

Are fresh medical graduates, well trained to take up Urinary Catheterization?: A study to assess the knowledge, attitude and practice of Urinary catheterization among freshers in a tertiary care hospital



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ABSTRACT

Background: Urinary catheterization is an integral part of patient management. At the same time it is also a major source of morbidity if not done properly. In spite of being an important procedure, most of the time it is performed by junior most member of the team. Huge gap in knowledge and skill has been detected among junior doctors as far as urinary catheterization is concerned. Proper training under experienced doctors is required to reduce the gap for better patient management. **Aims and Objectives:** This study aims to assess the knowledge, attitude and practice of urinary catheterization among residents (interns, house staff {HS} and post graduate trainees {PGT}) attached to the different departments in a medical college hospital in south Bengal. **Materials and Methods:** A hospital based cross-sectional study was conducted with the help of pre tested questionnaire among 200 residents in the department of surgery. The data obtained were analyzed for different parameters. Ethical clearance was taken from the Institutional Ethical Committee. **Results:** Residents with good theoretical understanding (82%) and practical training (82.5%) regarding urinary catheterization had better knowledge, attitude and practice compared to residents with less theoretical and practical exposure ($p < 0.05$). 75% participants (150/200) who received supervision during their first catheterization had more knowledge ($p = 0.00$), better attitude ($p = 0.04$) and practice (0.02). It was also revealed that there was significant difference between the knowledge and attitude of interns compared to HS and PGT's ($p = 0.00$) but the difference between HS and PGT's was not significant ($p > 0.05$). Difference of practice of intern with HS and PGT's as well as difference of practice between HS and PGTs all were significant ($p = 0.00$). **Conclusion:** Pre procedural theoretical, practical exposure and expert supervision are significantly effective in terms of improvement of knowledge, attitude and practice of Residents. These rubrics so be included in the assessment of medical students and adoption of soft skills in their curriculum could make them efficient enough to manage the emergencies. Training should be designed in step by step approach which should be managed by an experienced urologist.

Keywords: Urinary catheterization, Knowledge, Attitude, Practice, Quality patient Management

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INTRODUCTION

Urinary catheterization is a commonly performed procedure for various indications. Being an integral part of patient management, it is often left to junior most member of the team. Although it is seldom life threatening,

an iatrogenic urethral injury or urinary tract infection may have significant short and long term consequences including urethral bleeding, stricture, incontinence, erectile dysfunction and infertility.¹⁻⁵

Being performed in large numbers, urinary catheterisation forms a very important procedure in patient care. Improper catheterisation further adds to the morbidity of already ill patient and also raises the total costs of hospital stay.

The purpose of the study was to identify the lacunae and insufficiencies among junior residents regarding the procedure as they are the ones who are commonly assigned to perform the procedure.

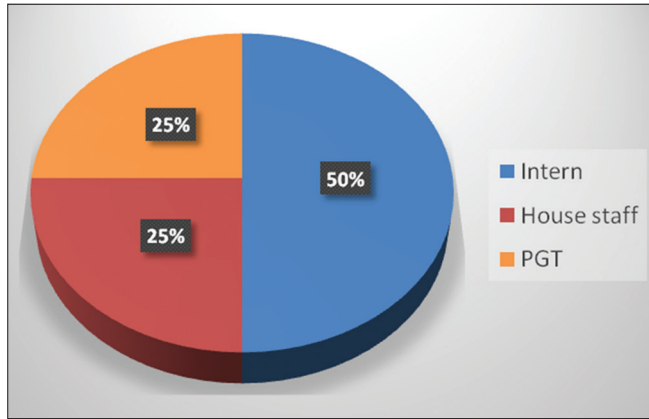


Figure 1: Distribution of participants according to designation
Comment: Half of the study participants were Intern (50%). Rest of are House staff and PGT.

