

Assessment of Patients Health-Related Quality of Life During Complications of Pregnancy in a Tertiary Care Teaching Hospital: a Prospective Study

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Original article

**ASSESSMENT OF PATIENTS HEALTH-RELATED QUALITY OF LIFE DURING
COMPLICATIONS OF PREGNANCY IN A TERTIARY CARE TEACHING
HOSPITAL: A PROSPECTIVE STUDY**

Running title: Complications during pregnancy

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Abstract

Background and Objective: Pregnancy has undesirable effects on women lives which lead to reduction in quality of life. Assessment of Quality of Life is necessary among pregnant women because of association with the various complications. Hence, the present study was conducted to evaluate the patient's health-related quality of life during complications of pregnancy.

Method: A prospective observational single centered study was conducted on 81 pregnant women who were diagnosed with complications (Anemia, UTI, Pre-eclampsia and Hyperemesis gravidarum) in Obstetrics & Gynecology department of NIMS Hospital, Jaipur, (Rajasthan).

Result: The mean score of physical component scale (PCS) and mental component scale (MCS) was found to be 58.43 ± 0.70 and 75.8 ± 1.25 respectively. The mean score at the time of discharge were physical functioning 69.8 ± 13.77 , role limitation due to physical problems 79.01 ± 16.15 , role limitation due to emotional problems 68.00 ± 17.10 , vitality 48.68 ± 7.30 , mental health 98.64 ± 4.25 , social functioning 87.22 ± 18.71 , bodily pain 80.61 ± 12.67 , general health 72.5 ± 4.06 and reported health transition 82.71 ± 12.89 and overall score at p-value was found to be significant.

Conclusion: HRQoL of pregnant women associated with complications has been improved where mental health tends to recover more quickly than physical health.

Keywords: Quality of Life; Anemia; UTI; Pre-eclampsia; Hyperemesis gravidarum.

Introduction

Health is stated as complete physical, mental and social well beings and absence of disease or infirmity(1).Patient's perspective about health state is recognized as an important parameter in assessing efficacy and health outcome. A reliable and validated instrument is required to measure health in a community(2).

Pregnancy is a special condition which can neither be termed as a disease condition nor stated as normal body position. During pregnancy, organic and hormonal changes affect the physical functioning and mental health status in women. Pregnancy has undesirable effects on women lives which lead to a reduction in quality of life(3).

Measurement of Quality of life is necessary among pregnant women because of association with various complications like Anemia, Urinary tract infection (UTI), Pre-eclampsia, and Hyperemesis gravidarum, etc. at the time of pregnancy due to physiological changes and increment in stress level which ultimately lead to metabolic, hormonal, cardiovascular, respiratory and musculoskeletal adaptations.

Urinary tract infection(UTI) are caused by gram-positive and gram-negative bacteria but UTI more susceptible to be caused by gram-negative bacteria such as E.coli (60-70%) and Klebsiella (10%) than gram-positive organism include Streptococcus species and Staphylococcus species(4). Pre-eclampsia is a disorder which is life-threatening for both mother and child and causes premature cardiovascular disease which may lead to increased risk of stroke, coronary disease and metabolic syndrome in mother(5).

Anemia is more common in women with inadequate diets and who are not receiving iron supplements. Most common anemia during pregnancy is iron deficiency anemia and folate deficiency megaloblastic anemia(6).Hyperemesis gravidarum (HG) is a condition characterized by continuous and excessive vomiting that starts before the end of the first trimester which further divides the condition into mild and severe. Hyperemesis gravidarum is identified by prolonged and severe nausea and vomiting, large ketonuria, dehydration, and more than 5% body weight loss(7).

A maternal nutrition status is also an important tool for determining pregnancy outcomes as pre-pregnancy underweight is the risk factor for adverse gestation outcomes. Improved maternal nutrition is associated with increased fetal growth and reduction in adverse birth outcomes(8).

Obesity and overweight is a global epidemic significant remark to health in women of reproductive age(9).Decrement in the nutritional status of women could be one of the reasons for complications during pregnancy. Hence, the present study was conducted to evaluate patient's health-related quality of life during complications of pregnancy.

Quality of Life is said to be standard of health, comfort, and happiness experienced by an individual or group of them(10).The concept of quality of life (QoL) is crucial for a state of well-being. It refers to the patient own understanding about the disease. The effect of illness depends upon patient lifestyle, occupation, and socio-economic state (11).

Short Form- 36 version 2 (SF-36 v2) is a standard questionnaire from a larger set of questions which was designed by US medical outcome study in the mid-1980s. It includes 36 questionnaires to assess 9 scales. It is most widely used for the health-related quality of life (HRQoL)(12). The nine domain scale in the questionnaire will determine the quality of life of pregnant women in both physical and mental aspects.

