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Original Article

Vaccination coverage of visually impaired adults and sociodemographic characteristics

Cobertura vacinal de adultos deficientes visuais e as características sociodemográficas

Cobertura vacunal de adultos deficientes visuales y características sociodemográficas

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This study is aimed at assessing the vaccination coverage of visually impaired adults and their socio-demographic characteristics. Quantitative, exploratory and descriptive research, involving 41 visually impaired adults in an association of the blind in Fortaleza, CE, between February and May/2011. For data collection semi-structured questionnaire was used with these variables: name, gender, schooling and vaccination status. The socio-demographic characteristics revealed that the visually impaired were mainly male (63.41%); between 20 and 49 years of age (95.92%) and secondary education level (79.92%). Intervals of confidence according to most of the people with such impairment were vaccinated with the double adult and triple viral. It was concluded that they did not receive a Vaccination Card suitable for their reading, so they are partially immunized and they are susceptible to immune preventable diseases. Health and mainly nursing professionals need to take intervention measures, establishing plans of actions focused on the main prevention measures.
Descriptors: Immunization Coverage; Nursing; Disabled Persons.

Avaliaram-se a cobertura vacinal e as características sociodemográficas de adultos deficientes visuais. Pesquisa exploratória-descritiva quantitativa, com 41 adultos de uma associação de cegos em Fortaleza-CE, Brasil, de fevereiro a maio de 2011. Realizou-se entrevista com instrumento semiestruturado contendo nome, sexo, escolaridade e situação vacinal. Os resultados mostraram um grupo predominantemente do sexo masculino (63,41%); com idade entre 20 a 49 anos (95,92%) e escolaridade de ensino médio (79,92%). Recordam ter recebido vacina dupla tipo adulto (82,93%), tríplice viral (51,22%), febre amarela (21,95%), influenza sazonal (29,27%) e, não receberam a pneumocócica e hepatite B. Intervalos de confiança mostram que, segundo recordatório, a maioria de pessoas com deficiência encontra-se vacinada com a dupla adulto e tríplice viral. Concluiu-se que não recebem Caderneta de Vacinação adequada para sua leitura, estão parcialmente imunizadas e suscetíveis a doenças imunopreviníveis. Tornam-se necessárias medidas de intervenção da enfermagem, estabelecendo planos de ações quanto às medidas de prevenção.
Descritores: Cobertura Vacinal; Enfermagem; Pessoas com Deficiência.

Se evaluaran la cobertura vacunal y las características sociodemográficas de adultos deficientes visuales. Investigación exploratoria, descriptiva y cuantitativa, con 41 adultos de asociación de ciegos de Fortaleza-CE, Brasil, de febrero a mayo/2011. Se realizó entrevista con instrumento semiestructurado con nombre, sexo, escolaridad y situación vacunal. Los resultados señalaron grupo predominante del sexo masculino (63,41%); edad entre 20-49 años (95,92%) y escolaridad secundaria (79,92%). Recordaron tener recibido vacuna doble tipo adulto (82,93%), tríplice viral (51,22%), fiebre amarilla (21,95%), influenza según estaciones (29,27%) e, no recibieron pneumocócica y hepatitis B. Intervalos de confianza señalaron que la mayoría de las personas con deficiencia, según recuerdo, se encontraba vacunada con doble adulto y tríplice viral. Las personas con deficiencia visual no reciben cartilla de vacunación adecuada para lectura, están parcialmente inmunizadas y susceptibles a enfermedades inmunoprevinibles. Medidas de intervención de enfermería son necesarias para planes de acciones a las principales medidas de prevención.
Descriptores: Cobertura de Vacunación; Enfermería; Personas con Discapacidad.

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Introduction

Immunization represents one of the main measures regarding the promotion of health and prevention of transmissible diseases. The health system must guarantee equity in the access, with able professionals committed to the health of the patients. Specifically regarding the immunization of adults, the vaccination schedule indicates the immunobiological vaccine against Hepatitis B; Double Adults vaccine (dT), against diphtheria and tetanus; Yellow Fever; Triple Viral (MMR), against measles, mumps and rubella; Seasonal Influenza and Pneumococcal 23-valent. It is recommended that from twenty years of age on, men, pregnant and non-pregnant women, who did not have the confirmation of previous vaccination must start or complete their vaccinations schedules, according to their characteristics and specific need[1].

Immunization is presented as a low cost procedure and high effectiveness which guarantees the protection of the health of those vaccinated citizens[2]. However, not all the all the population groups received this protection resulting from special situations, among them the visually impaired people (VIP). It is necessary to highlight the difficult that this clientele faces when searching assistance at a basic unit of health to make some kind of procedure, many times a result of the lack of physical accessibility[3] and the lack of ability of communication of the health professionals[4].