MATERIALS AND METHODS

The Institution based cross sectional study was conducted among interns (completed four and half years of compulsory medical training), House staff (HS) {post

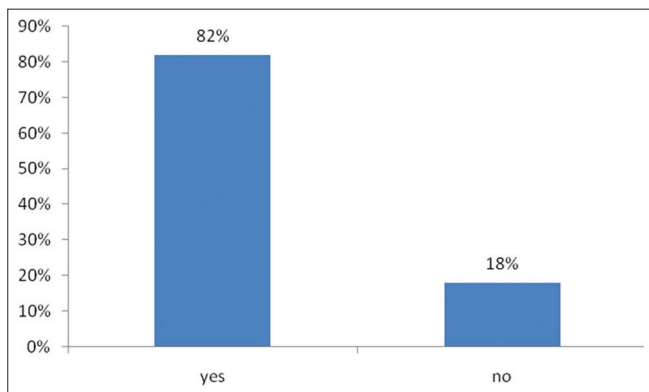


Figure 2: Distribution of participants according to theoretical training
Comment: Majority of the participants had theoretical training (82%)

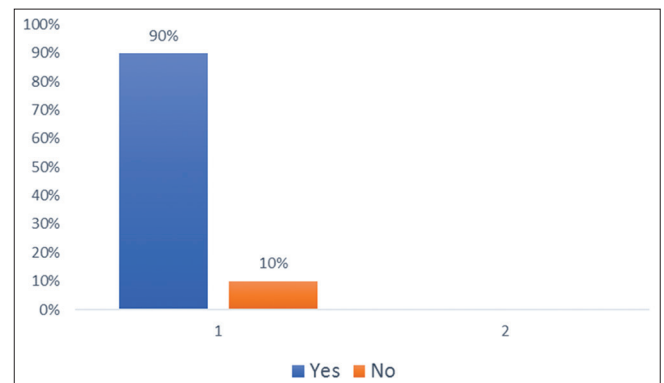


Figure 4: Distribution of participants according to perception of effectiveness of the training
Comment: Maximum (90%) participants thought training was effective

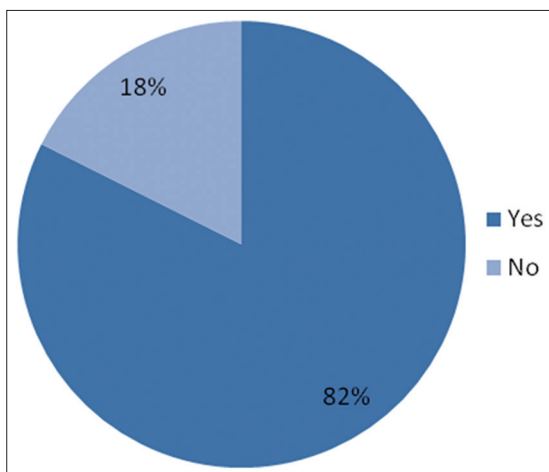


Figure 3: Distribution of participants according to practical training
Comment: Majority of the participants had practical training (82%)

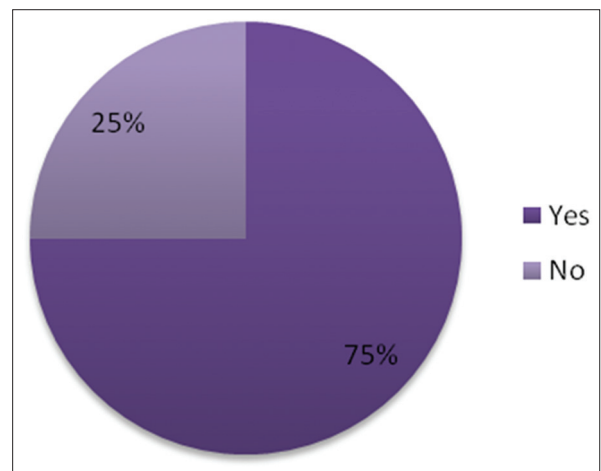


Figure 5: Distribution of participants according to Supervision
Comment: Majority of the participants (75%) did first catheterization under supervision

Table 1: Distribution of study participants according to theoretical training and knowledge score (n=200)

| Theoretical training | Knowledge score | Statistic | p value at df 198 |
|---------------------------|-----------------|-----------|-------------------|
| | Mean±SD | | |
| No (n ₁ =36) | 5.81±1.81 | t=2.54 | 0.012 |
| Yes (n ₂ =164) | 6.63±1.74 | | |

