Original Article

STATUS OF IMMUNIZATION AND NUTRITION AMONG HEALTH CARE PROVIDERS' (NURSES) CHILDREN UNDER TWO YEARS OF AGE WORKING IN LIAQUAT UNIVERSITY OF MEDICAL & HEALTH SCIENCES, JAMSHORO, HYDERABAD SINDH

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ABSTRACT:

INTRODUCTION: Immunization is the most important and cost effective strategy of World Health Organization and United Nations International Children Emergency Fund with the guidance and assisting to prevent target diseases which is often neglected that requires attention. Effectiveness of vaccination is possible through the nutrition as well.
MATERIAL AND METHODS:
STUDY DESIGN: Cross-sectional study
STUDY SITE: LUMHS Jamshoro/ Hyderabad
DURATION: Oct 2016 to Mar: 2017
POPULATION & SAMPLES: Children under 24 months of health care providers (nurses)
SAMPLING TECHNIQUE: Universal sampling technique
SAMPLE SIZE: 100 calculated via Prevalence Rate
TOOL: MUAC were computed with reference to the WHO-2007 on Anthro version 3.2.2. Cut off value of all indices between -2 and 2 SD was considered normal. Data was collected by using pre-structured questionnaire partially adopted from previous study.
STATISTICAL ANALYSIS: was performed on SPSS version 20.0.
RESULTS: The results of study reveal overall coverage of 96 %. All the antigens have good coverage except measles II, which is around 66%. With this vaccination coverage, mostly the children have had normal nutritional status except a negligible percentage of six percent.
CONCLUSION: It is concluded that the nurses in LUMHS have their children fully immunized against the VPDs but schedule of measles II vaccine is disturbed. The immunization and nutrition of their children are also comparatively better than the available figures about general population in Sindh. Education, knowledge and accessibility of a parent play a vital role in getting his/her child fully vaccinated.
KEYWORDS: Vaccination, health status, healthcare providers' children, low income country, expanded program on immunization.

INTRODUCTION:

World Health Organization established in 1946, in which health defined as "a state of complete physical, mental and social well being not merely the absence of disease and infirmity[1]. Expanded program on immunization (EPI) was initially welcomed by World Health Organization

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(WHO) in 1974 to verify that babies are discretionary helpful in living and sparing preventive antibodies or not. Program spares children having age under 5 years old throughout world and for the most part for less developed nations.[2] EPI was begun in Pakistan on 1978 with attempt of controlling major seven targeted diseases like; polio, mumps, tuberculosis, pertusis (whooping cough), diphtheria, hepatitis, and measles with the direction of WHO. At present point national program serving to immunize all children having age less than two years against antibody preventable diseases in which Hepatitis B was incorporate in 2002 and haemophilus flu shot b (Hib) in 2008. Whole program is running and under direction of WHO and financing by member countries of UNICEF[3]. This is cyclic as well working for the betterment of children to build up their health also help in nourishment and body immunity[4]. All inclusive, every year 130 million children are conceived, 91 million of which are in the developing nations. Around 10 million children less than 5 years of age die each year and more than 27 million children on earth suffer from malnutrition[5]. Media and awareness play a vital role to enhance the child's health. Mothers training and children's health decidedly connection to each other Even with awesome assorted qualities in financial status and living conditions, behavioral pathways[6].

General objective

To determine the health status of nurses' children under two years of age working in Liaquat University Medical Health Sciences Jamshoro Hyderabad.

Specific objectives

- To evaluate the nutritional status of nurses' children under two years of age working in Liaquat University Medical Health Sciences Jamshoro Hyderabad.
- To determine the immunization status of nurses' children under two years of age working in Liaquat University Medical Health Sciences Jamshoro Hyderabad

Methodology:

Cross-sectional study was designed among children of Nurses working in Liaquat University of medical health sciences Jamshoro/ Hyderabad, duration was 06 months October 2016- March 2017. Primary source of data (directed from participant's children).