Materials and Methods

The prospective observational single centered study was conducted on 81 pregnant women who were diagnosed with complications (Anemia, UTI, Pre-eclampsia and Hyperemesis gravidarum) in Obstetrics & the Gynecology Department of NIMS Hospital, Jaipur, (Rajasthan). The study was carried out for a period of 6 months.

Study Procedure

The study was approved by Institutional Ethics Committee Boards of National Institute of Medical Sciences & Research, Jaipur. A standard data entry format was used to incorporate patient demographic as well as pathologic reports. Pregnant women of age above 18 years were included in the study. Patients with any other medical conditions or abortive, miscarriage were excluded from the study. The study was explained to the patients through Information sheet and consent was taken. The QoL was assessed using Short Form-36 version 2 (SF-36 v2).

SF-36 v2 contains 36 questions which measure in nine scales such as: physical functioning (PF), role limitations due to physical health problems (RP), bodily pain (BP), social functioning (SF), general mental health covering psychological distress and well-being (MH), role limitations due to emotional problems (RE), vitality, energy and fatigue (VT), general health perceptions (GH) and reported health transition (HT). The questions were related to general household daily activities on which a lady goes through in their routine life. These questions were explained to them in their local language and then assessment was done. The score ranges from 0 to 100, with greater scores representing better QoL. ^[10]

QoL of 81 patients was analyzed and interpreted through SF-36 v2. Statistical calculation was made by using SPSS Statistics V22.0 software to check the significance of data through Chi-square test.

Result

During the six-month study period, the total of 81 patients was pregnant and diagnosed with complications associated during pregnancy from the Department of Obstetrics & Gynecology was enrolled as per inclusion and exclusion criteria. Demographic characteristics of enrolled subjects are shown in Table 1.

Demographic details of the participants involved in the study were categorized based on education level, complications, diet, and age distribution, parity the results of which were thoroughly analyzed and reported in Table 1.

The education level was found to be Illiterate 16(19.7%), under matriculate 30(35.8%), matriculate 26(32.0%) and graduate 10(12.34%) respectively. The Majority of the pregnant women were under the matriculation level and fewer were found to be graduate.

Various co-morbidities observed during the study were Anemia 47(57.3%), UTI 7(8.5%), Hyperemesis gravidarum 3(3.6%) and Pre-eclampsia 1(1.2%) respectively. Co-morbidities were also observed in combination like Anemia + UTI 16(19.5%), Anemia + Hyperemesis gravidarum 4(4.8%), Anemia + Pre-eclampsia 1(1.2%). Frequency of anemia was higher in pregnant women than any other complications alone or in combination. Most of the pregnant women were

vegetarian 71(88%). Therefore, major reasons for more of anemic cases associated during pregnancy in the study area.

The age groups below 20 were found to be 13(16.4%), age groups with 20-30 were found to be 60(74%) and age above 30 were found to be 8(9.8%). The Majority of the study population was in the age group 20-30 and least was at age group above 30. During the study, it was observed that maximum number of pregnancies occurred at three times, whereas minimum were at zero times. Number of pregnancies 0 times was 13(16%), 1 times were 39(48.1%), 2 times were 25(30.8%) and 3 times were 4(4.9%) respectively.

The details of the scores obtained at the time of admission and discharge from SF-36 v2 were aggregated and average scores were summarized in Table 2. According to the nine health concepts, average scores of Physical functioning(PF) were found to be 55.55 and 69.8, Role limitation due to physical problems (RP) were 56.76 and 79.01, Role limitation due to emotional problems (RE) were 45.57 and 68.00, Vitality (VT) were 34.64 and 48.68, Mental health (MH) were 91.72 and 98.64, social functioning (SF) were 78.02 and 87.22, bodily pain (BP) were 59.01 and 80.61, general health (GH) were 62.29 and 72.5 and reported health transition (HT) were 56.48 and 82.71 at the time of admission and discharge respectively. Score at p-value was found to be 0.683 for role limitation due to physical problems and 0.997 for role limitation due to emotional problems and 1.000 for the vitality whereas other health domains were found to be significant.

SF-36 v2 health domains were divided into two component scores such as physical component scores (PCS) and mental component scores (MCS). The average of these component scores was summarized in Table 3 and graphically illustrated in Figure 1. The physical component score and mental component scores were found to be 58.43 and 75.48 respectively (Figure 2). Overall, there was more improvement found in MCS than PCS during the study.

Details of the health domain score in a different grade of anemia through CTCAE 4.0 which was aggregated and average were summarized in Table 4. The frequency of Quality of Life of Grade II anemia was found to be more of the study population than Grade I and III. The score of Grade I was found to be 66.65, Grade II was found to be 71.89 and Grade III was found to be 60.86. Most of the study population was affected with anemia grade II toxicity and least was affected by Grade III.

