International peer reviewed open access journal

Journal of Medical Pharmaceutical and Allied Sciences

Journal homepage: www.jmpas.com CODEN: JMPACO

Research article

Early detection of disabling neonatal diseases in Morocco: a study exploring the response of health professionals

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Received - -01-2023**, Revised** - 10-03-2023, **Accepted** - 12-04-2023 **(DD-MM-YYYY)**

Refer This Article

Amal Chairi-Achari, Ahmed Oubaasri, Rachid Razine, Amina Barkat, Majdouline Obtel, 2023. Early detection of disabling neonatal diseases in Morocco: a study exploring the response of health professionals. Journal of medical pharmaceutical and allied sciences, V 12 - I 3, Pages - 5840 – 5849. Doi: 10.55522/jmpas.V12I3.4556.

ABSTRACT

Currently, early detection of neonatal pathologies is fundamental to permanently eliminate the resulting disabilities. It represents a governmental priority. The aim of this study is to describe the response of health professionals to the need for early detection of disabling neonatal pathologies, and the factors that influence this answer and propose areas for improvement. The study adopted a descriptive and exploratory type, multicentric and quantitative, carried out between October and December 2021 using a questionnaire shared with 206 health professionals in Rabat prefecture. In all, 92 health professionals participated in the study and completed the questionnaire, of which 87% were women and 13% were men. Most participants were aged 41 to 50, 88% of participants had more than 10 years of service, and 57% of participants were doctors. In addition, 26% of participants had a negative perception of people with disabilities, 75% participants did not systematically screen newborns for disabling diseases, more than 59% of the participants knew neither the means nor the structures for dealing with disabilities nor the rights of people with disabilities, and 88% participants had never received training in disability and its medical and social care. This study represents a real opportunity and an innovation that, by presenting an initial assessment of the current response of health professionals to the need for early detection of newborns with disabling pathologies, will enable those responsible at different levels to reflect on an existing and priority problem.

Keywords: Disability, People with disabilities, Disabling neonatal pathologies, Screening, Prevention, Health professionals.

INTRODUCTION

Disability is complex, it is not perceived as the result of a particular health problem, but as the interaction between functional limitations caused by this health problem and several factors, personality, and the environment proper to the handicapped person [1-3]. In 2014, the national prevalence rate of disability in Morocco was 6.8% [1]. In addition, the epidemiological transition in the countries of North Africa and the Middle East region and the decline in morbidity and mortality related to infectious diseases in children under 5 years of age, pushes health sector officials and researchers to focus on other problems that threaten the child population during the neonatal

period, which often result in severe disabling impairments of all types: motor, sensory and mental [4]. However, many of these health problems related to this period could be resolved by early neonatal screening. For this reason, the prevention of disability is increasingly a governmental priority. This study is a real opportunity and an innovation that, by presenting a first inventory of the current response of health professionals to the need for early detection of newborns with disabling deficiencies, will allow managers at different levels to conduct an informed reflection on an existing and priority issue.