Sample size calculated on prevalence rate 54% confident interval 95% and Q was 1-p. margin of error is assumed to be 10% on the basis of this my sample size (95) additional 10% is added for refusal the total sample size is 105. All married nurses having children less than 2 years of age and working in 3 shifts (morning, evening, night) were included in the study and exclusion criteria included unmarried nurses and those having children older than 2 years. Anthropometric measurements were done on WHO Anthro plus version 3.2.2, statistical analysis SPSS 20.0 Version was used and descriptive frequencies, percentages, and tables were generated

Data collection tool

Pre structured guided and validated Questionnaire/ Performa was developed with socio demographic profile of participants and physical/clinical and anthropometric measurement and dietary hobbits and regarding their children.

- Stadio-meter
- Digital weighing scale
- MUAC measuring strip

Weight (WT) measured on weight electronic scale/device and adjust bar scale with non-separable weights (a container sort for babies < 2 years and a leveled stage scale for youngsters > 2 years), that is exact to 0.01kg (< 2 years) and 0.1kg (> 2 years). The zero weight on the flat light emission scale ought to likewise be checked intermittently and after the scale has been moved. Spring sort scales are not prescribed on the grounds that its accuracy which can't be guaranteed after rehashed utilize. 2.1 Infants: 0-2 years before estimations are taken zero of the scale. The newborn child must be set amidst the scale, with no garments or nappy. On the off chance that a nappy is worn, the wt must be revised by subtracting the wt of the nappy (i.e. the perfect nappy is weighed independently). Prior positioning was done; as sit in upright or lie down. The child must not clutch anything for support. A normal of 3 readings are taken and estimations are perused to the closest 0.01kg.

Length (Lt): Length of the children was measured through the height scale. No shoes, socks or headgear ought to be worn. Head, shoulders and backside touches the backboard/level board. A normal of three readings was taken and estimations are perused to the closest 0.1cm

Rules to follow results:

Weight for age (WAZ)

- **Severe under nutrition:**(WAZ) score less than -3 standard deviation
- **Moderate under nutrition:**(WAZ) score less than -2 standard deviation
- **Normal status:**(WAZ) score more than -2 standard deviation

Height for age (HAZ)

- **Severe stunting :**(HAZ) score less than -3 standard deviation
- **Moderate stunting:** (HAZ) score less than -2 standard deviation
- **Normal status :**(WAZ) score more than -2 standard deviation

Mid Upper Arm Circumference (MUAC) for age

- **Severe thinness:** score less than -3 standard deviation
- **Moderate thinness**: score less than -2 standard deviation
- **Normal status:** score more than -2 standard deviation
- **Obesity:** score more than 2 standard deviation

Table 1: Socio-demographic variables of the respondents, N=100

Variables	Categories	Frequency (N=100)
Age	· 26-35 · 36-45 · 46-55	41 (41%) 52 (52%) 7 (7%)
Sex	· Male · Female	22 (22%) 78 (78%)
Education	· G Nursing · B.ScN · M.ScN · Others	55 (55%) 40 (40%) 2 (2%) 3 (3%)
Work experience (in years)	· 1-5 · 6-10 · 11-15 · 16-20	26 (26%) 41 (41%) 31 (31%) 2 (2%)
Place of posting	· Civil hospital · Jamshoro · Eye hospital · Nursing institute	43(43%) 10(10%) 15(15%) 32(32%)

RESULTS:

Socio demographic variables: Response rate of nurses were 95% (100) out of 105.

Table 1, shows the detailed description of the socio-demographic variables of the respondents. Out of total 22% were males and 78% were the females. Most of respondents were having ages between 26-45 years of age with a mean age of 37 (±SD5.131). Most of the participants were having either basic general nursing diploma or graduated with Bsc.N Almost all of participants had enough experience in their profession with a range of six to fifteen years in most of the cases. Most among those were posted at the Liaquat University Hospital Jamshoro 43%.

Selected characteristics of child age one to 24 months:

Table 2, has gives an outline of the characteristics of the children of age one to 24 months studied. Most of the children were 17 to

Table 2: Selected characteristics of child 1-24 months of age, N=100

Variable	Attribute	Frequency (%)
Age of child (in months)	· 1-8 months · 9-16 months · 17-24 months	5 (5%) 52 (52%) 43 (43%)
Sex	Male Female	54 (54%) 46 (46%)
Vaccination (BCG) Mark	Yes No	96(96%) 4(4%)

24 months of age, with more males than females and almost all of them were having a BCG scar as an evidence of vaccinated against tuberculosis at birth.

