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# Determining the influence of preoperative nursing Assessment on patients' surgical outcomes and anxiety at Kenyatta National Hospital, Kenya

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***Abstract***

*For quality surgical interventions and outcomes preoperative patient assessment by preoperative nurses is imperative yet the practice is dwindling.*

***Aim:** To determine the influence of nursing assessment on patients' surgical outcomes and anxiety*

***Design:** Randomized controlled trial.*

***Study population:** Mothers delivered by elective caesarian.*

***Sampling method and size:** Single blinding and random assignment; 60 participants.*

***Method**: Thirty participants were assessed preoperatively using a tool as study intervention. Surgical outcomes of anxiety, care satisfaction, pain experience and wound healing process were measured and compared with that of 30participants prepared preoperatively using the Hospital's standard practices. Pre and postoperative anxiety levels were assessed using Y form on day 1and 2, care satisfaction using structured questionnaire, postoperative pain and wound healing progress using international pain scale 1-10and observation chart respectively for 3 days. All ethical principles were observed.*

***Data analysis:** Multivariate non parametric statistics using statistical package for social sciences (SPSS) version 17.*

***Results:** Mann-Whitney U Test showed $p<0.05$ for five pre-and postoperative anxiety statements except "feeling worried" ($z = -1.58$, $p = 0.114$) postoperatively;$p>0.05$ for pain experience and*

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*wound healing progress, Wilcoxon W Testshowed p< 0.05 for five care satisfaction statements, except for desire to be visited by theatre nurses before surgery (p = 0.49 > p = 0.05).*

***Discussion:*** *Intervention group had better surgicaloutcomes compared to the control group eventhough there were no significant differences in pain experience and wound healing progress probably because of already established care standards.*

***Conclusion:*** *Preoperative nursing assessment positively influences patients' surgical outcomes*

***Recommendation:*** *Preoperative nursing assessments for surgical patients require restructuring to revamp the dwindling practice.*

***Key words*** **–**Anxiety; preoperative assessment; perioperative nurses; elective surgery; surgical outcomes

## Introduction

Perioperative nurses play very critical roles in surgery. The nurses are entrusted with ensuring optimal surgical preparation of patients as well ascoordinating theatre activities.It is the mandate of theatre nursesis to conduct preoperative patientassessment and to use the information obtained to plan and execute holistic and individualized surgical care.

Cursory observations and anecdotal records show that policies governing the assessment by perioperative nurses in the study region are not explicitly defined. For example, the feasibility of conducting the assessment is pegged on time availability within the theatre schedules. Hence, the busy theatre schedules have taken toll on the practice. Perioperative nurses are more preoccupied with work output demand in the theatres because of acute shortage of nursing staffscausing theassessment practice to dwindle.The question arising is that doespreoperative assessment by perioperative nurses influence patients' surgical outcomes?

Another reason why perioperative nurses conduct preoperative assessment is to allay patients' anxieties (Potter &Perry, 2005; Rothrock& McEwen, 2007).Excessive anxietyis detrimental to patients' surgical outcomes (Rosenberger, Jolk, & Ickovics, 2006). Excessive anxiety causes increased levels of cortisone in the body which leads to proteins breakdown and decreased wound healing (Gunstream, 2000), pain exacerbation among other complications. Preoperative assessment impacts also on theatre space utilization and psychological well being of patients (NHS, 2003). It is envisaged that the study findings would help enhance surgical careproficiency and patients' safety.