Framework

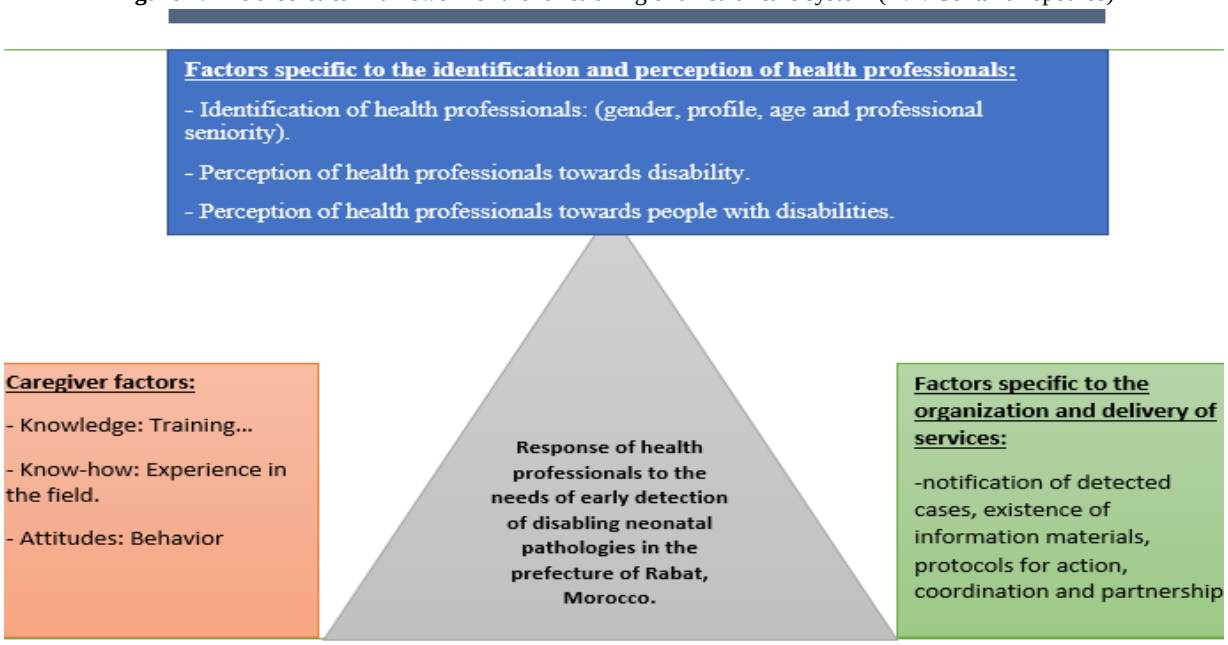
This study aims to describe the response of health professionals to the need for early detection of disabling neonatal pathologies in Rabat prefecture, Morocco. Based on the theoretical framework of the functioning of a healthcare system (A.P. Contandriopoulos) in Figure 1, we defined our conceptual framework for the study [6]. We thus grouped the components of this response, into three categories:

The first category includes the identification of health professionals as well as their perceptions toward disability and toward people in disability situations.

The second category focuses on the characteristics of healthcare professionals such as their knowledge, know-how, and attitudes;

The third category concerns about the organization, technical platform, availability of resources; protocols for the conduct, notification; information support, coordination, and partnership.

Figure 1: The theoretical framework of the functioning of a health care system (A.P. Contandriopoulos)



MATERIALS AND METHODS

In this section, in order to achieve the study goal, we have adopted a methodical approach to planning and implementing a rigorous research design based on (CRESWELL JW, 2014) [5].

Research Strategy and Design

The study adopted a descriptive and exploratory type, multicentric of quantitative nature, carried out between October and December 2021, aiming to describe the response of health professionals, under the medical delegation of health and social protection in the prefecture of Rabat in Morocco, to the need of early detection of disabling neonatal pathologies, as well as the factors influencing this response and to propose avenues for improvement. The selection of the study population was made by reasoned choice aiming at exhaustiveness.

Inclusion criteria

This study included the most concerned actors with the early detection of disabling neonatal pathologies, these were gynecologists, pediatricians, general practitioners, midwives, and general nurses working in health structures under the authority of the medical delegation of health and social protection in the prefecture of Rabat in Morocco, These centers include primary healthcare establishments (23 urban health centers); An urban health center with a delivery house (Al Kwass) and a support structure (a reference center for reproductive health) (Al Karma).

Exclusion criteria

Health professionals who did not meet the inclusion criteria or who did not want to participate in the study were excluded.

Data Collection Instrument

The data collection tool is a questionnaire distributed to 206 health professionals, as shown in Table 1. A self-administered questionnaire was used to preserve anonymity. Most of the questions consisted of closed-ended questions. It allowed us to get answers that

were directly related to research issues.

Table 1: Distribution of the questionnaire by establishment and by profile

Health establishments	Target profiles	Number existing
Urban health centers (23)	Gynecologists	01
	Pediatricians	10
	General practitioners	105
	midwives	33
	multipurpose nurses	43
Urban health center with a birthing house (Al Kwass)	midwives	07
	multipurpose nurses	01
Support structure (Reference center in reproductive health) (Al karma).	Gynecologists	03
	midwives	03 **Total N=206**

Before launching the actual study, field interviews in other sites were conducted to test the degree of understanding of the measurement instrument (terminology, meaning). Given the situation of the Covid-19 pandemic and for security reasons, a Google Forms, containing the structured questionnaire of the study was distributed by WhatsApp to all medical and paramedical health professionals practicing in the urban public health centers of the Rabat prefecture in Morocco and obeying the selection criteria according to the Table1. Two hundred and six questionnaires were distributed among the health professionals and 92 responded. The elements of the questionnaire concerned four themes:

Identification of the individual interviewed: (gender, profile, age, and work experience) as well as the understanding of the perceptions of health professionals towards disability and people with disabilities,

The knowledge, know-how and attitudes of the health professionals: (knowledge of the means and structures of disability care, rights of persons with disabilities, training of health professionals on disability and its medico-social care; experience in reacting to disability announcements by health professionals and parents.