According to the census, 45.6 million people, or 23.9% of the Brazilian population have some kind of disability, whether motor, visual, auditory or mental/intellectual. Of this total 6.5 million (65.8%) presented visual impairment[5]. In this scope, it is up to the nurses to have an important function when developing a process of qualified assistance, in which the actions are turned to education in health, orienting and rendering assistance safely. So, the care with the health of the VIP must be promoted by the health professionals in an accessible manner to the needs of this clientele so that the same adopt healthy and primary behavior in health[6].

Facing the absence of literature of studies which approach vaccination coverage (VC) in VIPs, the inexistence of monitoring in the official data basis of the health system which contemplates this population and the difficulties of access to the services of health, the present is justified once it was aimed at evaluating the VC of visually impaired adults and correlate with their socio-demographic characteristics.

Method

It is an exploratory-descriptive quantitative research, made in an association of the blind in Fortaleza, Ceará, Brazil, a civil institution of philanthropic character, with approximately 130 associates. Such association houses courses of grade and high school equivalent programs and promotes social events. Nurses and students linked to the project People with Impairment: Investigation of the Nursing Care, regularly make researches and interventions of health with such group.

The data collection was made from February from May 2011. The population composed of visually impaired adults with a sample obeying the criteria of inclusion of a minimum of 18 years of age, once in this period the vaccination booster must occur to comply with the basic calendar of adult vaccination[1]. There was publicizing of the objectives and procedures of data collection among the members of the association, and the interested subjects went to the interview room. Therefore, the sampling occurred to their convenience, because they were more convenient and available for the study[7], that is, the choice was made at random, the blind people or with low vision, who attended the association and were available for the study.

After registration of the name, data of birth, sex, schooling and age of the subject, the interviewed started using a register of the vaccines received. This phase was conducted by a semi structured instrument and they were asked if they had the Vaccination Card and, if they remember having taken

the vaccination against Hepatitis B, double adult type, Yellow Fever, Triple Viral (MMR), Seasonal Influenza and Pneumococcal 23-valent. When the answer was positive, the data, the dose and booster were included when applicable. During the interview, the vaccines were orally mentioned by one of the researchers obeying the above mentioned sequence.

Data were coded and inserted in a Excel spreadsheet, treated in *Statistical Package for the Social Sciences* (SSPS), presented in tables and, the interval of confidence (95%) were analyzed as well as the statistic relation (p value). The *odds ratio* (OR) was used in table 3, to describe the proportion of vaccinated subjects, according to the recommendation of the Health Department (HD).

This research was approved by the Committee of Ethics of the Universidade Federal do Ceará, under protocol number 259/10. One of the researchers read the Informed Consent Form for the subject, in the presence of a witness and both signed it.

Results

41 subjects participated in this research, the socio-demographic variables are presented in table 1.

Table 1 - Socio-demographic characteristics of the people with visual impairment

Variables	n (%)	IC 95%
Gender		
Male	26 (63.4)	46.94 – 77.88
Female	15 (36.6)	22.12 – 53.06
Age range (years)		
20 – 49	36 (87.8)	73.80 – 95.92
≥ 50	5 (12.2)	4.08 – 26.20
Schooling		
Grade school	11 (26.8)	14.22 – 42.94
High school	27 (65.9)	49.41 – 79.92
University	3 (7.3)	1.54 – 19.92

Table 2 presents data related to the remembering of the vaccination status of the interviews regarding the vaccination indicated by the HD for this age range.

Table 2 - Vaccination taken by the people with visual impairment, as indicated in the vaccination schedules of adults and elderly

Vaccines	n (%)	IC 95%
Double adult type		
Yes	34 (82.9)	67.94 – 92.85
No	7 (17.1)	7.15 – 32.06
Yellow Fever		
Yes	9 (22.0)	10.56 – 37.61
No	32 (78.1)	62.39 – 89.44
Triple Viral		
Yes	21 (51.2)	35.13 – 67.12
No	20 (48.8)	32.88 – 64.87
Seasonal Influenza		
Yes	12 (29.3)	16.13 – 45.54
No	29 (70.7)	54.46 – 83.87

The subjects of the study do not remember having received vaccination Pneumococcal and Hepatitis B.

Table 3 relates the remembering of the VIP as to the protection of the vaccination and profile of the interviews concerning gender, age range and schooling.

