Gauging Skills of Hospital Security Personnel: a Statistically-driven, Questionnaire-based Approach

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Abstract:

Objectives: This study aims to gauge the technical and soft skills of the hospital security personnel so as to enable prioritization of their training needs.

Methodology: A cross sectional questionnaire based study was conducted in December 2011. Two separate predesigned and pretested questionnaires were used for gauging soft skills and technical skills of the security personnel. Extensive statistical analysis, including Multivariate Analysis (Pillai-Bartlett trace along with Multi-factorial ANOVA) and Post-hoc Tests (Bonferroni Test) was applied.

Results: The 143 participants performed better on the soft skills front with an average score of 6.43 and standard deviation of 1.40. The average technical skills score was 5.09 with a standard deviation of 1.44. The study avowed a need for formal hands on training with greater emphasis on technical skills. Multivariate analysis of the available data further helped in identifying 20 security personnel who should be prioritized for soft skills training and a group of 36 security personnel who should receive maximum attention during technical skills training.

Conclusion: This statistically driven approach can be used as a prototype by healthcare delivery institutions worldwide, after situation specific customizations, to identify the training needs of any category of healthcare staff.

Key Words:
Hospital Security, Soft Skills, Technical Skills, Training, Statistical Analysis

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Introduction

Security is a major concern for any public institution, but hospitals and other medical centres present planners with a unique challenge. Beyond the ethical responsibility to keep patients and staff safe, the abundance of expensive medical equipment and potentially harmful drugs also puts medical facilities at a heightened risk of theft, whether pre-planned or a simple act of opportunism. [1] The critical assets of a hospital - its people, property, information and reputation – warrant security of utmost quality and reputation. Indeed hospital security is unique, but with good planning, it can be optimally enhanced. [2] Moreover, various studies have shown that patient satisfaction is directly influenced by the security personnel of a healthcare institution. [3] In addition, hospital security staff also plays an imperative role in many health promotion policy implementations. [4] Thus security is now considered to be a core module in leading hospitals. There is a good set budget and there is an increase in the need for security staff that can handle full-fledged operations and provide a relaxed environment in a hospital. [5]

Though numerous options in hospital security systems viz. high-tech, low-tech and even no-tech are available in the market, none of them will give desired results without an effective backup of trained and motivated hospital security personnel. Low employee morale, poor training and inadequate supervision are handmaidens of poor hospital security. These are most probably responsible for more wastage of security resources than are any other factors. The situation becomes worse as in most of the hospitals, training of hospital security personnel is too often casual and restricted to on-the-job- training. [6] Moreover, whatever little training is undertaken by the hospital administration, it is not based on proper identification of training needs of the security personnel. Thus any attempt to increase the task-relevant readiness of these staff beyond the level that they have previously reached fails. [7] Ideally, data about training needs should be gathered from performance appraisals, interviews of the security personnel, tests, surveys and career plans for these employees. [8] Both technical as well as soft skills are imperative in these individuals, and should be given due diligence while formulating their training programmes based on prior needs identification. This will ensure that the actual motive of training i.e. enabling employees to do their present job more efficiently is accomplished. [9] Another significant thing which should be kept in mind, while formulating these programmes is that the actual work performed by security personnel in a healthcare scenario is abstract. Thus the immediate results of these programmes may not be readily apparent. The positive results of a good safety programme may not be evident, at least in financial terms, for several years. [10]

Soft skills are personal attributes that enhance an individual's interactions, job performance and career prospects. Unlike technical skills, which are about a person's skill set and ability to perform a certain type of task or activity, soft skills relate to a person's ability to interact effectively with coworkers and customers. Soft skills in the employees, unlike earlier beliefs, are imperative in all systems including complex projects. [11] This is all the more important for hospital security personnel who invariably interact with multitude of patients and their attendants while working in open systems such as hospitals. This becomes even more critical during disaster management when miscreants take the advantage of the situation and try to create law and order problems. [12] Quantifying soft skills helps in enhancing and improving organizational systems and policies. Assessment centres are considered one of the most objective and fair methods of measuring behavioural and soft skills. As this approach is expensive, interviews based on carefully constructed questionnaires are considered more cost effective, especially in smaller setups involving limited participants. In fact, presently, questionnaires are increasingly being used in psychometric profiling. [13]