Discussion

The study was conducted among pregnant women associated with various complications such as Anemia, UTI, Pre-eclampsia, and Hyperemesis gravidarum. Total of 81 study population was included in the study. However, out of these, 9, 15 and 57 were assessed at first, second and third trimester respectively by using SF-36 v2.

The observation of the study population demonstrated that Majority of them were under matriculate level (Table 1). The percent of illiteracy was 19.7%. Similarly, we observed that Anemia cases were higher in the study population than various other complications (Table 1).

Contrary to this, there were 88% of vegetarian patients and 12% of them were non-vegetarian (Table 1). Diet preferred by the study population could be one of the reasons for the association of Anemia during pregnancy. In the study population, most of the subjects belonged to age group 20-30 which indicate that 20-30 is the reproductive age for pregnancy (Table 1). However, the patient with 1-time of parity was more i.e. 48.1% where least of them had 3-times of parity i.e. 4.9 % (Table 1).

Assessment of HRQoL was performed through SF-36 v2 which had 9 scales. Patients were assessed at two phases at the time of admission and at the time of discharge.

The findings of the study showed that there was the statistical improvement in the health domain scale at the time of discharge. However, despite these improvements the highest variation during the admission and discharge was observed in bodily pain whereas least variation was observed in social functioning. Thus, there was more improvement in health transition and role limitations due to emotional problems and less improvement in mental health but overall it had the highest health domain score (Table 2).

The scales were further divided into two components such as physical component scale (PCS) and mental component scale (MCS). Physical component scales include physical functioning (PF), role limitations due to physical health problems (RP), bodily pain (BP) and general health perceptions (GH). Mental component scales include social functioning (SF), general mental health covering psychological distress and well-being (MH), role limitations due to emotional problems (RE), vitality, energy, and fatigue (VT).

Both component scores were aggregated and summarized in which it was found that the study population had an increment in mental health with mean score 75.8 ± 1.25 than physical health mean score 58.43 ± 0.70 (Table 3).

According to CTCAE v4.0 anemia was graded into three grades in this study population in which more of grade II anemic cases were found, i.e. 27 whose health domain mean score was 71.89 ± 5.54 . In Grade III anemia, 6 cases were found whose score was 60.86 ± 7.26 and Grade I anemia, 11 cases were found whose score was 66.65 ± 6.36 (Table 4).

Pregnant women were reported with higher scores in mental health followed by social functioning and bodily pain. Furthermore, the least score was demonstrated in the domains of vitality and role limitations due to emotional problems. The study demonstrated that HRQoL of pregnant women associated with complications has been improved where mental health tends to recover more quickly than physical health. Bodily pain, role limitation due to the emotional problem and health transition were the most influenced domain and was improved drastically compared to other domains. Having a higher household socioeconomic level was correlated with higher scores on the physical role, general health, social functioning, emotional role, and mental health. Overall, pregnant women had a positive effect on improving the quality of life, their mental health tends to recover more quickly than the physical well-being. The study shows a positive response with better improved HRQoL but the complete quality was not yet achieved in 10 days of follow up. So, studies must be carried out further for a better result(12).

Conclusion

The study reveals that pregnant women with complications have an undesirable effect which leads to a decrease in quality of life. The decrement in QoL could be due to diet preferences, education levels, age groups and no. of pregnancies of the study population. Pregnant women have an average of HRQoL with the wide range of disturbance in physical well-being and psycho-social functioning. Since the quality of life may be affected by various factors, it is essential to address the physical health of pregnant women.

Thus, evaluating QoL may be useful in identifying pregnant women steep risk with the association with complications. During the study, the study population was found to be under the

matriculate level. Therefore, steps must be taken to educate them through patient information leaflet or campaign program. Further studies must be conducted with newer strategies to assess the pregnant women by adherence level and counseling. There must be increased with the duration of the study with added benefits to patients as well as the fetus.

DECLARATIONS

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Conflict Of Interest

The authors have no conflicts of interest to declare.

Ethical Approval

The study was approved by Institutional Ethics Committee Boards of National Institute of Medical Sciences & Research, Jaipur.

Consent to participate

Provided

Consent for publication

Not Applicable

Availability of data and material

The research work has been carried out by us and we assure you that it can be provide to you whenever required.

Authors' contributions

We have assured that “all authors have read and approved the manuscript”. All the authors have equal contribution and participation in this research work.

