



## Staff Nurses Knowledge Regarding Ovarian Hyperstimulation Syndrome - Effectiveness of Structured Teaching Programme

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### Abstract

Ovarian hyperstimulation syndrome (OHSS) is an iatrogenic complication for ovarian stimulation by assisted reproduction technology, characterized by ovarian enlargement due to multiple ovarian cysts and an acute fluid shift into the extra vascular space. The prevalence of this therapy is increasing. Therefore, health professionals must aware of this rare condition and its myriad of clinical presentations, which causes multi-organ dysfunction and potentially to death. The aim of the study was to assess the pre-test knowledge scores, to determine the effectiveness of structured teaching programme and its association with the demographic variables regarding ovarian hyperstimulation syndrome among staff nurses at selected hospitals in Bangalore, Karnataka, India. A pre-experimental design included 50 staff nurses serving at Gunasheela maternity and surgical hospital and IVF centre, Bangalore by purposive sampling technique. Results of the study showed that, the overall post-test mean score was 30.48 (80.21%) with standard deviation of 2.705 and the respondents knowledge were significantly higher than, the overall mean pre-test knowledge scores 15.58 (41%) with standard deviation of 3.393 and computed paired 't' value 32.467 was higher than table value 2.56 with an p-value <0.001. Hence, the structured teaching programme on ovarian hyperstimulation syndrome was found to be effective and statistically significant (p<0.001). The findings of the study concluded that, the structured teaching programme was effective in terms of improving the knowledge of staff nurses regarding ovarian hyperstimulation syndrome.

**Keywords:** Effectiveness; Ovarian Hyperstimulation Syndrome; Staff Nurses; Bangalore; Effectiveness

### Background

Infertility is becoming a major consequence worldwide and also in India nowadays. About 50% of the women are infertile because of the anovulation and ovulation failure. Many women undergo treatment to stimulate their ovaries as part of their fertility treatment. Induction of ovulation by gonadotrophin is one of the major developments in the treatment of infertility in the second half of the 20th century. Today induction of ovulation by gonadotrophin is the treatment of choice for more than 40% of infertile women suffering from ovulatory failure [1-5]. Ovarian hyper stimulation syndrome is the complication occasionally seen in women who take certain fertility medicines that stimulate egg production. Ovarian hyperstimulation syndrome is an iatrogenic complication of assisted reproductive technology. Especially it is the most serious consequence of ovulation induction and in-vitro fertilization po-

tentially resulting in deaths in its extreme manifestation. It is over reaction when the ovaries are stimulated and exposed to certain hormones like leutenising hormone and human chorionic gonadotrophin which are used in treatment [6-12].

The objectives of this study was to assess the pre-test and post-test knowledge score of the staff nurses regarding ovarian hyperstimulation syndrome, to determine the effectiveness of structured teaching programme regarding ovarian hyperstimulation syndrome by comparing pre test and post test knowledge scores and to determine the association between the pre test and post test knowledge scores of the staff nurses with the selected demographic variables.

### Research hypotheses

The study was designed with the following hypotheses

- H<sub>1</sub> - There will be a significant difference between pre test and post test knowledge scores regarding ovarian hyperstimulation syndrome.
- H<sub>2</sub> - There will be a significant association between pre test and post test knowledge scores of staff nurses regarding ovarian hyperstimulation syndrome with selected demographic variables.

**Materials and Methods**

In view of the nature of the problem selected for the study and the objectives to be accomplished, an evaluative research approach with pre experimental design (one group pre test post test) was adopted. The study was carried out in Gunasheela maternity and surgical hospital and IVF centre, Bangalore. The sample for the research study is staff nurses. The sample size taken for the study was 50 staff nurses. In this study purposive sampling technique was used for selecting the samples. Paired ‘t’ test was used to compare pre-test and post-test knowledge scores. Chi-square (χ<sup>2</sup>) test was used to study the association between pre-test and post test knowledge scores with selected demographic variables. The tool consisted of 38 knowledge questionnaire on ovarian hyperstimulation syndrome. Each item has four options and only one correct answer is given. For each correct answer, the score was 1 and for the wrong answer the score was 0. The highest score was 38.

**Statistical analysis**

The descriptive analysis such as percentages, proportions, frequency distribution and measures of central tendency was performed using the SPSS Windows version 20.0 for analysis. Chi-square (χ<sup>2</sup>) test was used to study the association between pre-test and post test knowledge scores with selected demographic variables. The P-value <0.05 and <0.001 were considered as statistically significant.

