

## Caregivers' Satisfaction Regarding Childhood Vaccination Services in Mansoura Primary Health Care Facilities, Egypt



(1) Asmaa A. Abdallah, (2) Amel I. Ahmed, (3) Samia M. Abd El mouty

(1) Assist. Lecturer of Community Health Nursing, Mansoura University, Egypt.

(2) Professor of Community Health Nursing, Mansoura University, Egypt.

(3) Assist Professor of Community Health Nursing, Mansoura University, Egypt.

### 1.ABSTRACT

**Background** Caregivers' satisfaction with vaccination services is an indicator of provider competency. However, evaluating this indicator is very relevant as it is likely affecting the clinical and revisit adherence, service quality, and the global vaccination coverage.

**Aim:** This study aimed at assessing caregivers' satisfaction regarding childhood vaccination services in primary health care facilities. **Design:** A cross-sectional study was conducted from the first of January to the end of December 2019 at Mansoura district primary health care facilities. Total sample size of 384 parents/caregivers chosen by using convenient sampling technique. Structured interview satisfaction assessment questionnaire was used for exploring children's parents/caregivers' satisfaction about the actually provided vaccination services. **Results:** The study demonstrated that more than half of caregivers (57.3%) were diploma with mean age of 28.6±8.1 years old. Regarding the study scope, 93.2% of caregivers reported lower satisfaction score with childhood vaccination services at primary healthcare facilities, compared to 6.8% who were highly satisfied with the provide services. **Conclusion and recommendation:** The study concluded that most of the caregivers were unsatisfied with the provided vaccination services. The level of satisfaction was very low regarding to the primary healthcare facilities structure, vaccinators nurses' performance, the provided health education, and child health screening. Consequently, more efforts need to be exudated towards improving the PHC delivery system, and provision of vaccination health education.

**Keywords:** Caregivers' satisfaction, Primary health care (PHC) facilities, vaccination services.

### 2.Introduction:

Vaccination is a cornerstone of public health and one of the most critical investments of child health available. It has contributed significantly to the decline of child morbidity and mortality in recent decades (The United Nations Children's Fund (UNICEF), 2019; Quah, 2017). As declared by World Health Organization (WHO) 2020, global coverage of childhood vaccination against many important infectious diseases has eradicated smallpox, lowered the global incidence of polio by 99% since 1988. Moreover, childhood vaccination efforts achieved dramatic reductions in diseases such as measles, diphtheria, whooping cough (pertussis), tetanus and hepatitis B.

The Egyptian ministry of health is considering childhood vaccination coverage in the top priorities of healthcare services (Ministry of health and population, Egypt, 2015). Vaccination coverage in Egypt and expansion of primary health care service, implementation of an integrated health extension package, and training of front-line vaccinators are the major interventions implemented (Gebreyesus, et al., 2020).

To continuously improve the quality of a provided healthcare service, beneficiaries'

satisfaction is one of the most frequently used outcome measures for quality of care. It needs to be addressed to raise the quality and efficiency of health care service provision within the health care delivery system. It provides relevant feedback on how the service is functioning according to clients' perception and what changes might be required to meet clients' expectation (Timane, Oche, Umar, Constance, & Raji, 2017). Unfortunately, this measure has been relatively unexplored in relation to childhood vaccination (Panth, & Kafle, 2018; Haile Tadesse, 2017).

Basically, evaluating the caregivers' satisfaction towards the vaccination service is clinically relevant as satisfied caregivers are more likely to comply with attendance of childhood vaccination service. It will also help to pass on encouraging messages to others, take an active role in their care, continue using medical care services, and recommend center's services to others (Acharya, Sharma, Dulal, & Aryal, 2018). However, caregivers who are dissatisfied with a service delivery may share undesirable experiences with others and less likely to continue the use of vaccination service and it is a important

determinant of child under-vaccination in developing countries (GebreEyesus, et al., 2020).

Hence, information on factors associated with the level of caregivers' satisfaction related to childhood vaccination is urgently requested. Therefore, the current study aimed to assess caregivers' satisfaction regarding childhood vaccination services in Mansoura primary health care facilities, Egypt.

#### **Aim of the study:**

The study aimed to investigate caregivers' satisfaction regarding childhood vaccination services in Mansoura primary health care facilities

#### **Study question:**

What is the caregivers' satisfaction level regarding childhood vaccination services in primary health care facilities?