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Figures

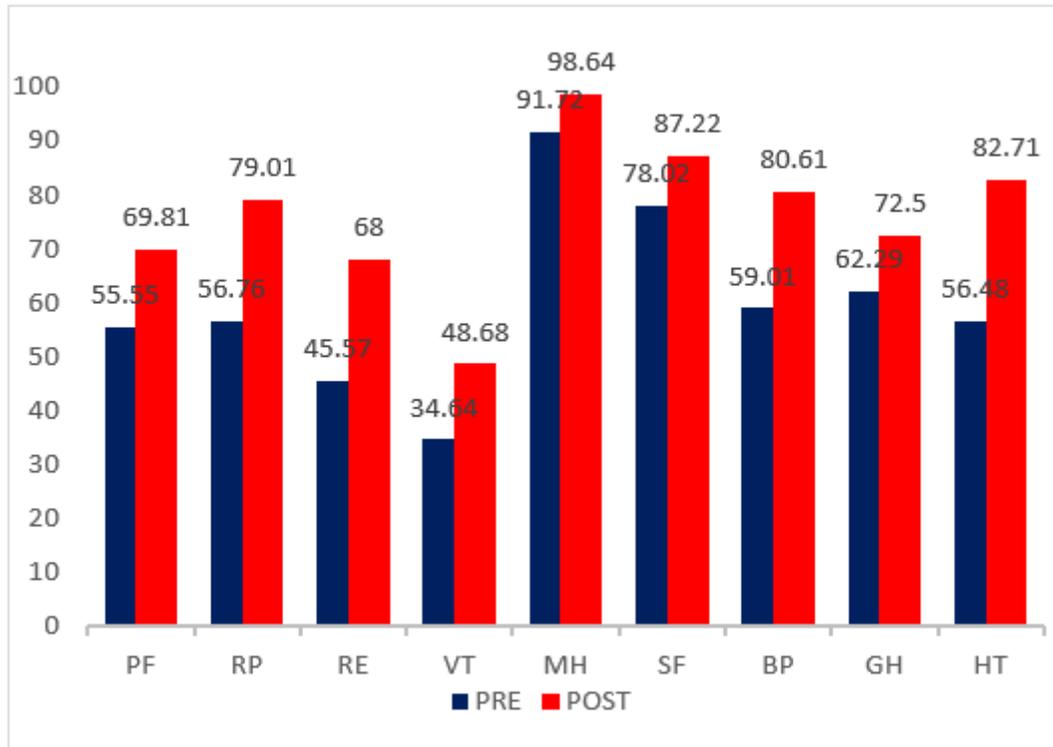


Figure 1

graphically illustrates aggregated mean health domain score of study participants at the time of admission and discharge.

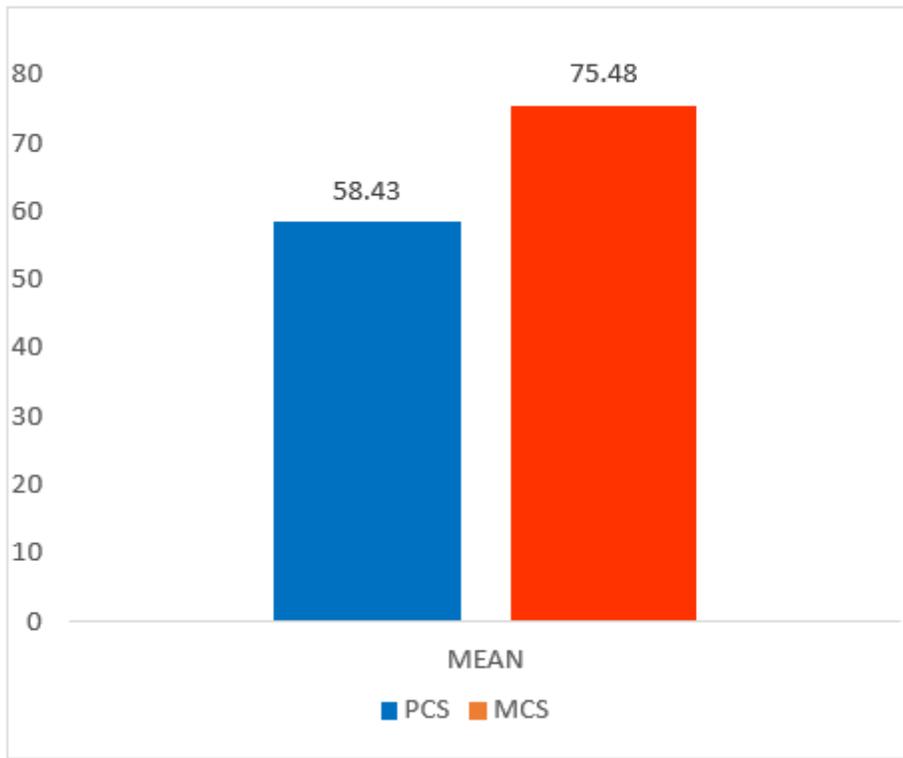


Figure 2

graphically illustrates comparison of physical and mental component score in study population.