Sanjay Gandhi Post Graduate Institute of Medical Sciences (SGPGIMS), Lucknow is an 868 bed tertiary care super specialty hospital. At present, the institute caters to approximately 3, 00,000 outpatients and 35,000 inpatients per year. More than 20, 00,000 investigations are done on these patients annually. On an average, in a year, about 7,000 surgical procedures are performed including more than 80 renal transplants. This is made possible by a team of highly dexterous doctors using state

of the art technology and well supported by nursing staff, paramedical staff and other categories of staff including 143 hospital security personnel. This study, undertaken by the department of hospital administration at SGPGIMS, aims to gauge the technical and soft skills of the hospital security personnel so as to enable prioritization of their training needs.

Methodology

A cross sectional questionnaire based study was conducted in the month of December 2011 at SGPGIMS, Lucknow. Two separate predesigned and pretested questionnaires (see Annexure 'A' & 'B'), each containing ten multiple choice questions, were used for gauging soft skills and technical skills of all the 143 security personnel working in the hospital premises. The questionnaires were made in the vernacular language and were initially field tested by administering them to 25 security personnel (the participants for this pilot study were selected in a way to ensure that these personnel are representative of the entire working force vis-à-vis variations in age, education and experience). The reliability of the research instrument (to the extent that whatever it measures, it measures it consistently) and its validity (content related and construct related) were ensured. In the main study, the questionnaire was administered through a cordial two-way interview process. One mark was given for each correct answer whereas no mark was deducted for a wrong attempt. Thus final scoring, out of a total of ten marks, was done separately for technical and soft skills for each of the 143 participants. Other relevant details such as age, education, total experience as a security guard etc. were also retrieved from all the participants separately.

Extensive statistical analysis, including Multivariate Analysis (Pillai-Bartlett trace along with Multi-factorial ANOVA) and Post-hoc Tests (Bonferroni Test) was done using SPSS 16 package to get a better insight into the training needs of these personnel. Actually, if we want to examine more than one factor in the same experiment, we could analyze the effect of each factor separately. However, testing them together in the same analysis allows us to look at two additional things. First, it lets us determine the independent influence of each of the factors on the dependent variable, controlling for the other independent variables in the model. Thus, the test of each independent variable in a Multi-factorial ANOVA is based solely on the part of the dependent variable that it can predict which is not predicted by any of the other independent variables. Secondly, including multiple independent variables in the same model allows us to test for interactions among different factors. The presence of an interaction between two variables means that the effect of the first independent variable on the dependent variable depends on the level of the second independent variable. An interaction between three variables means that the nature of the two-way interaction between the first two variables depends on the level of a third variable. Also, if we have multiple dependent variables, we could perform an ANOVA on each to examine the effect of the independent variables. However, if one were concerned that performing these multiple tests would increase the Type I error rate, a Multivariate Analysis of Variance (MANOVA) would be useful alternative, as it is a single test of the independent variables' influence on the collection of dependent variables. More recently statisticians have used the Pillai-Bartlett trace, since research has indicated that this statistic is somewhat more robust to violations of the model assumptions than Wilk's lambda test. If there is a significant effect of the independent variable in the MANOVA, one could then follow up that MANOVA with univariate ANOVAs (ANOVAs with a single dependent variable). [14]

Observations

143 security personnel were working at SGPGIMS at the time of this study. All these were ex-servicemen recruited from Purva Sainik Kalyan Nigam, Uttar Pradesh. Relevant details such as age, education, total experience as a security guard etc. were retrieved from all the participants as these served as independent variables affecting the two dependent variables of the study viz. the scores obtained by the participants in the technical skills and soft skills sections of the questionnaires.

Figure 1 depicts a histogram showing age profile (in completed years) of the security

personnel at SGPGIMS. For converting the age profile into categorical data, three categories were identified namely Category One (≤ 45 years), Category Two (more than 45 years but ≤ 50 years) and Category Three (more than 50 years) as shown in **Table 1**. Likewise for converting the work experience profile (see **figure 2**; only previous experience as a security guard before or after joining the institute was considered in terms of completed years) into categorical terms, three categories were identified namely Category One (≤ 2 years), Category Two (more than 2 years but ≤ 5 years) and Category Three (more than 5 years) as shown in **Table 1**. Similarly the education profile of these security men was categorized as shown in **Table 1**.