#### **3.Method:**

##### **3.1. Study design:**

The study design is cross-sectional. The study was carried out in the time frame from the first of January to the end of December 2019, at 28 primary healthcare facilities affiliated to Mansoura district, El Dakahlia Governorate.

##### **3.2Subjects and sampling:**

Sampled caregivers whose child age is less than two years, who resides in the selected facilities; receiving vaccination services within the catchment area of Mansoura district; and willing to participate in this study were included in the study population. Convenience sampling technique was utilized to recruit caregivers of children who come usually to these health care facilities for vaccinating their children. The sample size for this study was calculated by using a single population proportion formula by considering the proportion of parenteral satisfaction 68% (GebreEyesus, et al., 2020), and at 95% confidence interval  $Z_{\alpha/2} = 1.96$  with 5% margin of error. By taking a 10% nonresponse rate, the total sample size becomes 368. *Additionally*, 16 respondents wanted to participate after completing data collection, they were added to final study sample to be 384 caregivers.

##### **3.3.Data collection:**

Data collection was accomplished by using structured interview children's caregivers' satisfaction assessment questionnaire that was developed by the researcher and translated into simple Arabic to collect the necessary data for this study. This tool included caregivers' Socio-demographic variables such as age, gender, education, occupation, and residence. Children's caregivers' satisfaction about the actually rendered vaccination services questions were organized into 7 dimensions; all of these dimensions are constituted from 52 questions. 23 questions requiring a response on 5-point Likert- rating scale with 5 continua (always, sometimes, often, never, I don't know). 21 questions requiring a response on 5-point Likert- rating scale with 5 continua (strongly agree, agree, I don't know, disagree, strongly agree), 6 questions require response on 2-point scale satisfied & not satisfied and 2 multiple choice questions. 2 questions require response on two different 4-point scale (very far, somewhat far away, somewhat close and very close) and (very suitable, suitable to some extent, somewhat unsuitable and very unsuitable) respectively. This tool was designed based on the highlight of relevant literatures (Samadi, Abdollahi - Boghrabadi, & Mcconkey, 2018; Sarkar et al., 2015; Hussen, 2016).

**Scoring system:** The categorization of total caregivers' satisfaction level was determined according to Sarkar et al. (2015). The scoring system assigned (4) marks to always, (3) marks to sometimes, (2) mark to often, (1) mark to never and (0) to I don't know, (4) marks was given to strongly agree, (3) marks was given to agree, (2) marks was given to I don't know, (1) mark was given to disagree and (0) mark was given to strongly disagree and concerning the other choices (1) mark awarded to yes and satisfied choice & (3) mark awarded to very suitable, very close, always, (2) mark was given to very frequently, somewhat close or suitable, (1) mark awarded to sometimes, further or suitable to some extent and (0) mark to rarely, not suitable and very far which made up a total score of (188) mark which classified into categories as the following Table (1, 2):

**Table (1): The scoring system of satisfaction categories scores with its included number of items:-**

| <i>The satisfaction categories</i>                      | <i>No of items</i> | <i>Scores/points</i> |
|---|--------------------|----------------------|
| 1. Pre vaccination caregivers' health education         | 9                  | 30                   |
| 2. Confirmation of previous child's vaccination history | 5                  | 17                   |
| 3. Pre - vaccination child's health screening           | 6                  | 21                   |
| 4. Management of any immediate side effects             | 4                  | 13                   |
| 5. Post-vaccination caregivers' health education        | 5                  | 17                   |
| 6. Primary health care facilities                       | 17                 | 66                   |
| 7. Primary health services providers                    | 6                  | 24                   |
| <i>The total satisfaction score</i>                     | 52                 | 188                  |

**Table (2): The scoring of total satisfaction score classified as the following:**

| <i>Categories</i> | <i>Threshold</i>          | <i>Scores/points</i> |
|-------------------|---------------------------|----------------------|
| High Satisfied    | ≥ 75% of the total scores | ≥141.00 points       |
| Low satisfied     | < 75% of the total scores | <141.00 points       |

**3.4. Tool validity and reliability:**

Validity of the developed tool was examined for content and face validity: The content validity of the developed tools was tested by ten experts of community health nursing. Additionally, **Pilot study** was hired for testing face validity of the designed tool on 10% of children's caregivers (38 caregivers) who were selected conveniently from different Mansoura primary health care facilities and were not included into the studied sample. The pilot study aimed to evaluate the clarity and applicability of the research tools, in addition to, estimation the approximate time required for data

collection, distinguishing the potential barriers or problems that may hinder data collection and overcome measures. Accordingly, the necessary modifications of both experts and piloted caregivers were done, some questions were added, and others were. Tool reliability was tested by assessing the internal consistency by using Cronbach's  $\alpha$ . that was emerged as very good (0.84).