## Methodology and tools

Randomized controlled trial wasconducted between March and May 2013at a national hospital with 1800 bed capacity. Sixty consenting participants among mothers scheduled for elective caesareansectionwere sampled. Participants were aged 18 years and above and spoke national languages of either English or Kiswahili or both for ease ofcommunication. Random assignment was used to allocate participants into control or intervention groups. Blinding was achieved by askingconsenting participants to pick one among 60 identical envelopes enclosedwith cardslabeled No.1 or 2equally representing the two study groups respectively. The control groupunderwent standard practices while the intervention group was assessedthe eve of surgery using the studytool. Peak anxiety levelswere assessed moments before patients' departure to theatre and prior to premedication. Participants were engaged again24 hours after recuperation according to Anesthesiologist's advice and considering the well being of both mother and child. Anxiety levels were assessed using FormY6(Marteau & Bekker, 1992), pain using International Pain Scale 1-10

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and care satisfactionusing structured questionnaires.Wound healing progress was assessed using observation chart. The participants were required to indicate if the dressing was wet, dry or bloody and if changed. Doctors' comments regarding the wound upon removal of the dressing material on the third postoperative dayaccording to standard practicewas incorporated. Postoperative anxiety levels were assessed on day two only while the rest of the study parameters were assessed for three days. All ethical principles were observed. Data was cleaned and analyzed using SPSS version 17.

**Results and discussion**

Participants' demographic characteristics were as shown in Table 1.

Table 1: Participants' demographic profile

| Socio-demo-graphic profile | Frequency (n=30) | Percentage (%) | Frequency (n=30) | Percentage (%) |
|---|---|---|---|---|
| groups | Intervention group | | Control group | |
| Age (years) | | | | |
| 25-29 | 8 | 26.7 | 11 | 36.7 |
| 30-34 | 9 | 30.0 | 7 | 23.3 |
| 35-39 | 6 | 20.0 | 5 | 16.7 |
| 40-44 | 1 | 3.3 | 1 | 3.3 |
| Below 25 | 6 | 20.0 | 6 | 20.0 |
| Parity | | | | |
| Primi-gravida | 9 | 30.0 | 4 | 13.3 |
| Para 1+ | 8 | 26.7 | 15 | 50.0 |
| Para 2+ | 6 | 20.0 | 7 | 23.3 |
| Para 3+ | 7 | 23.3 | 1 | 3.3 |
| Para 4+ | 0 | 0 | 1 | 3.3 |
| Para 5+ | 0 | 0 | 2 | 6.7 |
| Level of education | | | | |
| Primary | 12 | 40.0 | 5 | 16.7 |
| Secondary | 9 | 30.0 | 12 | 40.0 |
| Tertiary | 9 | 30.0 | 13 | 43.3 |
| Mode of hospital bill payment | | | | |
| Company | 1 | 3.3 | 0 | 0 |
| NHIF/self | 22 | 73.3 | 26 | 86.7 |
| Self | 8 | 23.3 | 4 | 13.3 |
| Previous surgery | | | | |
| Yes | 16 | 53.3 | 16 | 53.3 |
| No | 14 | 46.7 | 14 | 46.7 |
| Major illness? | | | | |
| Yes | 0 | 0 | 3 | 10.0 |
| No | 30 | 100.0 | 27 | 90.0 |
| Medication? | | | | |
| No | 30 | 100.0 | 30 | 100.0 |
| Smoking? | | | | |
| No | 30 | 100.0 | 30 | 100.0 |
| Place of discharge after surgery | | | | |
| Ward | 30 | 100.0 | 30 | 100.0 |
| State of the baby (APGAR score) | | | | |
| Good | 30 | 100.0 | 27 | 90.0 |
| poor | 0 | 0 | 3 | 10.0 |

Anxiety statements of feeling calm, tense, upset, relaxed, contented and worried were rated as 1= not all, 2 = somewhat, 3= moderately and 4 = very much.Table 2 shows participants' preoperative anxiety levels.