**Ethical clearance**

The ethical clearance for this study was obtained from Institutional Research Review Board. The written permission to conduct research was obtained from the concerned authorities of the hospitals.

**Results and Discussion**

Table 1 indicates the distribution of respondents by age where, majority of the respondents 33(66%) belong to the age group of 21-30 years, 12(24%) respondents belong to the age group of 30-40 years and minimum 5(10%) respondents belong to the age group of 40 and above years, professional qualification, 25(50%) have completed GNM, 17(34%) completed Basic BSc nursing and only 8(16%) PB B.Sc (Nursing). Clinical experience of respondents

22(44%) have 0-5 years, 17(34%) respondents have 5-10 years, 11(22%) more than 10 years of clinical experience, total years of experience of respondents in maternity ward 30(60%) have 1-5 years, 12(24%), below 1 year experience and 8(16%) more than 5 years of experience, total years of experience of respondents in infertility centre, 13(26%) respondents have below 1 year experience, 26(52%) have 1-5 years experience, 11(22%) respondents have more than 5 years of experience in infertility centre. previous knowledge 20(40%) respondents have previous knowledge, 30(60%) respondents, source of knowledge 8(40%) respondents got knowledge from training, 7(35%) knowledge from print media and 5(25%) knowledge from electron media.

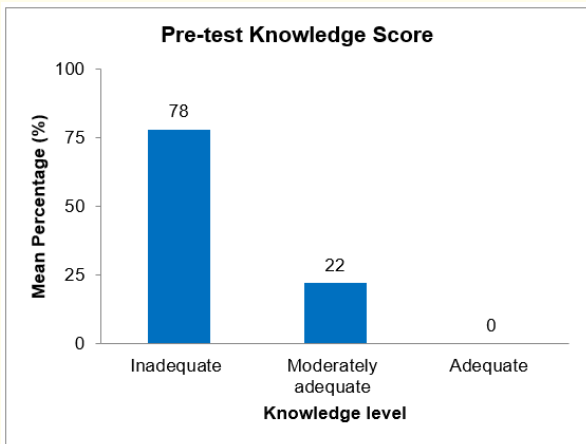
| Variables  | Frequency | %  |
|--|-----------|----|
| <b>Age (years)</b>   |           |    |
| 21-30  | 33        | 66 |
| 30-40  | 12        | 24 |
| >40  | 05        | 10 |
| <b>Professional qualification</b>                              |           |    |
| GNM  | 25        | 50 |
| BSc Nursing  | 17        | 34 |
| PB BSc   | 08        | 16 |
| <b>Clinical experience</b>                                     |           |    |
| 0-5 year   | 22        | 44 |
| 5-10 years   | 17        | 34 |
| > 10 years   | 11        | 22 |
| <b>Total years of experience in maternity ward</b>             |           |    |
| 0-1 year   | 12        | 24 |
| 1-5 years  | 30        | 60 |
| > 5 years  | 08        | 16 |
| <b>Total years of experience in infertility centre</b>         |           |    |
| 0-1 year   | 13        | 26 |
| 1-5 years  | 26        | 52 |
| > 5 years  | 11        | 22 |
| <b>Previous knowledge on ovarian hyperstimulation syndrome</b> |           |    |
| Yes  | 20        | 40 |
| No   | 30        | 60 |
| <b>Source of knowledge</b>                                     |           |    |
| Training   | 8         | 40 |
| Print media  | 7         | 35 |
| Electron media   | 5         | 25 |

**Table 1:** Frequency and percentage distribution of respondents (n=50).

Table 2 indicates, majority of respondents 39(78%) have inadequate knowledge and 11(22%) respondents have moderate knowledge and no respondents (Figure 1) have adequate knowledge regarding ovarian hyperstimulation syndrome

| Knowledge level     | Category | Respondents |     |
|---------------------|----------|-------------|-----|
|                     |          | F           | %   |
| Inadequate          | ≤ 50 %   | 39          | 78  |
| Moderately adequate | 51-75%   | 11          | 22  |
| Adequate            | >75%     | 00          | 00  |
| Total               |          | 50          | 100 |

