality's	Effective	Insufficient knowledge	Good knowledge
Age group	[20-30]	3	0(0%)	3(100%)
	[31-40]	21	18(85.7%)	3(14.3%)
	[41-50]	10	2(20%)	8(80%)
	[50-55[	7	0(0%)	7(100%)
Length of time in the unit	Less than one year	1	0(%)	1(100%)
	1-5 years	13	8(61.5%)	5(38.5%)
	6-10 years	16	12(75%)	4(25%)
	More than 10 years	11	0(0%)	11(100%)
Education level	A3	9	3(33.3%)	6(66.7%)
	A2	23	17(73.9)	6(26.1%)
	BSN	8	0(%)	8(100%)
	MSN	1	0(%)	1(100%
Had specific training regard-ing the health management of deaf-mutes' patients	Yes	2	0(%)	2(100%)
	No	39	20(51.3%)	19 (48.7%)
	Ensemble	41	20(48.8%)	21 (51.2%)

A bivariate descriptive analysis revealed that the participants knowledge regarding nursing care of deaf-mutes' patients was moderate 51.2%. Furthermore, this study revealed also that nurses who had specific training regarding the health management of deaf-mutes' patients (4.9%) have shown a good knowledge regarding nursing care of deaf-mutes' patients (100%). Similarly, all the participants (100%) with university level (BSN and MSN) had also a good knowledge regarding nursing care of deaf-mutes' patients (Table 2).

Table 3: Results of multivariate analysis on nurses' knowledge regarding nursing care of deaf-mutes' patients

Variables	X^2	df	P value
Age group	24.304	3	<0.001
Length of time in the unit	16.677	3	0.001
Education level	15.245	3	0.002
Had specific training regarding the health management of deaf-mutes' patients	2.002	1	0.157

In this study, the nurses' knowledge regarding nursing care of deaf-mutes' patients were significant related to the age group, length of time in the unity, education level and specific training on health management of deaf-mutes' patients (p-value <0.005) (Table 3).

Table 4: Nurses' Attitude When Caring for Deaf-Mute Patients.

Characteristics	Frequency (N=41)
Got a deaf-mute patient.	
Yes	33 (80.5%)
No	8 (19.5%)
Easy to communicate with deaf-mutes' patients.	
Yes	1 (2.4%)
No	40 (97.6%)
Feeling while assessing a deaf-mute patient	
Fear	13 (31.7%)
Cool	11 (26.8%)
Confused	17 (41.5%)
Like to learn sign language to better communicate with deaf-mutes.	
Yes	41 (100%)
No	0%

The majority of the participants (80.5%) said that they have already got deaf-mute patients in the workplace, however, almost all of them (97.6%) argued that it wasn't easy to communicate with deaf-mute patients. The majority of the participants (41.5%) said that they feel confused while assessing deaf-mute patients, 31.7% said they were afraid of it, while 26.8% were cool of it. All of our participant confirmed that they would like learning sign language to better communicate with their deaf-mutes' patients (Table 2).

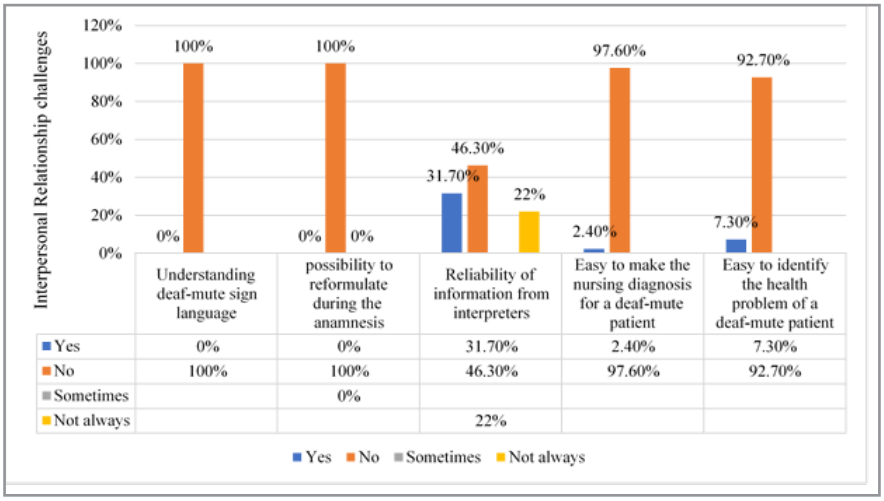

Figure 2: Distribution of participants challenges faced during caregiver-patients relationship

This study found that there was a huge challenge regarding the interpersonal relationship between deaf-mute patients and their healthcare providers. None among the participants could understand the deaf-mute sign language.