Notification of detected cases; existence of information materials, protocols for action to be taken, coordination, and partnership.

Barriers preventing health professionals from systematically screening for disabling neonatal pathologies and their recommendations.

Data analysis

The data collected using a standardized questionnaire were subjected to descriptive analyses, including the calculation of proportions and confidence intervals [7]. At a confidence level of 95%. Proportions were used to describe the frequency of characteristics in the sample, while confidence intervals provided a precise estimate of the margin of error associated with these proportions. This descriptive analysis provided important information on the distribution of characteristics in the study population, thus allowing a better understanding of the overall study results.

In addition, comparisons were made by using parametric statistical tests to assess relationships between variables according to their data type. To identify factors that influence a dependent variable and examine relationships between variables, we performed a bivariate analysis using the chi-square test of independence. This test allowed us to study the relationship between two variables by comparing them in a contingency table. To evaluate this relationship, we applied Pearson's chi-square test with Yates' continuity correction [8]. Indeed, analyses were carried out to assess the link between the general perception of disability and the profile of healthcare professionals, between the perception of people with disabilities and the profile of healthcare professionals, as well as between systematic screening for disabling diseases and several factors such as knowledge of different types of disabilities, means of care, and care structures. Other links were also studied, including the link between systematic screening for disabling diseases and the training of healthcare personnel in systematic examination of newborns for early detection of disabling pathologies, as well as training in disability and its medical-social management. In addition, the dependence between systematic screening for disabling diseases and healthcare personnel's experiences, parent's reactions after the announcement of disability, and obstacles was also analyzed (Table 10). Then, we conducted a multivariate analysis, where we modeled the probability of "systematic screening of disabling neonatal pathologies" using logistic regression [9]. This statistical method allowed us to examine the relationship between the available explanatory variables and the probability of systematic screening of disabling neonatal pathologies. We used the stepwise variable selection method to identify the most significant variables for the final model. Through this analysis, we were able to gain a thorough understanding of the factors related to the systematic screening of disabling neonatal pathologies, which will enable us to improve the prevention of these pathologies. Initially, we identified a set of potentially relevant variables for our study on the probability of systematic screening of disabling neonatal pathologies. These variables include the general perception of disability, the perception of people with disabilities, knowledge of means of managing disabilities, knowledge of the rights of people with disabilities, training on a systematic examination of the newborn for early detection of pathologies causing disabilities, training in medical-social management of disabilities, the experience of healthcare personnel, and the reaction of parents after the announcement of disabilities. We identified these variables based on existing literature as well as our understanding of the context of our study. However, to avoid the risk of overfitting and construct a more concise model, we chose to use the "stepwise" method to select the

most important variables to include in our logistic regression model. By using this approach, we will be able to create a final model that includes only the most relevant explanatory variables, allowing us to further examine the relationship between these variables and the probability of systematic screening of disabling neonatal pathologies. The variables that were retained are the general perception of disability, knowledge of the rights of people with disabilities, and training in the field of disability and its medical-social management. This observation highlights the importance of these variables in our study on the probability of systematic screening of disabling neonatal pathologies. Perception toward disability can influence healthcare professionals' willingness to actively seek information on screening and management of disabling illnesses. Knowledge of the rights of people with disabilities can also play a key role in understanding the benefits of screening and willingness to participate in such initiatives. Lastly, training in the field of disability and its medical-social management can enhance healthcare professionals' ability to identify and refer patients to appropriate screening and disability management services. The selection of these variables by the stepwise method strengthened the relevance of these factors in our logistic regression model and allowed us to better understand their potential contribution to the probability of systematic screening of disabling neonatal pathologies in our study population. The logistic regression model was obtained using the maximum likelihood method to estimate the parameters under the Rstudio software. The results of the model are presented in the coefficient table (Table 11). The Wald test showed that the variables "Knowledge of the rights of persons with disabilities", "Training in the field of disability and its medical-social care", and "Perception towards disability" are all significant at a confidence level of 95%, as the Pr (>|z|) values are less than 0.05 (indicated by the *). This suggests that these variables have a statistically significant impact on the probability of systematic screening for disabling neonatal pathologies in our model. Moreover, the positive coefficient estimates indicate that higher values of these variables are associated with an increased probability of systematic screening for disabling neonatal pathologies. On the other hand, the coefficient of the intercept (constant) is negative, suggesting that the probability of systematic screening for disabling neonatal conditions decreases when all explanatory variables are set to their reference values (when healthcare personnel have no knowledge of the rights of people with disabilities, have no training in the field of disability and its medical-social care, and have a negative perception of disability in general). To facilitate understanding of the model results, we have also calculated the odds ratios (Table 11). Indeed, the odds ratio is an important measure in interpreting the results of logistic regression, as they allow us to quantify the association between explanatory variables (knowledge of the rights of people with disabilities, training in the field of disability and its medical-social care, and perception of disability in general) with the target variable (systematic screening for disabling neonatal conditions). Also, we used Excel to develop the tables.