Participants who had theoretical training had more knowledge than those who had not and the difference was statistically significant (p<0.05)

Table 2: Distribution of participants according to practical training and knowledge score (n=200)

| Practical training | Knowledge score | Statistic | p value at df 198 |
|---------------------------|-----------------|-----------|-------------------|
| | Mean±SD | | |
| No (n ₁ =35) | 5.26±2.00 | t=4.70 | 0.00 |
| Yes (n ₂ =165) | 6.74±1.62 | | |

Participants who had practical training had more knowledge than the those who had not and the difference was statistically significant (p<0.05)

Table 3: Distribution of participants according to effectiveness of training and knowledge score (n=200)

| Effectiveness of training | Knowledge score | Statistic | p value at df 198 |
|---------------------------|-----------------|-----------|-------------------|
| | Mean±SD | | |
| No (n ₁ =20) | 3.85±1.42 | t=8.6 | 0.00 |
| Yes (n ₂ =180) | 6.77±1.56 | | |

Participants who thought training was effective, had more knowledge score than the other group and the difference was statistically significant (p<0.05)

Table 4: Distribution of participants according to supervision and knowledge score (n=200)

| Supervision | Knowledge score | Statistic | p value at df 198 |
|---------------------------|-----------------|-----------|-------------------|
| | Mean±SD | | |
| No (n ₁ =50) | 5.04±1.67 | t=7.4 | 0.00 |
| Yes (n ₂ =150) | 6.96±1.54 | | |

Participants who got supervision during catheterisation had more knowledge score than those who had not got any supervision, the difference was statistically significant (p<0.05)

Table 5: Distribution of participants according to designation and knowledge score

| Designation | Knowledge score | Statistic | p value at df 2 |
|----------------------------------|-----------------|-----------|-----------------|
| | Mean±SD | | |
| Intern (n ₁ =100) | 5.86±1.57 | F=13.84 | 0.00 |
| House staff (n ₂ =50) | 7.20±1.96 | | |
| PGT (n ₃ =50) | 7.00±1.55 | | |

Differences of knowledge score in between different group as per designation were statistically significant but in post hoc test it was found that there were significant differences between intern with HS and PGT but the difference between HS and PGT was not significant

Table 6: Distribution of participants according to theoretical training and attitude score

| Theoretical training | Attitude score | Statistic | p value at df 198 |
|---------------------------|----------------|-----------|-------------------|
| | Mean±SD | | |
| Yes (n ₁ =164) | 15.30±2.27 | t=2.33 | 0.02 |
| No (n ₂ =36) | 13.94±3.32 | | |

Participants who had theoretical training had better attitude than the those who had not and the difference was statistically significant (p<0.05)

Table 7: Distribution of participants according to attitude score and practical training (n=200)

| Practical training | Attitude score | Statistic | p value at df 198 |
|---------------------------|----------------|-----------|-------------------|
| | Mean±SD | | |
| Yes (n ₁ =165) | 15.27±2.33 | t=2.12 | 0.04 |
| No (n ₂ =35) | 14.06±3.21 | | |

Participants who had practical training had better attitude than the those who had not and the difference was statistically significant (p<0.05)

Table 8: Distribution of participants according to attitude score and effectiveness of the training (n=200)

| Effective training | Attitude score | Statistic | p value at df 198 |
|---------------------------|----------------|-----------|-------------------|
| | Mean±SD | | |
| Yes (n ₁ =180) | 15.14±2.4 | t=1.11 | 0.27 |
| No (n ₂ =20) | 14.30±3.29 | | |

Participants who thought training was effective, had more attitude score than the other group but the difference was statistically not significant (p>0.05)

Table 9: Distribution of participants according to attitude score and supervision (n=200)

| Supervision | Attitude score | Statistic | p value at df 198 |
|---------------------------|----------------|-----------|-------------------|
| | Mean±SD | | |
| Yes (n ₁ =150) | 15.27±2.6 | t=2.00 | 0.04 |
| No (n ₂ =50) | 14.44±2.26 | | |