**3.5. Data collection framework:**

After finishing the final tool design and testing its accuracy, the tool was collected according to specified framework as mentioned in

**Table (3): The description of data collection framework:**

| <i>Logistics of data collection</i>             | <i>Description</i>   |
|---|--|
| <i>Duration</i>                                 | 14 weeks (3.5 months)  |
| <i>Duration of data collection session/day</i>  | 4 hours/day (9:00 am -1:00 pm)                                       |
| <i>Assigned time for collecting one tool</i>    | 15 minutes were enough for collecting the tool from each participant |
| <i>Numbers of data collection sessions/days</i> | 27 days were assigned for data collection phase                      |
| <i>Week Day</i>                                 | Depend on each facility predetermined vaccination days.              |
| <i>Number of respondents</i>                    | 15:17 respondents per day  |

**3.6. Ethical considerations:**

Before conducting the study, ethical approval was obtained from the research ethics committee of the faculty of Nursing, Mansoura University. An official letter from the dean of Faculty of Nursing- Mansoura University was submitted to MOHP directorate to obtain approval for conducting the study at the selected primary healthcare facilities. In addition, verbal informed consents were also secured from children's caregivers to participate in the study after

illustrating the purpose of it. The collected data is considered confidential and kept in a closed cabinet for three years and reached only by the research team only

**3.7. Statistical analysis:**

The collected data were coded and entered to the statistical package of social sciences (SPSS) version 24. After complete entry, data were explored for detecting any error, then, it was analyzed by the same program for presenting frequency tables with percentages. Qualitative data

was presented as number and percent. Besides, Quantitative data were described as arithmetic mean ± standard deviation. The Chi-Square, Monte Carlo and fisher's exact test were used to check if there significant difference in the variables proportions and to test dependency between variables. All tests were performed at a level of significance (P-value) equal or less than 0.05 was considered to be statistically significant.

**4.Results:**

Scio-demographic characteristics of the respondents. A total of 384 caregivers were involved in the study giving a response rate of 100%. Over 85% of the respondents were female. The highest proportion of respondents (38%) were under the age group of 20-30 years, with a mean age of 28.66 (SD: 8.12) years. The respondents (57.3%) were diploma, and resided in rural areas (51.8%). Regarding respondents' occupational status, 67.2% of them were a housewife as portrayed in **Table (4)**.

**Table (5):** reflects children's caregivers' viewpoints toward distance to PHC centers and the suitability of working hours. The respondents (47.9%) reported somewhat close distance between their houses and PHC centers. while 51.6% of them rated PHC center' working hours as unsuitable.

The percentages of respondents' satisfaction categories with the rendered childhood vaccination services are presented in **Table (6)**. Most of them demonstrated lower satisfaction (<75%) toward PHC facilities structure (89.6%), pre-vaccination health education (92.7%), Confirmation of previous history (90.6%), Pre - vaccination screening (92.7%), Performance of vaccination nurses (92.2%), Management of any side effects (91.9%), and Post-vaccination health education (91.4%). Mean satisfaction score was the highest for confirmation of history level of (8.32) of total (17) points and was the lowest for management of side effects (3.7) of total (13) points. Generally, the respondents exhibited lower level of satisfaction among 93.2% of the respondents with mean of 76.98 (SD: 22.37) of total (188) points.

**Table (7):** portrays insignificant association between the caregivers' satisfaction level and their Scio-demographic characteristics as age (P=0.116); gender (P =0.773); residence (P=0.847); Occupation (P=0.115). However, statistically significant association of educational level was detected at (P=0.028). This conclusion indicates there is no effect of Scio-demographic variables on caregivers' satisfaction except for educational level.