Study limitation

The limitations of our study can be attributed to several factors: the available time, resources, and sample size were insufficient to extrapolate this study to other levels, notably university hospitals and the private sector. Specifically, small sample size can affect the statistical power of the analysis and reduce the ability to detect significant associations. It is also important to note that the absence of a significant relationship does not necessarily mean that there is no association between the studied variables. Associations may exist but may not be detected due to the low statistical power of the study. In such cases, it would be important to interpret the results with caution and consider the possibility of additional complementary analyses in future research. Furthermore, the study results may have been influenced by certain biases that we attempted to minimize, including social desirability bias, confirmation bias, self-indulgence bias, halo effect (or contamination), and stereotypes.

Ethical Considerations

The study was approved by the Ethics Committee for Biomedical Research, Faculty of Medicine and Pharmacy, Mohamed V University of Rabat, Morocco (ethical approval n° C64/20 issued on February 24, 2021). Before data collection, the participants were informed about the purpose of the study and its benefits and about the respect of anonymity and confidentiality during the processing and publication of the results. Their participation in the research was entirely voluntary.

RESULTS AND DISCUSSION

The results of our study have been presented according to the framework we have adopted, based on three factors: 1) Factors specific to the identification of health professionals (gender, profile, age, and professional experience) and how they perceive disability and persons with disabilities 2) knowledge, know-how and attitudes of health professionals 3) organization and delivery of services. Two hundred and six questionnaires were distributed to health professionals who met the inclusion criteria and 92 responses were received. This response rate is presented in Table 2.

Table 2: Response rate of medical and paramedical health professionals

Profile	Existing Population	Respondent Population	Response Rate
Medical Personnel	119	52	43.69%
Paramedical Personnel	87	40	45,97%
Total	206	92	44,66%

A) Factors specific to the identification and perception of health professionals

a) The identification of health professionals is presented in Table 3.

Table 3: Socio-demographic characteristics of health professionals who participated in the study

Characteristics	N = 92	(%)	CI at a 95% level
Age group (year)			
20-30	5	5,43	0,80% -10,07%
31-40	29	31,52	22,03% -41,02%
41-50	30	32,61	23,03% -42,19%
> 50	28	30,43	21,03% -39,84%
Gender			
Female	80	86,96	80,07% -93,84%
Male	12	13,04	6,16% -19,93%
Profile			
General doctor	40	43,48	33,35% -53,61%
Specialist doctor	12	13,04	6,16% -19,93%
Midwife	17	18,48	10,55% -26,41%
Nurse	23	25,00	16,15% -33,85%
Service			
Consultation	46	50,00	39,78% -60,22%
Maternity	3	3,26	0,00% -6,89%
Medicine	10	10,87	4,51% -17,23%
National Immunization Program	16	17,39	9,65% -25,14%
Maternal and Child Health and Family planning Program	17	18,48	10,55% -26,41%
Professional experience			
< 5	5	5,43	0,80% -10,07%
5-10	6	6,52	1,48% -11,57%
>10	81	88,04	81,41% -94,67%

A sample of 92 health professionals participated in the study and responded to the study questionnaire, including 80 (86.96%) women and 12 (13.04%) men. The majority of participants were in the 41-50 age group, 81 (88.04%) participants had more than 10 years of service and 52 (56.52%) participants were doctors, and 40 (43.48%) nurses.

b) Perceptions of health professionals towards disability and people with disabilities are shown in Table 4.

The study showed that 34 (37%) health professionals had a negative perception towards disability and 24 (26%) health professionals had a negative perception towards people with disabilities.