**Table 2:** Distribution of respondents on pre test knowledge level on ovarian hyperstimulation syndrome.

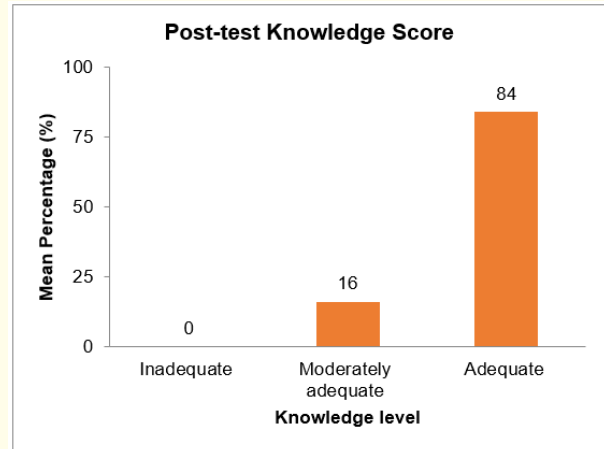


**Figure 1:** Knowledge score of respondents in pre test.

Table 3 on post-test knowledge level where, majority of respondents 42(84%) have adequate knowledge and 8(16%) respondents have moderate knowledge and none of them have inadequate knowledge (Figure 2) on ovarian hyperstimulation syndrome after administration of STP.

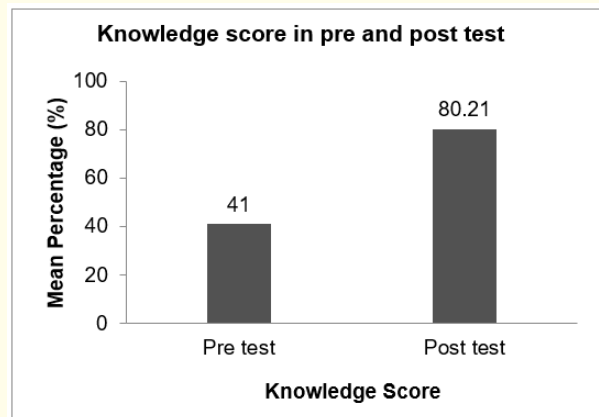
| Knowledge level     | Category | Respondent |      |
|---------------------|----------|------------|------|
|                     |          | f          | %    |
| Inadequate          | ≤ 50 %   | 0          | 0%   |
| Moderately adequate | 51-75%   | 8          | 16%  |
| Adequate            | >75%     | 42         | 84%  |
| Total               |          | 50         | 100% |

**Table 3:** Distribution of respondents on post test knowledge level on ovarian hyperstimulation syndrome.



**Figure 2:** Knowledge score of respondents in post-test.

Table 4 shows the comparison between pre test and post test area wise knowledge scores of respondents. The t-value at 0.1% level of significance for the first area is 33.086, t-value for the second area is 19.314 and t- value for the third area is 25.495. The overall t-value is 32.467 at 0.1% level of significance, which is greater than the table value of 2.56 which indicates the effectiveness of structured teaching programme on knowledge regarding ovarian hyperstimulation syndrome. Hence the hypothesis H1 - There will be significant differences between pre-test and post-test knowledge scores regarding ovarian hyperstimulation syndrome is accepted. Mean percentages of respondents on pre-test (40%) and post-test (80.21%) knowledge level on ovarian hyperstimulation syndrome (Figure 3).



**Figure 3:** Mean percentages of respondents on pre-test and post- test knowledge level on ovarian hyperstimulation syndrome.

| Knowledge on various aspects   | Pre-test score |       |       | Post-test score |       |       | t-value | df | p-value |
|--|----------------|-------|-------|-----------------|-------|-------|---------|----|---------|
|  | Mean           | Mean% | SD    | Mean            | Mean% | SD    |         |    |         |
| General information about OHSS   | 7.18           | 55.23 | 1.535 | 11.4            | 87.69 | 1.050 | 33.086  | 49 | 0.001   |
| Risk factors, causes, CF and investigations of OHSS                                | 3.58           | 27.53 | 1.311 | 9.16            | 70.46 | 1.235 | 19.314  | 49 | 0.001   |
| Management, prevention and complications of OHSS                                   | 4.90           | 40.83 | 1.359 | 10.16           | 84.66 | 0.976 | 25.495  | 49 | 0.001   |
| Over all knowledge on OHSS   | 15.58          | 41    | 3.393 | 30.48           | 80.21 | 2.705 | 32.467  | 49 | <0.001  |
| Statistically significant at <i>P</i> -value <0.001; <i>t</i> (0.001, 49df) = 2.56 |                |       |       |                 |       |       |         |    |         |

**Table 4:** Comparing mean and standard deviation of pre-test and post test knowledge scores and statistical significance.