Immunization coverage:

Table 3, depicts that except for measles II, which was 66%, rest of the antigens has excellent coverage among the children of healthcare providers (nurses) at the LUMHS, Jamshoro.

Table No 3. Immunization coverage of children 1-24 months of the respondents

Antigen	Response	frequency (N=100)
BCG	Yes No	100 (100%) 0 (0%)
OPV 0 at the time of birth	Yes No	100 (100%) 0 (0%)
OPV I	Yes No	100 (100%) 0 (0%)
OPV II	Yes No	98(98%) 2 (2%)
OPV III	Yes No	98(98%) 2 (2%)
Pentavalent I	Yes No	100(100%) 0(0%)
Pentavalent II	Yes No	98(98%) 2 (2%)
Pentavalent III	Yes No	98(98%) 2 (2%)
Measles I	Yes No	95(95%) 5(5%)
Measles II	Yes No	66(66%) 34(34%)

Over all Status of child.

Table 4, reveals that most (96%) of children were fully immunized (FIC= Fully Immunized Child means a child received BCG, one dose of Measles and three doses each of DPT and OPV (excluding OPV0 dose). Just above the half of

Table 4: Overall status of the child 1-24 months for immunization and breast feeding

Status	Frequency (N=100)
Fully immunized	· Yes 96 (96%) · No 4 (4%)
Child on Breast feeding	· Yes 54 (54%) · NO 46 (46%)
When start complementary food	· At 3 to 6 months 94(94%) · Above 6 (6%)

the participants (54%) were on breast feeding with most (94%) starting weaning around three to six months of age.

Nutritional status: anthropometric measures

Table 5, discloses the details of anthropometric measure for the children of the respondents. I used WHO's nutrition survey version 3.2.2(2007) to capture those measures. The mean weight of the child was 9.6 Kg (±1.174) with the minimum weight of 5 kg and maximum weight of 11 Kg. Mean height was 72.32cm(±4.299) with minimum height of 56 cm, and maximum height of 80cm. MUAC mean was 12.2(±.462) with minimum of 11, and maximum of 13cm. It is important to mention that most of the children were between the ages 17-24 months.

Table 5: Anthropometric measures of children age 1-24 months

Variable	Minimum	Maximum	Mean	Std. deviation
Weight (Kg)	5	11	9.62	1.174
Height (cm)	56	80	72.32	4.299
MUAC (cm)	11	13	12.22	.462

Weight-for-length/height

Table 6, shows that for 0-5 months of age, z-scores lied between greater than ±1SD (normal), and ±2SD showing having high weight for length or height. Most (12-24 months) were within the normal range for weight for height. Therefore, none of the children under study were found having acutely malnourished.

Table 6. Anthropometric measures (z-scores) for weight for length/height of the children 1-24 months

Age	% > +1SD	% > +2SD	% > +3SD	Mean	SD
0-5	33.3	33.3	0	0.51	1.79
6-11	0	0	0	-0.07	0.69
12-24	40	2.2	0	0.94	0.47
1-24	37	3	0	0.86	0.6

Length/height-for-age

Table 7, clearly outlines that 6% of the children

Table 7: Anthropometric measures (z-scores) for length/height for age of the children 1-24 months

Age (months)	N	< -3SD	< -2SD	Mean	SD
0-5	3	00	33.3	-1.23	1
6-11	7	0	57.1	-1.98	0.62
12-23	90	6.7	85.6	-2.44	0.43
1-24	100	6	82	-2.37	0.51

are falling within <-3SD, and 82%<-2SD indicative of chronic mal nutrition. Among those chronically malnourished, majority belonged to the age of 12-23 of age.

Table 8. Anthropometric measures (z-scores) for MUAC of the children 1-24 months

Age (months)	<-2SD	Mean	SD
1-23	73.7	-2.27	0.47
0-5	50	-2.25	0.82
6-11	85.7	-2.25	0.27
12-23	73.3	-2.27	0.48

Mid-upper arm circumference (MUAC)-for-age

Table 8, shows that 73 % child fell <-2SD for z-scores, which is within normal range for WHO nutrition scale.