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Table 2: Preoperative anxiety levels

| Test Statistics | Anxiety statements | | | | | |
|---|---|---|---|---|---|---|
| | feeling calm | Feeling tense | feeling upset | feeling relaxed | feeling content | feeling worried |
| Mann-Whitney U test | 320 | 292 | 344 | 240 | 270 | 82 |
| Wilcoxon W test | 785 | 757 | 809 | 705 | 735 | 547 |
| Z | -2.0 | -2.5 | -2.1 | -3.2 | -2.8 | -5.7 |
| Level of Significance P=0.05 | .04* | .01* | .03* | .00* | .00* | .00* |

** Significantlevel at 95% confidencelimit*

There were significant differences preoperatively for all the six anxiety statements confirming Potter &Perry (2005) and Rothrock& McEwen (2007) assertions that all patients undergoing surgery experience anxiety.

Postoperative anxiety levels were as shown in Table 3.

Table 3: postoperative anxiety levels

| Test Statistics | Anxiety statements | | | | | |
|---|---|---|---|---|---|---|
| | feeling calm | feeling tense | feeling upset | feeling relaxed | feeling content | feeling worried |
| Mann-Whitney U test | 330 | 326 | 390 | 314 | 257 | 378 |
| Wilcoxon W test | 795 | 791 | 855 | 779 | 722 | 843 |
| Z | -2.1 | -2.5 | -2.5 | -2.3 | -3.2 | -1.6 |
| P-value (p=0.05) | .04* | .01* | .04* | .02* | .00* | .11 |

**Significant levels at 95% confidence limit*

There were significant differences postoperatively regarding five anxiety statements except for "feeling worried" because surgery which was the dreaded stimulus that elicited anxiety was over.

Participants' pain experiences were as shown in Table 4.

Table 4: pain experiences

| Day/Group | No pain | Mild to moderate pain | Severe to worst possible pain |
|---|---|---|---|
| Day 1 Intervention group | 9 30% | 18 60% | 3 10% |
| Day 1 Control group | 4 13% | 14 47% | 12 40% |
| Day 2 Intervention group | 0 | 30 100% | 0 |
| Day 2 Control group | 2 7% | 24 80% | 4 13% |

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| | | | | |
|---|---|---|---|---|
| Day 3 Intervention group | 14 | 47% | 16 | 53.3% | 0 |
| Day 3 Control group | 8 | 27% | 22 | 73% | 0 |

There were no significant differences between the groups on pain experiences. The results can be attributed to established post operative pain management strategies (Table 5).

Table 5: Pain experiences betweenintervention versus control groups

| Test statistics | Pain experience on day 1 | Pain experience on day 2 |
|---|---|---|
| Mann-Whitney U test | 354.00 | 420.000 |
| Z | -1.570 | -.852 |
| p-value (p=0.05) | 0.116 | 0.394 |

There were no significant differences observed regarding wound healing progress probably because of safe surgical practices and absence of debilitating comobidities among all the participants (Table 6).

Table 6: Wound healing progress, intervention group versus control group

| Test Statistics | Mann-Whitney U test | Z | P = (0.05) |
|---|---|---|---|
| Wound healing day 1 | 420 | -1.0 | 0.305 |
| Wound healing day 2 | 450 | 0.0 | 1.000 |
| Wound healing day 3 | 450 | 0.0 | 1.000 |
| dressing Changed | 420 | -1.4 | 0.154 |

Satisfaction of care was rated on a five Likert Scale as follows: 4 = strongly disagree, 2 = disagree, 3 = agree, fairly agree = 4 and strongly agree = 5,Table 7.