Table (4): Distribution of the studied caregivers according to their Scio-demographic characteristics.

| Demographic and occupational characteristics | N=(384)      | %    |
|--|--------------|------|
| <b>Gender</b>                                |              |      |
| Female                                       | 330          | 85.9 |
| Male   | 54           | 14.1 |
| <b>Age</b>                                   |              |      |
| ≤20  | 86           | 22.4 |
| -30  | 146          | 38   |
| -40  | 104          | 27.1 |
| -50 and More                                 | 48           | 12.5 |
| <b>B ± SD</b>                                | 28.66 ± 8.12 |      |
| <b>Educational level</b>                     |              |      |
| Illiterate                                   | 56           | 14.6 |
| Read and write                               | 34           | 8.9  |
| Diploma                                      | 220          | 57.3 |
| University                                   | 74           | 19.3 |
| <b>Residence</b>                             |              |      |
| Rural  | 199          | 51.8 |
| Urban  | 185          | 48.2 |
| <b>Occupation</b>                            |              |      |
| Not working (housewife)                      | 258          | 67.2 |
| Worker                                       | 96           | 25   |

**Caregivers' Satisfaction Regarding Childhood .....**

Table (5): Distribution of the studied caregivers' views of distance to PHC center and suitability of working hours.

| Items  | N=(384) | %    |
|--|---------|------|
| <b>The distance between home and PHC center</b>            |         |      |
| Very far   | 4       | 1    |
| Somewhat far away  | 22      | 5.7  |
| Somewhat close   | 184     | 47.9 |
| Very close   | 174     | 45.3 |
| <b>The working hours at the Primary Health Care Center</b> |         |      |
| Very suitable  | 8       | 2.1  |
| Suitable to some extent                                    | 32      | 8.3  |
| Somewhat unsuitable  | 198     | 51.6 |
| Very unsuitable  | 146     | 38   |

Table (6): Distribution of caregivers according to their satisfaction level regarding the rendered vaccination services, PHC facilities, and performance of vaccinator nurses.

| Satisfaction categories   | Score level             |      |                          |      |
|---|-------------------------|------|--------------------------|------|
|   | Low satisfactory (<75%) |      | High Satisfactory (≥75%) |      |
|   | N= (384)                | %    | N= (384)                 | %    |
| <b>1. PHC facilities structure</b> (score = 66)                     | 344                     | 89.6 | 40                       | 10.4 |
| B ± SD  | 31.95±8.10              |      |                          |      |
| <b>2. Pre-vaccination activities</b>                                |                         |      |                          |      |
| health education (score =30)  | 356                     | 92.7 | 28                       | 7.3  |
| B ± SD  | 11.31±4.33              |      |                          |      |
| Confirmation of previous child's vaccination history (score =17)    | 348                     | 90.6 | 36                       | 9.4  |
| B ± SD  | 8.32±2.68               |      |                          |      |
| Child's health screening (score =21)                                | 356                     | 92.7 | 28                       | 7.3  |
| B ± SD  | 8.16±3.49               |      |                          |      |
| <b>3. Performance of vaccination nurses</b> (score = 24)            | 354                     | 92.2 | 30                       | 7.8  |
| B ± SD  | 8.58±4.43               |      |                          |      |
| <b>4. post-vaccination activities</b>                               |                         |      |                          |      |
| Post-vaccination parents / caregivers' health education (score =17) | 351                     | 91.4 | 33                       | 8.6  |
| B ± SD  | 4.92±3.11               |      |                          |      |
| Management of any immediate side effects (score = 13)               | 353                     | 91.9 | 31                       | 8.1  |
| B ± SD  | 3.71±2.38               |      |                          |      |
| <b>Total satisfaction score= (188)</b>                              | 358                     | 93.2 | 26                       | 6.8  |
| B ± SD  | 76.98±22.37             |      |                          |      |

Table (7): Association between the studied caregivers' satisfaction toward the rendered vaccination services and their Scio -demographic characteristics:

| Scio-demographic characteristics | Total number of caregivers=384 |      |                        |      |                      |       |
|----------------------------------|--------------------------------|------|------------------------|------|----------------------|-------|
|                                  | Low satisfactory N=358         |      | High Satisfactory N=26 |      | Test of Significance |       |
|                                  | No.                            | %    | No.                    | %    | $\chi^2$             | P     |
| <b>Age</b>                       |                                |      |                        |      |                      |       |
| ≤20                              | 82                             | 21.4 | 4                      | 1    | 5.916                | 0.116 |
| -30                              | 134                            | 34.9 | 12                     | 3.1  |                      |       |
| -40                              | 94                             | 24.5 | 10                     | 2.6  |                      |       |
| -50 and More                     | 48                             | 12.5 | ---                    | ---- |                      |       |
| <b>Gender</b>                    |                                |      |                        |      |                      |       |
| Male                             | 50                             | 13   | 4                      | 1    | FE                   | 0.773 |
| Female                           | 308                            | 80.2 | 22                     | 5.7  |                      |       |
| <b>Residence</b>                 |                                |      |                        |      |                      |       |
| Rural                            | 186                            | 48.4 | 13                     | 3.4  | 0.037                | 0.847 |
| Urban                            | 172                            | 44.8 | 13                     | 3.4  |                      |       |
| <b>Education</b>                 |                                |      |                        |      |                      |       |
| Illiterate                       | 54                             | 14.1 | 2                      | 0.5  | MC                   | 0.028 |
| Read and write                   | 30                             | 7.8  | 4                      | 1    |                      |       |
| Diploma                          | 210                            | 54.7 | 10                     | 2.6  |                      |       |
| University                       | 64                             | 16.7 | 10                     | 2.6  |                      |       |
| <b>Occupation</b>                |                                |      |                        |      |                      |       |
| Not working (housewife)          | 242                            | 63   | 16                     | 4.2  | 4.33                 | 0.115 |
| Worker                           | 86                             | 22.4 | 10                     | 2.6  |                      |       |
| Clerk                            | 30                             | 7.8  | ---                    | ---- |                      |       |

(\*) Statistically significant at  $p \leq 0.05$ ,  $\chi^2$  = chi square, MC=Monte Carlo test, FE: Fisher exact test.

**5. Discussion:**

Caregivers' satisfaction is one of the most leading factors of determining the utilization of childhood routine vaccination services. Dissatisfaction with vaccination services results in a decline in routine vaccination uptake and coverage (Uwaihi, & Akhimienho, 2020). Thus, this cross-sectional study was implemented to investigate caregivers' satisfaction regarding childhood vaccination services in Mansoura primary health care facilities.

The overall caregivers' satisfaction level revealed that most of caregivers reported a lower satisfaction score, while the remaining of them conveyed higher satisfaction score toward the rendered vaccination services. This finding is a minimal score than other reports implemented in different African and Asian regional areas: in Egypt, 63% lower satisfaction reported by Salem, Khalil, & Mahmoud, (2018); in south Nigeria, 80% of dissatisfaction were conveyed by Uwaihi, & Akhimienho, (2020); in Iraq, 50.2% outlined diminished satisfaction score as indicated by Alkhazrajy, (2016). This variation might be due to

a real difference in the services quality in the governorates, the expectation of parents, type of healthcare facilities, or a combination of them. Sociocultural difference and focus of attention by MOHP to reduce child mortality through EPI service could also be another justification.

None of the socio-demographic characteristics considered in the study showed significant association with the total satisfaction level of caregivers. These findings concur with the Ethiopian study where age-group and education had no association with satisfaction (Gebreyesus et al. 2020). Also, it is consistent with Iraqi study of Alkhazrajy, (2016) that indicated to elevation of dissatisfaction level with the higher educational level of the participants. By assuming that highly educated individuals have higher expectation on the quality of rendered vaccination services compared to less educated ones.

Long waiting time and the distance to primary health care centers are known as major barriers to caregivers' satisfaction, and consequently utilization of vaccination services. Thus, it was important to assess these two negative

factors. The current study showed that more than half of the respondents reported unsuitability of working hours. This negative result was compatible with **Alghamdi, et al. (2020)**, who cited limited and unsuitable working hours of primary health care centers especially for the working women. However, the present study revealed that the majority of caregivers live near to the healthcare center. This finding was congruent with study of **Al-Sadawy, (2020)**, which indicated close distance from home to the health center.

In relation to pre and post vaccination health education, most of the respondents were dissatisfied by the delivered education and conveyed absence of this health education in many vaccination sessions, which is a significant predictor and contributor of dissatisfaction to childhood vaccination services in many studies implemented by different researchers (**Hussen, & Bogale, 2016; Cohen, et al., 2015; Salah, Baraki, Egata, & Godana, 2015**).

As regard to vaccination nurses' performance, the present study demonstrated lower satisfaction score among over ninety percent of respondents. In congruent with different studies that agreed on the effect and importance of vaccinators' communication approach on vaccination acceptance as well as maternal satisfaction. These studies highlighted that "appropriate communication approach by vaccinator nurse had a positive effect on the level of maternal satisfaction towards childhood vaccination". Conclusively, an effective interaction between the vaccination providers and clients can address the concerns of caregivers and motivate a hesitant one towards vaccine acceptance (**Hussen & Bogale, (2016, Yusuf, et al., 2018 and GebreEyesus, et al. (2020)**).