DISCUSSION:

Result reveals that appropriate and adequate vaccination coverage of children. Overall coverage was found 96%. All the antigens have good coverage except measles 2, which is around 66%. With this vaccination coverage, mostly the children have had normal nutritional status except a negligible percentage of six percent. Most of the mother however started weaning earlier than what WHO recommends for exclusive breast feeding.

Immunization coverage of the general population in Pakistan is inadequate[7]. Most of the children are immunized[8]. There is adequate coverage against all antigens (including measles 1), measles 2 remains points of concern (66%). It means that 44% of children do not get the booster after the first dose of measles vaccine. Although the children of nurses in study enjoy far better coverage, due to the knowledge and accessibility to health services of their mothers, than the general population, yet they do not have enough protection against measles outbreaks. Nonetheless, being a child to a healthcare provider (nurse) increases the chance of getting fully immunized in Sindh, Pakistan. As many countries, especially developing countries, have targeted to eliminate measles in few next years. Measles elimination goals have been adopted in a range of countries, sub-regions, and regions since the WHO declared; an elimination goal by 2015 or 2020. All countries attempt to achieve and maintain high coverage through routine immunization programs.[9]. The nutritional status of children is normal among them a few showed that chronic malnutrition in their statistics. But in Sindh; according to statistics, 44% of children are stunted. This is third uppermost percentage of stunted children in the world and resources that more than 9.6 million Pakistani youngsters have experienced chronic nutrition scarcity in uterus and/ or during early childhood[9,10].

Vaccination in developed countries

The developed nations as of now have their encounters of powerful vaccination scope. Focused on medicinal services issues coming about because of various components, for example, monetary; lack of common sense or poor execution of health approaches; issue of accessibility, openness, moderateness, and

supportability of health offices; and powerless referral framework had tormented e health framework[11].

Infant; 1 year inoculated against measles

In various nations, introduction of measles vaccine were done under 12 months of age.[12] Additionally, grasping developments in telemedicine and e-health administrations will give minimal effort access to human services offices and compelling moment SMS alarms messages and health tips on appropriate health styles to patients independent of their areas from the social insurance suppliers will help enhance medicinal services conveyance[13]. Measles end objectives have been embraced in a scope of nations, sub-districts, and areas since the WHO proclaimed an end objective by 2015 or 2020.[14] The number is required to tumble to 127 million by 2025; however that is insufficient to meet the objective of the World Health Organization (WHO) to decrease youth hindering to 100 million cases by then. It has turned out to be certain that wholesome intercessions are just piece of the answer for hindered development.[15] Respondents who were higher in academic level were found their children better in nutrition status and health proficiency.[16] Delayed among children were marginally found higher in male youngsters (48%) than in female children (42%). Hindering aberrations among urban and country populace of Pakistan is 37% and 46% separately [17]

To annihilate outrageous need, decrease in mortality rate, enhancement in maternal health and battle of HIV/AIDS, intestinal sickness and different maladies etc are a portion of the Millennium Development Goals which might be undermined by ailing health.[18] WHO drove landscape analysis which has given an account of a few markers of nourishment administration[19].

CONCLUSION:

Nurses working in LUMHS have found their children fully immunized against the VPDs, though the administration of measles II vaccination is not up to the mark. The immunization and nutrition of their children are also better than present scenario of the general population in Sindh province. Meanwhile, knowledge and accessibility of parents play vital role in getting his/her child fully vaccinated.

RECOMMENDATIONS:

- Rotavirus is the leading cause of severe diarrhea in infants and young children. Globally, it causes more than half a million deaths each year in children under 5 so will include in EPI Program.
- Performance Management and Demand Creation using SMS reminders to patients and staffs.
- SMS alerts messages and health tips on proper health styles to patients irrespective of their locations from the health care providers will help improve health care delivery

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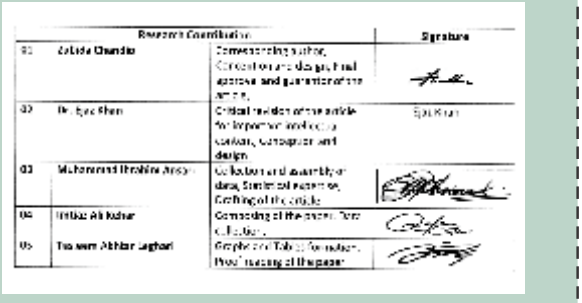

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