Fig. (1). Histogram showing age profile (**in completed years**) of the security personnel at SGPGIMS

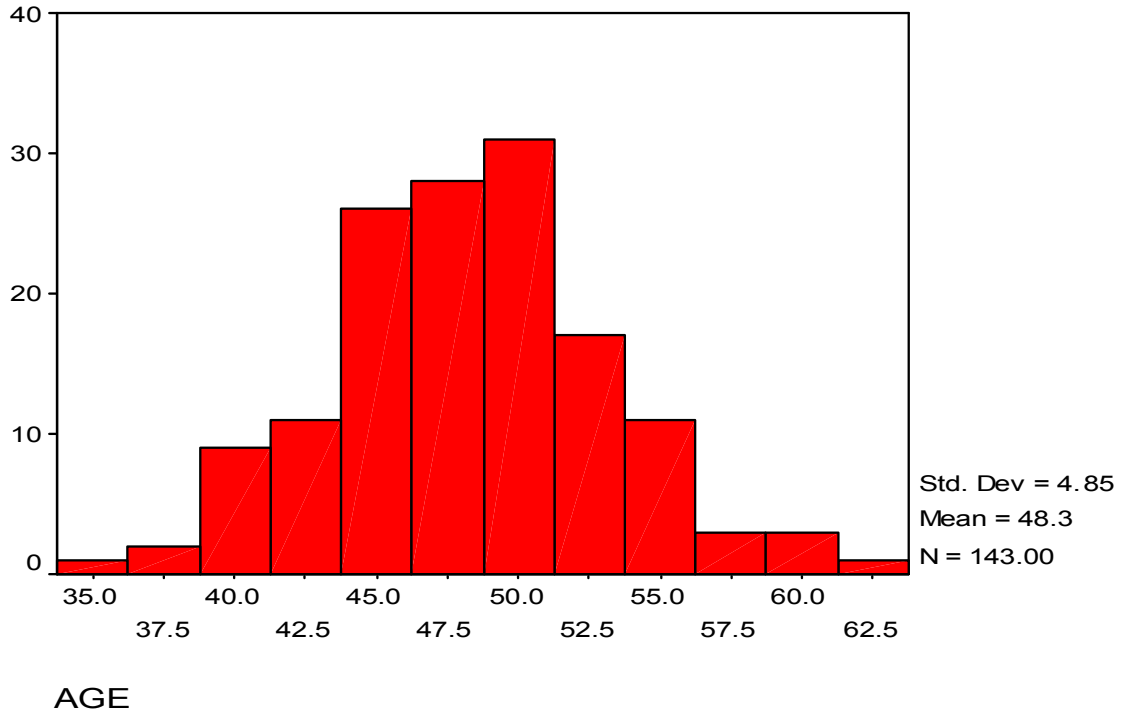
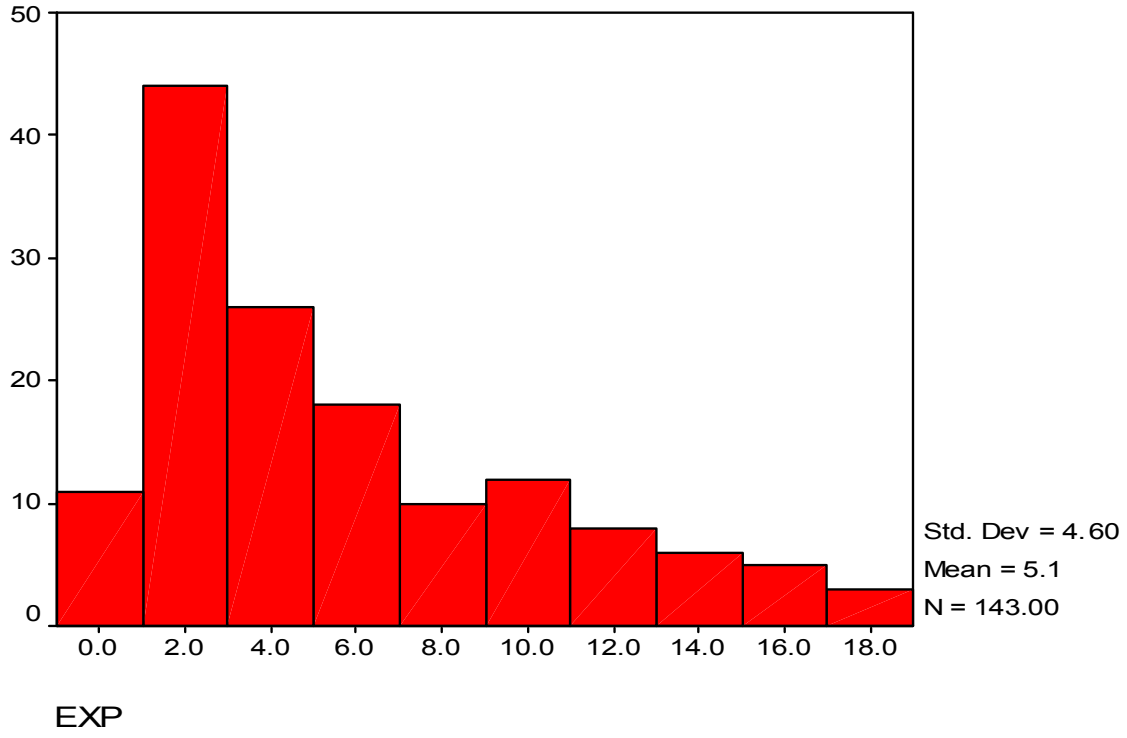