Literatures also pointed out the most significant influencer of caregivers' satisfaction; this is an acceptable PHC facilities infrastructure. The present study reflected lower satisfaction score among majority of respondents. This finding is in the same line with conclusive finding of **Sah, & Kumar, (2015) and GebreEyesus, et al. (2020)**, which demonstrated unacceptable infrastructure of primary care centers due to lack of supplies, equipment, medications, and well-trained health personnel.

In spite of the current Egyptian ministry of health improvement actions, the level of caregivers' satisfaction towards childhood vaccination is still unsatisfactory (**Dana, Asefa, Hirigo, & Yitbarek, 2021**). The underpinning reasons of low level of satisfaction may be partly due to the fact that

Mansoura is a district with large population density, accordingly vaccinator nurses are overwhelmed with the relatively large number of children attending the PHC centers. Therefore, vaccinator nurses would be unable to provide satisfactory health services for caregivers and their children. Additionally, this work pressure effects on building good ties and relations between the nurses and the caregivers. According to the retrieved field notes throughout the data collection of the present study shortage of nursing staff, inadequate policies for healthcare provision and financial resources for providing necessary supplies, as well as insufficient training of the PHC staff. All of these factors lead to the observed lower satisfaction among the studied group.

#### **6. Conclusion and recommendations:**

This study concluded low caregivers' satisfaction score with childhood vaccination services. On-going monitoring of caregivers' satisfaction is recommended to improve the quality of vaccination process. Strict adherence of vaccinator nurses to rules of providers-clients relationship and giving all rights to health service beneficiaries is also requested.

#### **7. References:**

- Acharya, S., Sharma, S. Dulal, B., & Aryal, K. (2018)**. Quality of Care and Client Satisfaction with Maternal Health Services in Nepal: Further Analysis of the 2015 Nepal Health Facility Survey. DHS Further Analysis Reports No. 112. Rockville, Maryland, USA: ICF.
- Alghamdi, K., Aljohani, A., & Taha, J. (2020)**. Public Awareness and Utilization of the Primary Health Care Services in Al-Madinah, Saudi Arabia. *World Family Medicine Journal/Middle East Journal Of Family Medicine*, 18(2), 33-41. doi: 10.5742/mewfm.2020.93757
- Alkhazrajy, L. (2016)**. Satisfaction of Iraqi Women Regarding Childhood Immunization Services Applied at Primary Health Care Centers in Baghdad. *Swift J. 2(1)*, 1:6.
- Al-Sadawy, M. (2020)**. Assessment of Patients Satisfaction toward Primary Health Care Services in Al- Nasiriyah City. *Annals Of Tropical Medicine And Public Health*, 23(13). doi: 10.36295/asro.2020.231335
- Cohen, M. A., Gargano, L. M., Thacker, N. et al. (2015)**. Assessing providers' vaccination behaviors during routine immunization in