Table 3 - Distribution of the adults with visual impairment, according to the range of protection of the vaccination

Vaccination protection	Gender		Age range (years)		Schooling		
	F	M	20-49	≥ 50	Basic	High	Higher
Double adult type							
Protected	5	10	14	1	1	12	2
Non protected	10	16	22	4	10	15	1
OR (IC 95%)*	0.80 (0.16 – 3.59)		2.49 (0.21 – 134.07)			--	
p value	1.000		0.635			0.044	
Yellow Fever							
Protected	2	5	6	1	2	3	2
Non protected	13	21	30	4	9	24	1
OR (IC 95%)	0.65 (0.05 – 4.75)		0.80 (0.06 – 45.88)			--	
p value	1.000		1.000			0.069	
Triple Viral							
Protected	11	10	20	1	4	15	2
Non protected	4	16	16	4	7	12	1
OR (IC 95%)	4.23 (0.92 – 3.56)		4.82 (0.42 – 257.89)			--	
P value	0.051		0.183			0.526	
Seasonal Influenza							
Protected	3	2	4	1	0	4	1
Non protected	12	24	32	4	11	23	2
OR (IC 95%)	2,91 (0,29 – 39,35)		0,51 (0,03 – 30,71)			--	
P value	0,336		0,496			0,136	

*OR- Odds Ratio; IC – Interval of confidence of 95%

Discussion

The socio-demographic characteristics make evident that the VIPs in this research were male (63.41%); between 20 to 49 years of age (95.92%) and attended high school (79.92%). The interval of confidence showed that there was overlapping of the proportion by gender, thus concluding that it is not possible to state that there is a great quantitative of man.

On the other hand, both the categories of the variable age range as well as schooling showed no overlapping intervals of confidence, pointing differences among the proportions. So, it is possible to state with 95% of reliability, that in the population of the research, people between 20 and 49 years of age and having attended grade school predominated. This was an expected result, once being above 18 years was established as a criteria of inclusion and the venue of the study should offer grade and high school equivalent programs for the target public of this research. According to the official data, in Brazil, schooling of people from 7 to 14 of age, is practically universalized (94.5%), but for the bearers with at least one impairment, the percentage is smaller (88.6%) and fell to 74.9% in the case of more severe impairment[8].

It is worth highlighting, when introducing the analysis of the data concerning vaccination, that the remembering method was used, when the subjects of the study remember the information to be collected for not having them in a document, in this case the Vaccination Card. This was a generalized circumstance of the sample group, once the vaccination card was written in ink, so it is illegible for the blind or a person with low vision, frequently causing the loss of the same. The inexistence of the vaccination card printed in Braille or the non availability in any other means, like for example, voice register, denotes a fault in the health service. Some subjects of the study had written information in personal records, but they could not be considered documents. At the same time in which this is characterized as a limitation of the study; it indicates a gap in the assistance to these people who do not receive the adequate register to their needs.

According to the data of Table 2, it was observed that the subjects of the study remember having taken vaccination dT (82.93%) and Triple Viral (51.22%), they did not take the vaccination against Yellow Fever (78.05%) and Seasonal Influenza (70.73%) and none of the participants took the Pneumococcal and for Hepatitis B. The intervals of confidence showed that, in the sample, most people with impairment were vaccinated with dT and they were not vaccinated against the Yellow Fever and nor with Seasonal Influenza. Regarding the Triple Viral, the intervals of confidence did not show significant statistic differences among the proportion of impaired people vaccinated and not vaccinated.

The evaluation of vaccination schedule of adolescents of a county school presented predominance of the male sex (50.75%) and the interval of confidence show that there is significant differences between the sexes. As to the schooling, the students belong to the third (16.41%) and fourth grade (83.59%) [9]. A socio-demographic survey made in Campinas, according to the distribution by gender, age and vaccination, reported a predominance of women and adults between 30 to 59 years of age and, a greater proportion of adults with eight or more or years of schooling[10]. A similarity was observed, once in this study, the number of people with more than eight years of study prevailed.

A study related vaccination coverage of 21 nursing students at a private university in Piauí, Brazil; they presented similar results regarding the age variable, 18 (85.71%) of the participants were between 19 and 30 years old, an expected result facing the university students. Still, 20 (95.23%) were female, reinforcing the characteristic of a profession predominantly female. In the group, only seven (33.33%) had a complete schedule of vaccination[11].

The VIPs of this study were vaccinated against dT (82.93%) with a greater predominance of the

male sex (63.41%). A similar result was observed in another study, where 84.8% of the total of the cases evaluated were male. On the other hand, for the female population, there is the strategy of vaccination directed to the prevention of neonatal tetanus during the period of gestation. It was also observed, that the greatest part of the subjects attacked by tetanus were between 35 to 49 years of age (35.2%) and 24.4% of the patients had finished high school at the most[12]. Therefore, comparing the studies, there is a similarity concerning the variables schooling and age range.

In the present research, the recall of vaccination shows that 78.05% of the subjects did not received the vaccination against the Yellow Fever. A study made in São Paulo reported that the vaccination against these diseases is not mandatory in the basic schedule of all the capitals. In the northeast this vaccination is a routine, in the states of Maranhão, some counties in Piauí and Bahia, which explains the inexistence or low coverage in some capitals as Recife, João Pessoa, Natal, Aracaju and Fortaleza[13]. Therefore, the low coverage of the VIPs under this study is justified due to the fact that the state of Ceará is not part of the area of emergency for Yellow Fever.