This could result in the problem that none could be able to reformulate what could be said by these patients. Most of our participants (46.30%) argue that there wasn't any reliability of information got from the interpreters, 22% said that it wasn't always, while 31.7% could see that the information was reliable. 97.60% confirmed that it not easier to make a nursing diagnostic for deaf-mute patients, leading to not understand even the health problem of their patient (92.70%) (Figure 2).

A bivariate descriptive analysis revealed that the overall participants' knowledge regarding nursing care of deaf-mutes' patients compared to their demographic characteristics was moderate 51.2% (Table 2).

In this study, the nurses' knowledge regarding nursing care of deaf-mutes' patients were significant related to the age group, length of time in the unity, education level and specific training on health management of deaf-mutes' patients (p-value <0.005) (Table 3).

Furthermore, this study revealed also that nurses who had specific training regarding the health management of deaf-mutes' patients (4.9%) have shown a good knowledge regarding nursing care of deaf-mutes' patients (100%). Similarly, all the participants (100%) with university level (BSN and MSN) had also a good knowledge regarding nursing care of deaf-mutes' patients (Table 2).

Discussion

During our study, results show that majority of participants were female (97.6%) and their age ranged from 26-63 years ($\bar{x}$ =40.2 years). This could be explained by the fact that nursing profession was in its origin was considered to be a profession of women [8].

Only one of the participants had master's degree in nursing (MSN), other had bachelor's degree in nursing (BSN) (19,5%) and a vocational secondary school in nursing with four years of training (56,1%) and (22.0%) for those with two years of nursing training (A3 diploma).

This could be explained by the fact that the first master program in nursing was launched in Burundi in 2012. Furthermore, it is offered by only one university locally, Hope Africa University. In Burundi, from 1945 to 1997, the nursing skills were taught only at vocational high school, and all nurses were either A3 or A2 levels. Among them, the A2 nurses were working in the healthcare facilities (HCF) with the largest scoop of practice. The A3 level was considered as assistant professionals in the nursing practices. There was no level with high competencies compared to A2 till 2009, when Licence (Bachelor) level was launched at Institut National de la Santé Publique (INSP).

The majority of our participants were nurses working in the hospital of Gitega (78%), while 22% were nurses who work in Mushasha Health center (Table 1), this could be explained by the capacity of these two healthcare institutions.

In our study, a bivariate descriptive analysis shows that the overall nurses' knowledge regarding the nursing care of deaf-mutes' patients compared to their demographic characteristics was moderate (51.2%). Still, their score for all variables used to assess the knowledge was less than 32%. Only few of them (4.90%) said that they had learned nursing care applied to deaf-mutes' patients, while 95.10% did not, 4.90% had some specific nursing training regarding the health management of deaf-mutes' patients.

This could illustrate the quality of nursing care provided by these nurses whose majority of them did not learn or have any specific nursing training regarding the health management of deaf-mutes' patients. In service training and curriculum revision for nursing training could be the best way to cater this problem by including nursing management of deaf-mute in their curriculum.

This concours the findings of Bergonia in New Zealand whose study investigate the basic knowledge and understanding about hearing impairment, hearing aids and strategies used to enhance communication among registered nurses where results show majority of the participants had insufficient knowledge on hearing loss, hearing aids as well as communication strategies which was confirmed by many participants to not had received previous training in these areas.

This study shows also that the participants' knowledge regarding nursing care of deaf-mutes' patients was significant related to the age group, length of time in the unity, education level and specific training on health management of deaf-mutes' patients (p-value<0.005). This could be explained with the fact that those nurses who had specific training and university level have a good knowledge, thus, in-service training and curriculum revision is highly recommended. Study conducted in Greek to examine the nurses' knowledge, attitudes and practices toward deaf people founds that the nurses' knowledge was related to relevant education program ($p = 0.003$) and nurses' contact with deaf people ($p < 0.001$) [9].

The majority of the participants (68.30%) said that their interpersonal relationship skill based on empathy was not satisfied with deaf-mute patients. This could be explained by the fact that no one among the participants could understand the deaf-mute sign language, resulting in failing to reformulate what could be said by these patients (Figure 4).

According to Norwich University, nurse empathy requires nurses to put themselves in their patients' shoes, demonstrate that connection, and act on that understanding to enhance care. This could be very difficult as these latter do not understand each other, nurses can't feel their emotions and points of views, which risk to make wrong personal and clinical judgment. According to Squier, empathy is communicated to patients by carefully chosen words, tone of voice, facial expressions and posture. Which could be impossible in this case of communication barrier.

A significant number of nurses (14.60%) said that they know the causes of deafness and dumbness, however, no one gave any examples of them. This could be explained by the fact that there is no course on nursing management of deaf-mute patients that is included in nursing curriculum of Burundi.