- India. *Journal of Tropical Pediatrics*, 61(4), 244:249.
- Dana, E., Asefa, Y., Hirigo, A. T., & Yitbarek, K. (2021).** Satisfaction and its associated factors of infants' vaccination service among infant coupled mothers/caregivers at Hawassa city public health centers. *Human vaccines & immunotherapeutics*, 17(3), 797–804.  
<https://doi.org/10.1080/21645515.2020.1790278>
- GebreEyesus, F.A., Assimamaw, N.T, Egziabher, N.T.G., Shiferaw, B.Z.(2020).** Maternal Satisfaction towards Childhood Immunization Service and Its Associated Factors in Wadla District, North Wollo, Ethiopia, 2019, *International Journal of Pediatrics*, ID 3715414. Retrieved from: <https://doi.org/10.1155/2020/3715414>.
- Haile Tadesse, B. (2017).** Mothers' satisfaction with institutional delivery service in public health facilities of Omo Nada District, Jimma Zone. *Clinical Medicine Research*, 6(1), 23,
- Hussen, A. (2016).** Parental Satisfaction and Barriers Affecting Immunization Services in Rural Communities: Evidence from North Ethiopia. *Science Journal Of Public Health*, 4(5), 408. doi: 10.11648/j.sjph.20160405.17
- Hussen, A., & Bogale, A. L. (2016).** Parental satisfaction and barriers affecting immunization services in rural communities: evidence from North Ethiopia. *Science Journal of Public Health*, 4(5), 408:414,
- Malande, O.O., Munube, D., Afaayo, R.N., Annet, K., Bodo, B., & Bakainaga A, et al. (2019)** Barriers to effective uptake and provision of immunization in a rural district in Uganda. *PLoS ONE* 14(2): e0212270. <https://doi.org/10.1371/journal.pone.0212270>
- Ministry of health, Egypt. (2015).** Expanded program on immunization, immunization coverage in Egypt. Available at URL: <http://ww.ncbi.nlm.gov>
- Okeke, H., Basse, P., Oduwale, O., & Adindu, A. (2020).** Client characteristics and satisfaction with the quality of primary health-care services in Calabar, Nigeria. *Calabar Journal Of Health Sciences*, 3, 1-8. doi: 10.25259/cjhs\_4\_2019.
- Panth,A., & Kafle,P.(2018).** Maternal satisfaction on delivery service among postnatal mothers in a government hospital, mid-Western Nepal. *Obstetrics and Gynecology International*, 11.
- Quah, S. (2017).** *International encyclopedia of public health* (2nd ed.). Oxford: Academic Press.
- Sah, D.C., Kumar, Y. (2015).** Client Satisfaction Exit Interviews: Assessing Quality of Public Health Institutions through Generated Feedback. *Vikalpa*, 40(1),42:61. doi:10.1177/0256090915574194
- Salah, A. A., Baraki, N., Egata, G., & Godana, W.(2015).** Evaluation of the quality of expanded program on immunization service delivery in primary health care institutions of Jigjiga Zone Somali Region, Eastern Ethiopia,” *European Journal of Preventive Medicine*. 3(4), 117:123.
- Salem, M.E., Khalil, S.A., & Mahmoud, M.M.(2018).** Assessment of expanded program of immunization provided for children less than five years in family health centers at Cairo Governorate. *Acta Scientific Pharmaceutical Sciences*, 2(10).
- Samadi, S. Abdollahi - Boghrabadi, G., & Mcconkey, R. (2018).** Parental Satisfaction with Caregiving for Children with Developmental Disabilities: Development of a New Assessment Tool. *Children*. 5. 166. 10.3390/children5120166.
- Sarkar, D., Banerjee, S., Maji, B. & Saharoy, S. (2015).** Satisfaction of Mothers Attending Immunisation Clinic in a Slum Area of North Kolkata. *IOSR Journal of Dental and Medical Sciences*, 14(6), pp.48–51. doi:10.9790/0853-14624851
- Shehata, W. (2019).** Outpatients' Satisfaction with Received Health Services at Saied Urban Health Center, Tanta, Egypt. *The Egyptian Family Medicine Journal*, 3(2), 52-64. doi: 10.21608/efmj.2019.70441
- Timane, A. J., Oche, O. M., Umar, K. A., Constance, S. E., & Raji, I. A. (2017).** Clients' satisfaction with maternal and child health services in primary health care centers in Sokoto metropolis, Nigeria. *Edorium Journal of Maternal and Child Health*, 2, 9:18.
- United Nations Children's Fund (UNICEF) (2019).** Immunization Coverage Estimates 2018 revision (completed 15 July 2019). Retrieved September, 2019, from <https://www.who.int/immunization/monitori>



[ng\\_surveillance/routine/coverage/WUENIC\\_notes.pdf?ua=1](#)

**Uwaibi, N., & Akhimienho, I. (2020).** Assessment of knowledge and practice of childhood routine immunization among mothers/caregivers attending primary health care centres in Benin City, Edo State, Nigeria. *Journal Of Applied Sciences And Environmental Management*, 24(10), 1703-1710. doi: 10.4314/jasem.v24i10.1

**WHO. (2020).** Immunization coverage. Retrieved 8 April 2021, from <https://www.who.int/news-room/fact-sheets/detail/immunization-coverage>.

**Yusuf, A. ,Jibo, A. M.,Abubakar, S., Grema, B. A., Gajida, A. U., & Michael, G. C. (2018).** Assessment of satisfaction and utilization of health-care services by National Health Insurance Scheme enrolees at Aminu Kano Teaching Hospital, Kano, Nigeria. *Pyramid Journal of Medicine*, 1(1).