Participants who got supervision during catheterisation had more attitude score than those who had not got any supervision, the difference was statistically significant (p<0.05)

Table 10: Distribution of participants according to designation and attitude score (n=200)

| Designation | Attitude score | Statistic | p value at df 2 |
|----------------------------------|----------------|-----------|-----------------|
| | Mean±SD | | |
| Intern (n ₁ =100) | 13.96±2.64 | F=23.22 | 0.00 |
| House staff (n ₂ =50) | 16.34±1.99 | | |
| PGT (n ₃ =50) | 15.98±1.75 | | |

Differences of attitude score in between different group as per designation were statistically significant .Post hoc test revealed that there were significant differences between the attitude of Intern with HS and PGT but the difference between HS and PGT was not significant

Table 11: Distribution of participants according to supervision and practice score (n=200)

| Supervision | Practice score | Statistic | p value at df 198 |
|---------------------------|----------------|-----------|-------------------|
| | Mean±SD | | |
| Yes (n ₁ =150) | 11.04±3.37 | t=2.32 | 0.02 |
| No (n ₂ =50) | 9.68±3.64 | | |

Participants who got supervision during catheterization had more practice score than those who had not got any supervision, the difference was statistically significant (p<0.05)

Table 12: Distribution of participants according to practice score and effectiveness of the training (n=200)

| Effective training | Practice score | Statistic | p value at df 198 |
|---------------------------|----------------|-----------|-------------------|
| | Mean±SD | | |
| Yes (n ₁ =180) | 10.79±3.4 | t=1.08 | 0.28 |
| No (n ₂ =20) | 9.90±3.5 | | |

Participants who thought training was effective, had more practice score than the other group but the difference was statistically not significant (p>0.05)

Table 13: Distribution of participants according to practice score and practical training (n=200)

| Practical training | Practice score | Statistic | p value at df 198 |
|---------------------------|----------------|-----------|-------------------|
| | Mean±SD | | |
| Yes (n ₁ =165) | 10.96±3.43 | t=2.34 | 0.02 |
| No (n ₂ =35) | 9.46±3.5 | | |

Participants who had practical training had more practice score than the those who had not and the difference was statistically significant (p<0.05)

Table 14: Distribution of participants according to practice score and theoretical training (n=200)

| Theoretical training | Practice score | Statistic | p value at df 198 |
|---------------------------|----------------|-----------|-------------------|
| | Mean±SD | | |
| Yes (n ₁ =164) | 11.02±3.4 | t=2.80 | 0.00 |
| No (n ₂ =36) | 9.25±3.54 | | |

Participants who had theoretical training had more practice score than the those who had not and the difference was statistically significant (p<0.05)

Table 15: Distribution of participants according to designation and practice (n=200)

| Designation | Practice score | Statistic | p value at df 2 |
|----------------------------------|----------------|-----------|-----------------|
| | Mean±SD | | |
| Intern (n ₁ =100) | 9.08±3.16 | F=37.66 | 0.00 |
| House staff (n ₂ =50) | 11.12±2.73 | | |
| PGT (n ₃ =50) | 13.52±2.83 | | |

Differences of attitude score in between different group as per designation were statistically significant. Post hoc test revealed that differences of practice of intern with HS and PGT as well as difference of practice of HS and PGT all were significant

internship optional specific departmental training} and post graduate trainees (PGT'S) in the department of surgery Bankura Sammilani Medical College and Hospital. The study included 200 participants. Half of the participants were interns and rest was equally divided among HS and PGT's. The study was based on pre-tested and pre-validated questionnaire. Assessment of their knowledge, practice and attitude regarding urinary catheterisation were done with 10 knowledge based questions, 10 attitude based questions with likert scale and 10 practice based questions. Both face and content validity of the questionnaire were evaluated by 5 designated faculty members from general surgery and biostatistics and its reliability with test and pre-test(reliability co-efficient).The questionnaire was pre-tested among 5 internees and 5 residents for clarity and they were not included in the rest of the study. Analysis was done by using central tendencies (mean, standard deviation, t- test & post hoc test).

RESULTS

Average age of the study participants was 24.9±2.44 (mean ± sd) years, minimum age was 22 years and maximum was 34 years.