Table 7: Care satisfaction response

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| Surgical experience | Rating care satisfaction | Intervention (n=30) | Control (n=30) |
|---|---|---|---|
| 1. The nurse who prepared me for theatre gave satisfactory information about my operation. | Strongly agree | 10(33.3%) | 9 (30.0%) |
| | Agree fairly | 11(36.7%) | 3(10%) |
| | Agree | 4(13.3%) | 9(30.0%) |
| | Disagree | 0 | 5 (16.7%) |
| | Strongly disagree | 0 | 4 (13.3%) |
| 2. My questions regarding theatre were well answered by the nurse | Strongly agree | 15 (48.4%) | 7 (23.3%) |
| | Agree fairly | 11(36.7%) | 3 (10%) |
| | Agree | 4(13.3%) | 14(46.7%) |
| | Disagree | 0 | 5 (16.7%) |
| | Strongly disagree | 0 | 1 (3.3%) |
| 3. I was given enough information about what is expected of me before and after surgery by the nurse | Strongly agree | 11(36.7%) | 2 (6.7%) |
| | Agree fairly | 14 (46.7%) | 7 (23.3%) |
| | Agree | 5(16.7%) | 9 (30.0%) |
| | Disagree | 0 | 7 (23.3%) |
| | Strongly disagree | 0 | 5(16.7%) |
| 4. I was able to manage pain very well post-operatively | Strongly agree | 8(26.7%) | 1 (3.3%) |
| | Agree fairly | 14 (46.7%) | 10(33.3%) |
| | Agree | 8 (26.7%) | 6 (20%) |
| | Disagree | 0 | 9 (30.0%) |
| | Strongly disagree | 0 | 4(13.3%) |
| 5. I can say my surgical experience was very good | Strongly agree | 11(36.7%) | 6 (20%) |
| | Agree fairly | 13 (43.3%) | 8 (26.7%) |
| | Agree | 6 (20%) | 12(40.0%) |
| | Disagree | 0 | 4(13.3%) |
| | Strongly disagree | 0 | 0 |
| 6. Do you think a nurse from Theatre should visit you before surgery? | Strongly agree | 5 (16.7%) | 15(50.0%) |
| | Agree fairly | 11 (36.7%) | 0 |
| | Agree | 13 (43.3%) | 10(33.3%) |
| | Disagree | 1 (3.3%) | 5(16.7%) |
| | Strongly disagree | 0 | 0 |

Table 8: Care satisfaction between intervention versus control groups

| Care satisfaction statements | Test Statistics[a] | | |
|---|---|---|---|
| | Wilcoxon W Test | Z-statistics | P = 0.05 |
| 1. The nurse who prepared me for theatre gave satisfactory information about my operation. | 727.0 | -2.919 | 0.004* |
| 2. My questions regarding theatre were well answered | 677.0 | -3.679 | 0.000* |
| 3. I was given enough information of what is expected of me before and after surgery by the nurse | 618.0 | -4.541 | 0.000* |
| 4. I was able to manage pain very well post-operatively | 650.0 | -4.075 | 0.000* |
| 5. I can say my surgical experience was very good | 735.5 | -2.777 | 0.005* |
| 6. Do you think a nurse from theatre should visit you pre-operatively ? | 870.50 | -0.692 | 0.489 |

** Significant level at 95% confidence limit*

There were statistically significant differences between the groups on how they rated care satisfaction regarding perioperative nursing care. Intervention group felt more satisfied with care given compared to the control group. However, all participants in both groups expressed the desire to be visited by theatre nurses before

surgery (p = 0.49 > p = 0.05), Table 8.According to Hepner, Bader, Hurwitz, Gustafson & Tsen, (2004) care satisfaction is an important indicator for measuring quality.These results can be associated with the mutual trust developed between patients and nurses while interacting during preoperative assessment (NATN, 1996).Moreover, knowledge about the patient and how the patient views the impending surgery are prerequisites for effective nursing intervention (Phillips, 2004).

**Conclusion and recommendation**

The results evidenced that preoperative nursing assessment positively influenced preoperative patients' surgical outcomessupported by the significant differences between patients assessed using the study tool and those who underwent standard practices only. Therefore, perioperative nurses should be encouraged to conduct preoperative assessment by fostering enabling environment that enhances the practice. The study recommends the adoption of the intervention tool as a frame work for assessment in situations like the study setting where it was reported that there was none in place.There is also need to replicate the study in other types of elective surgeries and with larger samples in order compare or contrast the findings.

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