Table 4: Responses to health professionals' perceptions

Participants' responses	N=92	%	CI at a 95% level
Perceptions about disability in general			
Positive	58	63%	53,18% -72,91%
Negative	34	37%	27,09% -46,82%
Perceptions towards persons with disabilities			
Positive	68	74%	64,94% -82,89%
Negative	24	26%	17,11% -35,06%

B) Factors specific to the knowledge, skills, and attitudes of health professionals who participated in the study

In the present study, the profile of health professionals working for the early detection of disabling neonatal pathologies obeying the inclusion criteria was apprehended through three dimensions. These are knowledge, know-how, and attitudes.

Table 6: Responses related to the know-how of health professionals

Participants' responses	N=92	%	CI at a 95% level
Healthcare professionals who reported having the opportunity to follow up on newborns in their current practice			
Yes	45	49%	38,7% -59,13%
No	47	51%	40,87% -61,3%
The practice of systematic screening for disabling diseases in newborns (N= 45)			
Yes	23	51%	40,9% -61,33%
No	22	49%	38,67% -59,1%
Screening systematically for all newborns (N=23)			
Yes	18	78%	69,83% -86,69%
No	5	22%	13,31% -30,17%
Basic training in the systematic examination of the newborn to detect disabling pathologies.			
Yes	35	38%	28,12% -47,96%
No	57	62%	52,04% -71,88%
Training in the area of disability and its medico-social care.			
Yes	11	12%	5,33% -18,59%
No	81	88%	81,41% -94,67%

a) Knowledge is illustrated in Table 5.

The study revealed that 15 (16%) health professionals were unaware of the various types of disability and for 77 (84%) health professionals who said they knew about them, 46% only knew about less than 4 types. Also, 55 (60%) health professionals were not aware of the means of dealing with disabilities; 62 (67%) health professionals were not aware of the structures for dealing with disability and 65 (71%) health professionals were not aware of the rights of persons with disabilities.

b) Know-how is presented in Table 6.

The study revealed that of the 45 (49%) health professionals who had the opportunity to follow up on newborns in their routine practice, 69 (75%) did not routinely screen newborns for disabling diseases, and of the 23 (25%) health professionals who routinely screened 22% of them did not do so for all newborns. This is despite 35 (38%) of healthcare professionals reporting having

received basic training in the systematic screening of newborns for disabling pathologies. However, 81 (88%) of health professionals were never trained in the area of disability and its medical and social management.

Table 5: Responses related to health professionals' knowledge

Participants' responses	N=92	%	CI at a 95% level
Knowledge of different types of disabilities			
Yes	77	84%	76,15% -91,24%
No	15	16%	8,76% -23,85%
Knowledge of number of disability type (N=77)			
Less than 4 types	35	46%	35,28% -55,63%
4 types	11	14%	7,14% -21,44%
More than 4 types	31	40%	30,24% -50,28%
Knowledge of the means of care for the disability			
Yes	37	40%	30,2% -50,24%
No	55	60%	49,76% -69,8%
Knowledge of the structures of care of the disability			
Yes	30	33%	23,03% -42,19%
No	62	67%	57,81% -76,97%
Knowledge of persons with disabilities' rights.			
Yes	27	29%	20,04% -38,65%
No	65	71%	61,35% -79,96%

c) Attitude is shown in Table 7.

The study indicated that for 42 (46%) of the health professionals who stated that they had participated in the announcement of a disability situation, 93% had experienced this stage with difficulty, of which 51% reported that parents had shown refusal, 10% had become aggressive and 39% had accepted.

Table 7: Responses related to health professionals' attitudes

Participants' responses	N=92	%	CI at a 95% level
Health professionals who reported having participated in the announcement of a disability situation			
Yes	42	46%	35,47% -55,83%
No	50	54%	44,17% -64,53%
The experience of health professionals when a disability situation is announced (N=42)			
Hardly	39	93%	87,59% -98,12%
Easily	3	7%	1,88% -12,41%
Parents' reaction to the announcement of the disability by health professionals (N=42)			
Refuse	18	43%	32,74% -52,97%
acceptance	20	48%	37,41% -57,82%
Aggressivity	4	9%	3,53% -15,52%

C) ***Factors specific to the organization and delivery of services are indicated in Table 8.***

The study indicated that only 6 (27%) health professionals reported the cases they had detected, of which 22.7 (99%) had reported them in a routine register. Also, 86 (93%) health professionals reported the absence of a protocol for early detection of disabling neonatal pathologies in the health structures where they work. As well, 75 (81%) health professionals reported a lack of coordination with health managers for early detection of disabling neonatal pathologies and 77 (84%) health professionals had never developed a partnership on disability. In addition, most health professionals reported that training, organization, technical platform, motivation, and insufficient personnel were the obstacles they faced that prevented them from systematically screening for disabling neonatal pathologies according to Table 9.