DISCUSSION

Out of 200 participants 164 (82%) (Intern 88+ HS 33+ PGT 43) were theoretically trained, and rest was untrained (Figures 1 and 2). The participants with theoretical training had more knowledge than untrained and the difference is statistically significant suggested by p value (0.012) (Table 1). 82.5% out of 200 (intern 81+HS 40+ PGT 44) participants had practical training (Figure 3) gained more knowledge than those without practical training which is statistically significant (p <0.05) (Table 2). Participants who underwent pre procedural training (theoretical and practical) thinking it to be effective (90%) (Figure 4) had better knowledge than other group (participants with opposite thought), which is statistically significant Table 3. Out of 200, 150(75%)participants (intern 69+ HS 41+PGT 40) who had done their first catheterization under supervision (Figure 5), showed statistically significant (p value) knowledge difference from non supervised group (Table 4). The knowledge score of intern is less than others which is also statistically significant (p value) (Table 5). But contradictions found between house staff and PGTs clarified by p value (p>0.05) which signifies that minor surgical procedure like urinary catheterisation does not require any special knowledge, it's a basic one. 164 participants had better attitude due to their theoretical training than the rest of the participants (36) (intern 12+ HS 17+PGT 7) without any theoretical training and the

difference is statistically signified by $p < 0.05$ (Table 6). 165 out of 200 (Intern 81+HS 40+PGT 44) had gained practical training resulting better attitude than the practically untrained (35/intern 19+ HS 10+PGT 6) which is significant having $p = 0.04$ (Table 7). Only 10% (intern 16 +HS 3+PGT 1) who had a thought that training was not effective, so less attitude score than the participants having opposite thought. Though it is not statistically significant ($p = 0.27$) (Table 8). One hundred fifty (75%) (intern 69+ HS 41+ PGT 40) out of 200, had done first catheterisation under any supervision resulting more attitude score than the 25% participants (intern 31+ HS 9 + PGT 10) who had done this same without any supervision and the difference of result has been statistically signified by $p < 0.05$ (Table 9).

Difference of attitude found in between different group as per designation were statistically significant ($p = 0.00$) (Table 10). It had been revealed that there were significant difference in attitude between intern with others but no significant difference between house staff and PGTs which signifies specialization does not make significant difference in basic surgical procedure like urethral catheterisation.

Seventy five percent (150) done the catheterisation under any supervision had gain more practice score than the 50(25%) of the participants done this same without any supervision and the difference of result was statistically significant having $p = 0.02$ (Table 11). Maximum, (90%) (180/200) of the participants having a thought that the training was effective gained more practice score than the rest of the participants with opposite thought. Though the result was not statistically significant ($p = 0.28$) (Table 12).

Eighty two point five percent of the participant had gain practical training results as more practice score than the participants without any practical training, and the difference was statistically significant $p = 0.02$ (Table 13).

Maximum of the participants 82% who had gain theoretical training results in more practice score than the rest of the participants (18%) having no theoretical training and the result was more statistically significant having $p = 0.00$ (Table 14).

Difference in practice in between different group were statistically significant ($p = 0.00$). There was significant difference in practice of interns with others and the difference of practice between house staff and PGT were also significant. PGTs are superior in this concern followed by house staff (Table 15) and the result is rational.

CONCLUSION

Interns are found to have lesser knowledge, attitude and practice in comparison to others regarding urethral catheterization. Though it is a well known fact that most of cases urinary catheterization is performed by junior most member of the team those are Intern. So some measures must be taken to improve the knowledge, attitude and practice method of Interns.

It has also been evident that pre procedural theoretical, practical training and expert supervision are significantly effective in terms of improvement of knowledge, attitude and practice of junior doctors. So it should be utilized as a powerful weapon to improve the quality of patient management.

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Authors Contribution:

KK- Manuscript preparation, critical revision of manuscript, data collection, literature search, prepared first draft; **SSK**- Conceptualized the study, literature search, data analysis and interpretation, revision of manuscript; **UD**- Concept and design of study, reviewed the literature and revision of manuscript, literature search.

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