Therefore, service training and curriculum revision could be implemented in nursing programs for the purpose of providing patient-centered nursing care. This concurs the finding of Ljubicic, Zubcic and Sare, where they argue that there is insufficient nursing education in how to communicate with deaf people in this field as mostly is informative, which doesn't contribute to the development of competencies that are necessary for everyday nursing practice.

The majority of our participants (63.40%) did not know how to differentiate a deaf-mute patient who is sick from those who are not (Figure 1). This could be explained by the above reasons of lack of nursing training and skills on deaf mute patients. 80.5% of the participants said that they have already got deaf-mute patients in the workplace, however, almost all of them (97.6%) argued that it wasn't easy to communicate with deaf-mute patients. This is clear that in our country there are several deaf-mute patients who visit healthcare facilities in Burundi whilst the current study shows a poor knowledge regarding nursing care of these later due to lack of nursing program on this matter during their training.

Therefore, in continuing professional development program and curriculum revision should be undertaken by universities that host nursing program. The majority of the participants (41.5%) said that they feel confused while assessing deaf-mute patients, 31.7% said they was afraid of it, while 26.8% were cool of it. All of our participant confirmed that they would like learning sign language to better communicate with their deaf-mutes' patients (Table 4).

This participant's good attitude of willing to learn sign language is the best way to overcome this problem, therefore, through the ministry of health, healthcare institutions and universities should empower these nurses through in-service training, workshop or any continuing profession development program and curriculum revision. Study conducted in New Zealand to investigate the basic knowledge and understanding about hearing impairment, hearing aids and strategies among nurses, shows that many participants expressed the need for further professional development [10].

This study found that there was a huge challenge regarding the interpersonal relationship between deaf-mute patients and their healthcare providers. None among the participants could understand the deaf-mute sign language. This could result in the problem that none could be able to reformulate what could be said by these patients.

A qualitative survey study on how deaf patients perceive their care in general medicine shows that most patients reported negative feelings such as anxiety, stress, nervousness, worry or embarrassment related to difficulties in expressing themselves or benefiting from clear information while some misunderstanding situations were even a source of tension between the two interlocutors [11].

Most of our participants (46.30%) argue that there wasn't any reliability of information got from the interpreters. This contract the findings of Ljubicic, et al. where most of the participants supported the argument that the presence of an interpreter of sign language in a health institution was necessary as it could positively affect the process of message transfer. Our study findings show that 97.60% confirmed that it is not easier to make a nursing diagnostic for deaf-mute patients, leading to not understanding even the health problem of their patient (92.70%) (Figure 2).

This is quite reasonable as the participants couldn't communicate with these patients, as they did not understand the sign language and did not trust information from interpreters. This simply means that deaf-mute do not get quality healthcare services, due to communication barriers. Therefore, nurses should learn this sign language for the purpose of providing healthcare service of quality. According to Mauffrey et al. argued that deaf mute need to get healthcare information in their own language, therefore, health providers need to understand sign language.

Recommendation

The following are the recommendations that emanated from the study:

1. Nurses should do their best to improve their patient-caregiver's relationship by using any means of communication (writing or interpreter) or try to learn sign language for the purpose of improving these deaf-mute patients' care. This could improve the patients' outcome and their cost of care or hospital stay.
2. For healthcare facilities, continuing professional development programs should be implemented on nursing management of deaf-mute patients in clinical setting while learning of sign language should be maintain as the core tool for this problem.
3. Universities' institutions should revise their curriculum by including courses on nursing management of deaf-mute patients.
4. Further research should be conducted on healthcare practice of deaf-mute patient in Burundi.

Conclusion

This study had unveiled that the nurses' knowledge regarding deaf-mute patients' care were significantly poor, as they scored less than 32% for all variables used to assess their knowledge even though their overall knowledge score compared to their demographic characteristics was moderate (51.2%). This knowledge was significant related to the age group, length of time in the unity, education level and specific training on health management of deaf-mutes' patients (p-value<0.005) [12-14].

Their attitude was quite good as the study revealed that all the participants would like to learn sign language. Nevertheless, there was a huge challenge regarding the interpersonal relationship between deaf-mute patients' and their healthcare providers as none among the participants could understand the deaf-mute sign language as evidenced by inability to reformulate what could be said by patient. Continuing professional development and curriculum revision on deaf-mute healthcare was highly recommended.

Limitation

This study has some limitations. The study was done in two healthcare facilities of one province only in the country and on one group of healthcare providers (nurses) while the health man-

agement of deaf-mute patients would be a multidisciplinary approach. Additionally, this study used a self-report questionnaire, which relied on respondent's honesty when answering questionnaire items.

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