Table 5 shows the association of level of pre-test knowledge with selected demographic variables. It is evident from the above table that there is significant association with the variables like age, total years of clinical experience, clinical experience in ma-

ternity ward, clinical experience in infertility centres and previous knowledge about ovarian hyperstimulation syndrome. And there is no association with variable like professional qualification.

| Demographic variable   | Categories | Pre test knowledge score of staff nurses |                   | Chi-square value | df | p-value |
|--|------------|--|-------------------|------------------|----|---------|
|  |            | Below median < 15                        | Above median ≥ 15 |                  |    |         |
|  |            | Age                                      | 21-30             |                  |    |         |
|  | 30-40      | 1  | 11                |                  |    |         |
|  | >40        | 0  | 4                 |                  |    |         |
| Professional qualification   | GNM        | 10                                       | 15                | 1.103            | 2  | >0.05   |
|  | B.Sc(N)    | 8  | 9                 |                  |    |         |
|  | PB B.Sc(N) | 2  | 6                 |                  |    |         |
| Total years of clinical experience   | 0-5 years  | 12                                       | 10                | 7.974            | 2  | <0.05   |
|  | 5-10 years | 8  | 11                |                  |    |         |
|  | >10 years  | 0  | 9                 |                  |    |         |
| Total years of experience in maternity ward  | 0-1 year   | 9  | 9                 | 6.424            | 2  | <0.05   |
|  | 1-5 years  | 11                                       | 13                |                  |    |         |
|  | >5 years   | 0  | 8                 |                  |    |         |
| Total years of experience in infertility centres   | 0-1 year   | 9  | 4                 | 12.019           | 2  | <0.05   |
|  | 1-5 years  | 11                                       | 15                |                  |    |         |
|  | >5 years   | 0  | 11                |                  |    |         |
| Previous knowledge   | Yes        | 1  | 20                | 18.733           | 1  | <0.05   |
|  | No         | 19                                       | 10                |                  |    |         |
| $\chi^2$ (0.05, 2df) =5.991, $\chi^2$ (0.05, 1df) =3.841; <i>P</i> -value <0.05 considered statistically significant |            |  |                   |                  |    |         |

**Table 5:** Association between pre-test knowledge score with selected demographic variables.

Table 6 shows the association of level of post-test knowledge with selected demographic variables. It is evident from the above table that there is significant association with the variables like clinical experience in infertility centres, previous knowledge about

the topic. And there is no association with variables like age, professional qualification, total years of clinical experience and clinical experience in maternity ward.

| Demographic variable                             | Categories | Post test knowledge score of staff nurses |                   | Chi-square value | df | p-value |
|--|------------|---|-------------------|------------------|----|---------|
|  |            | Below median < 31                         | Above median ≥ 31 |                  |    |         |
| Age  | 21-30      | 19  | 15                | 5.19             | 2  | >0.05   |
|  | 30-40      | 4   | 8                 |                  |    |         |
|  | >40        | 0   | 4                 |                  |    |         |
| Professional qualification                       | GNM        | 12  | 13                | 4.780            | 2  | >0.05   |
|  | B.Sc(N)    | 10  | 7                 |                  |    |         |
|  | PB B.Sc(N) | 1   | 7                 |                  |    |         |
| Total years of clinical experience               | 0-5 years  | 13  | 9                 | 2.741            | 2  | >0.05   |
|  | 5-10 years | 7   | 12                |                  |    |         |
|  | >10 years  | 3   | 6                 |                  |    |         |
| Total years of experience in maternity ward      | 0-1 year   | 9   | 9                 | 1.691            | 2  | >0.05   |
|  | 1-5 years  | 12  | 12                |                  |    |         |
|  | >5 years   | 2   | 6                 |                  |    |         |
| Total years of experience in infertility centres | 0-1 year   | 10  | 3                 | 7.152            | 2  | <0.05   |
|  | 1-5 years  | 10  | 16                |                  |    |         |
|  | >5 years   | 3   | 8                 |                  |    |         |
| Previous knowledge                               | Yes        | 4   | 17                | 10.588           | 1  | <0.05   |
|  | No         | 19  | 10                |                  |    |         |

$\chi^2(0.05, 2df) = 5.991, \chi^2(0.05, 1df) = 3.841; P\text{-value} < 0.05$  considered statistically significant

**Table 6.** Association between post-test knowledge score with selected demographic Variables.

**Conclusions**

The findings of the study shows that the staff nurses’ knowledge level improved after implementation of the structured teaching programme regarding ovarian hyperstimulation syndrome. This study concludes that, the structured teaching programme is an effective method in providing moderate to adequate level of knowledge regarding health topics to the staff nurses to properly understand the role of nurses in providing care to the patients.

**Competing Interests**

The authors declare that they have no conflict of interest.

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