Table 8: Responses related to the organization and management of services

Participants' responses	N=92	%	CI at a 95% level
Notification of cases screened by health professionals (N=45)			
Yes	23	51%	40,9% -61,33%
No	22	49%	38,67% -59,1%
Notification Support (N=23)			
Detected cases are reported in a routine register	21	91%	85,55% -97,06%
The presence of a protocol to detect disabling neonatal pathologies early.			
Yes	2	2%	0% -5,15%
No	90	98%	94,85% -100,00%
Coordination with health managers in the area of early detection of disabling neonatal conditions			
Yes	16	17%	9,65% -25,14%
No	76	83%	74,86% -90,35%
Development of a partnership on disability issues			
Yes	9	10	3,71% -15,85%
No	83	90%	84,15% -96,29%

Table 9: Barriers faced by health professionals that prevented them from systematically screening for disabling neonatal conditions

Participants' responses	N=92	%	CI at a 95% level
The organization only	6	7%	1,48% -11,57%
The technical platform only	6	7%	1,48% -11,57%
Training only	17	18%	10,55% -26,41%
The organization and technical platform	1	1%	0,00% -3,21%
The organization and Training	5	5%	0,80% -10,07%
The technical platform and training	16	17%	9,65% -25,14%
The organization, technical platform and training	15	16%	8,76% -23,85%
Others	26	28%	19,06% -37,46%

Table 10: Synthesis of dependency tests performed

Test	X-squared	df	p-value
Dependency between Perception towards disability and Profile	1.8283	3	0.6088
Dependency between Perception towards PWDs and Profile	2.7504	3	0.4317
Dependency between Systematic screening of disabilities and Perception towards disability	14.195	1	0.0001648
Dependency between Systematic screening of disabilities and Knowledge of different types of disability	9.2945	3	0.02562
Dependency between Systematic screening of disabilities and Knowledge of means of caring for disability	3.7721	1	0.05211
Dependency between Systematic screening of disabilities and Knowledge of structures for disability care	9.3491	1	0.002231

Dependency between Systematic screening of disabilities and Knowledge of PWDs' rights	10.206	1	0.0014
Dependency between Systematic screening of disabilities and Training on systematic screening of newborns	0.19724	1	0.657
Dependency between Systematic screening of disabilities and Training on disability and its medical-social care	7.2407	1	0.007127
Dependency between Systematic screening of disabilities and Experience of healthcare personnel	6.0064	2	0.04963
Dependency between Systematic screening of disabilities and Parents' reaction after disability diagnosis	13.184	3	0.004255
Dependency between Systematic screening of disabilities and Obstacles	4.5497	6	0.6027

Table 11: Results of logistic regression model and presentation of Odds Ratios

Coefficients	Estimate Std.	Error	Odds_Ratio	z value	Pr(>|z|)
(Intercept)	-2.2357	0.7451	0.1069	-3.000	0.00270 **
Knowledge of the rights of people with disabilities `Yes	3.0911	1.3378	22.0010	2.311	0.02086 *
Disability and medico-social care training `Yes	3.0199	1.3741	20.4883	2.198	0.02797 *
Perception towards disability` Positive	2.8315	0.9936	16.9703	2.850	0.00438 **

Signif. codes : 0 '*' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1**

The study revealed that 34 (37%) health professionals had a negative perception of disability and 24 (26%) health professionals had a negative perception of persons with disabilities. In addition, regarding the variable "Perception towards disability in general" and the category "Positive", the Odds Ratio of 16.9703 indicates that participants with a positive perception of disability are about 17 times more likely to perform systematic screening for disabling neonatal pathologies than those with a negative perception while holding other variables constant. Positive perceptions on the part of health professionals would facilitate the integration of people with disabilities into society. On the other hand, negative perceptions on the part of health professionals would prevent their integration into society by stigmatizing them and pushing them to marginalize themselves [5, 10]. The knowledge of these perceptions is important to contribute to the changes to be made in the curricula of the faculties of medicine and higher institutes of nursing and technical health professions in Morocco in general and in Rabat in particular, in order to inform, educate and sensitize the next generations of medical and paramedical health professionals with the aim of avoiding the stigmatization of disabled people [11-17]. In addition, providing quality care to these individuals requires a committed, competent, informed, and well-trained health professional. In this study, the profile of health professionals working to detect disabling neonatal diseases early obeying the inclusion criteria, was apprehended through three dimensions. These are knowledge, know-how, and attitudes.