A research made in São Paulo regarding the vaccination against the influenza virus observed that there was no significant statistic difference among the group of women who received or not the vaccination[14]. The county of Cambé, in 2008 and 2009, showed that the variable sex did not present any statistic association with the vaccination against the flu, a consistent result with most of the studies. The lack of difference of vaccination coverage between man and woman is understood, once it is a vaccination to elderly of both sexes and widely publicized by the media[15].

Regarding the remembering of the VIPs, in which the recommended schedule was evaluated by the HD, it was observed that not all the subjects were protected by the vaccination recommended by the health system. A research made in the county of Terezinha, which reported a factor associated to the VC in adolescents, showed a similar result. Despite the existence of a national schedule of vaccination and the fact that the vaccinations are offered to the population, its use depends, above all, on the personal decision to be vaccinated[16]. The autonomy of decision to receive vaccination is recognized, but this must be supported in the knowledge of its benefits, which reinforces the need of education in health accessible to the population group under study.

In Brazil, in 2008, there was a campaign with the MMR vaccination for the population from 20 to 39 years of age from both sexes. 67.8 million doses of vaccinations were registered, reaching a national coverage of 96.7%. Discriminated by groups, this coverage was higher in the female sex with VC of 99.5%, in the age range from 12 to 19 years of age[17]. The public campaigns present an important impact in the high VC for the Triple Viral vaccine.

Vaccination against rubella in women in reproductive age (10 to 49 years of age) revealed that the average of the population was 29.4 years (IC 95%: 28.4-30.5). The highest statically significant prevalence of vaccination was observed in women from 20 to 39 years of age[10]. The vaccination is the most effective way to prevent the occurrence of the disease in the population, it can be indicated in the routine of assistance in the basic health net, vaccinating blocking and/or in campaigns of vaccination[18].

The incidence of tetanus can be significantly decreased with an effective of vaccination of campaign and appropriate treatment of the patients. Another factor that can contribute to the reduction of cases of tetanus is the consciousness of the population on the measures of prevention against this disease such as care with accidental wounds[19-20]. Under this perspective, in the population group under study, besides the vaccination coverage being deficient, the person with visual impairment has difficulties to evaluate and take care of the wounds, depending on the others for that. In this circumstance, the orientation is that they should search assistance in the health system.

In Table 3, which relates the VC to the profile of the interviewees, it was observed that, concerning the dT and the Yellow Fever there was a higher coverage among the male subjects. Regarding the Triple Viral vaccination, there was a higher coverage among the women. As to the Seasonal Influenza the coverage was the same for men and women. The profile of schooling and age range was the same, related to the vaccination that are part of the schedule of the adult and the elderly, were are included the VIPs from 20 to 49 years of age and having finished high school. Only the relation between schooling and immunization by dT vaccination presented a statistic relation (p = 0.044). Subjects with high school presented a higher proportion of immunization, especially when compared to subjects that only presented grade school.

There is an indicative of similar association in the relation between schooling and immunization for Yellow Fever (p = 0.069) as well as for the variable gender (p=0.069). The literature mentions that due to the peculiarities of the savage cycle of transmission of the virus, the savage Yellow Fever attacks non vaccinated subjects, more frequently of the male sex and from 20 to 50 years of age, due to the higher vulnerability, related to a higher risk of exposition due to his professional activity in areas with recommendation for vaccination[21].

The intervals of confidence of this study show that the most impaired people are not vaccinated against Seasonal Influenza. According to literature, a possible explanation for this episode is related to the fact that this vaccination is not offered to the whole population, once there is no worldwide availability for the product[22].

The vaccination against the flu is offered annually and free. Among the populations of higher risk to develop the disease are the subjects of 60 years of age or more, Indian population (from six months old on), pregnant, health workers and the population deprived of freedom. Besides that, the flu is associated to the increase of risk of mortality in vulnerable population[23].

Conclusion

The sampling by convenience is recognized as a limitation of the study, as well as the absence of studies on this theme with visually impaired people, which restrains discussions and conclusions.

The analysis of the results of recall shows that the VIPs of the research are partially immunized and consequently they are susceptible to acquire immune preventive diseases. For that, necessary measures of intervention by the health professionals become necessary, especially by the nursing, establishing plans of actions regarding the main measures of prevention, which must be mediated by effective communication and the availability of the educational material accessible.

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Collaboration

Pagliuca LMF and Melo KM contributed for the conception, analysis, interpretation of the data, writing of the article and final approval of the version to be published. Cezario KG contributed for the writing of the article. Silva EMNR contributed for the collection, analysis and interpretation of the data. Lopes MVO contributed with the statistical analysis of the data and writing of the article.

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