The study revealed that 15 (16%) health professionals were not aware of the various types of disabilities and for 77 (84%) health professionals who said they were aware of them, 46% knew only less than 4 types. Also, 55 (60%) health professionals were not informed about the means of disability care; 62 (67%) health professionals did not know the structures of disability care and 65 (71%) health professionals were unaware of the rights of the persons with disabilities. The results also show a significant dependency between the systematic screening of disabilities and knowledge of different types of disability (p=0.02562), knowledge of means of caring for disabilities (p=0.05211), knowledge of structures for disability care (p=0.002231), and knowledge of the rights of persons with disabilities (p=0.0014). These findings highlight the need for interventions to raise awareness among healthcare professionals about the care of individuals with disabilities, particularly regarding the various types of disabilities, the means and structures of care, and the rights of persons with disabilities. Furthermore, if we consider the variable "Knowledge of the rights of persons with disabilities" and the category "Yes", the Odds Ratio of 22.0010 indicates that participants with knowledge of the rights of persons with disabilities are approximately 22 times more likely to perform systematic screening for disabling neonatal pathologies than those without this knowledge, taking into account other constant variables. In 2014, the national prevalence rate of disability was estimated at 6.8% [1]. Disability is defined as the consequence of an interaction between personal factors (disability) and environmental factors (behavioral and environmental barriers) that society has the responsibility to remove [1-3]. Under the International Convention on the Rights of People with Disabilities, "People with disabilities have long-lasting physical, mental, intellectual or sensory incapacities whose interaction with various barriers may hinder their full and effective participation in society on an equal basis with others". Motor deficiency is the most present among disabled people with a percentage of 50.2%, mental deficiency 25.1%, and visual deficiency 23.8% are also considered among the important deficiencies encountered among disabled people [1]. Also, 10.7% of disabilities are due to complications of pregnancy or delivery. They are probably the source of the most profound disabilities, beginning at an early age (cerebral palsy, poly disability, etc.) and 5.90% of disabilities are due to hereditary or congenital malformations [1]. In addition, it is

important to emphasize the existence of a strong national political will for the protection of human rights in general and the rights of people with disabilities in particular. Indeed, In 2009, Morocco ratified the United Nations Convention on the Rights of Persons with Disabilities and its optional protocol; the new constitution of 2011 in its preamble and its articles 19, 31, and 34, having integrated the rights of persons with disabilities. The United Nations Convention on the Rights of the Child was ratified by Morocco in 1989; The framework law n° 34/09 and the implementation decree n°2.14. 562 relating to the organization of healthcare provision, the health map and the regional plans for the health care offer, having retained four networks of the public health care offer in fixed mode, including that of the medico-social establishments; the law 65-00 relating to the code of basic medical coverage, giving children in a situation of disability access to lifelong medical insurance, the governmental plan 2016-2021, in particular axis 4 relating to human development and social solidarity, which represents an action relating to the promotion of the rights of persons with disabilities; the framework law 97/13, in particular articles 4 to 9 concerning the promotion and protection of the rights of disabled people ; law n°10-03 relating to access; the sectoral health strategy 2012-2016, in particular strategic axis n°3 relating to the national plan for populations with specific needs, including persons with disabilities; the national action plan 2015-2021 for the prevention, promotion and care of disabilities.

According to the World Health Organisation (WHO), an estimated 303,000 newborns die each year before the age of 28 days due to congenital anomalies. The most frequent serious congenital disorders are congenital heart and neural tube defects and Down's syndrome [18]. Congenital malformations are an important but unknown cause of mortality and disability in children under the age of five. They can be life-threatening, result in long-term physical, intellectual, visual, or auditory disabilities and have a detrimental impact on individuals, their families, health systems, and society [19]. Our study revealed that of the 45 (49%) health professionals who had the opportunity to follow up on newborns in their routine practice, 69 (75%) did not routinely screen newborns for disabling diseases, and of the 23 (25%) health professionals who did routinely screen newborns, 22% did not do so for all newborns. That's despite the fact that 35 (38%) of the health professionals reported that they had received basic training in the systematic screening of newborns for disabling diseases. However, 81 (88%) health professionals had never received training in disability and its medical and social care. The results showed there was a significant association between the systematic screening of disabilities and training on disability and its medical-social care (p=0.007127). This highlights the importance of training health professionals in disability and medical-social care to improve their practices in systematic screening for disabling diseases in newborns. Furthermore, if we take into account the variable "Training in the field of disability and its medical-social management" and the category "Yes", the Odds Ratio of 20.4883 reveals that participants who have received training in this field are approximately 20 times more likely to perform systematic screening for disabling neonatal pathologies than those who have not received such training while holding constant other variables. In addition, most health professionals reported that training, organization, technical platform, motivation, and insufficient personnel were obstacles that prevented them from performing this screening. Given this result, the health professionals participating in this study will have great difficulty in detecting congenital anomalies [20]; identifying affected children; in taking all necessary measures for the early care of children with disabilities so that they can fully enjoy all Human rights & freedom on an equal level with other children [19]; and in ensuring the physical, mental and social wellbeing about the child and her family by offering them complete support based on an inclusive approach [21]. Also, only 6 (27%) health professionals reported the cases they had detected, of which 22.7 (99%) had reported them in a routine registry, 86 (93%) health professionals reported the absence of a protocol for the early detection of disabling diseases in healthcare facilities which they work. However, given the weakness of the reporting and registration system for congenital malformations, it will be difficult for the health professional to follow up on detected cases, to have the correct information, to make decisions regarding the combat of congenital malformations, and to provide care and support to affected persons [18, 21]. In addition, 75 (81%) health professionals reported a lack of coordination with health services for early detection of disabling diseases and 77 (84%) health professionals had never developed a partnership on disability. However, disability is a transversal theme, involving all actors and affecting all sectors [1]. Moreover, our country is in a phase of epidemiological transition, the appearance of chronic diseases as well as disabling diseases, requires the development of care and services that are beneficial to persons with disabilities. In addition, the need for coordination is inherent to any human activity (Mintzberg, 1982). To this end, a better coordination of the different partners is necessary. In fact, in order to confront the various compartmentalization's of the health and aid system, public authorities, professionals, associations and families are implicated in a continuous process of innovation, partnership and cooperation at the heart of the dynamics of the entire health, social and medico-social world [22]. As well, the study's findings indicate that health professionals have huge gaps in their knowledge of patient psychology and interpersonal communication. This justifies their

overly technical practices. Indeed, the study showed that for 42 (46%) of the health professionals who declared having participated in the announcement of a disability situation, 93% had lived this moment with difficulty. There was a significant dependency found between systematic screening of disabilities and healthcare personnel experience (p=0.04963), as well as between systematic screening of disabilities and parents' reaction after disability diagnosis (p=0.004255). These results highlight the importance of training healthcare professionals in communication and management of disability situations to improve the quality of patient care. This proves that during the announcement, the caregivers do not play their roles as health professionals with the parents properly. However, several studies have pointed out that in the case of a malformation or a disability, health professionals must show empathy while respecting time, the parents' attachment to their child and the other's competence [22, 23]. Daniel Widlocher defines empathy as "the ability to understand the mental state of another by transiently identifying with them [24].The way others greet, talk to, touch, and look at the child plays a role in the parent's relationship with their child [23]. The aim is to satisfy the parents [25-28], and to be able to build a new family project around this different child [23]. In practice, "There is no good way to break bad news" [29, 30] and "Not all truth is good to be told by anyone, at any time" [6]. To this end, health professionals should be oriented and trained on the respect of the essential guidelines to follow in order not to aggravate the parents' suffering and to overcome this "disaster" [24].

CONCLUSION

This study addressed the response of health professionals to the early detection of disabling neonatal diseases in the medical delegation of Rabat prefecture, Morocco. It provided a global vision of the response and the factors that influence it. Despite a strong political will in the disability field, the healthcare system still exhibits weaknesses in the knowledge, know-how, and attitudes of health professionals towards early detection of neonatal disabling diseases. Furthermore, healthcare professionals recommended improving the organization, adapting the technical platform, and motivating and strengthening the staff, both quantitatively and qualitatively.

Funding

There was no funding for this study.

Competing interests

The authors declare that they have no competing interests.

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