Table (1). Age, Work experience and Education profiling of the participants

Age	Work Experience	Education
≤ 45 years: 34 (24%)	≤ 2 years: 55 (39%)	< 10th Standard: 46 (32%)
> 45 years & ≤ 50 years: 59 (41%)	> 2 years & ≤ 5 years: 36 (25%)	10th Standard Pass: 65 (46%)
> 50 years: 50 (35%)	> 5 years: 52 (36%)	> 10th Standard: 32 (22%)
Total: 143		

Fig. (2). Histogram showing work experience profile (**in completed years**) of the security personnel at SGPGIMS



These 143 security personnel were interviewed, and their responses were marked and evaluated based on the two questionnaires already described. The participants surprisingly performed better on the soft skills front with only eight security men scoring less than 5 out of a maximum 10. The average soft skills score was 6.43 with a standard deviation of 1.40. 95% confidence interval for the mean was [6.19, 6.66]. Median was 6.00 with an inter quartile range of 1.00. Their performance in the technical skills arena was not as satisfactory. 43 security men scored less than 5 out of a maximum 10. In fact, 29 security men scored 4 out of 10. The average technical skills score was 5.09 with a standard deviation of 1.44. 95% confidence interval for the mean was [4.86, 5.34]. Median was 5.00 with an inter quartile range of 2.00. These results have been tabulated in **Table 2.**

Table (2). Showing performance of Security personnel in soft skills and technical skills questionnaires (**Maximum possible score was 10 in each questionnaire**)

S. No.	Measures (N=143)	Soft Skills	Technical Skills
1.	Arithmetic Mean	6.43	5.09
2.	Standard Deviation	1.40	1.44
3.	95% Confidence Interval for Mean	[6.19, 6.66]	[4.86, 5.34]
4.	Median	6.00	5.00
5.	Inter Quartile Range	1.00	2.00

Extensive statistical analysis, including Multivariate Analysis (Pillai-Bartlett trace along with Multi-factorial ANOVA) and Post-hoc Tests (Bonferroni Test) was done using SPSS 16 package to get even better insight into the training needs of these personnel. Age (A), education (E) and experience (X) served as three independent variables predicting the two dependent variables viz. scores in technical skills (TS) and soft skills (SS) questionnaires. MANOVA revealed that interaction between education and experience i.e. E*X significantly effects the two scores (p=0.034). MANOVA didn't give significant p value for any other effects. Tests of Between-Subjects Effects i.e. multi-factorial ANOVA further revealed that E*X significantly effects soft skills scores (p=0.028) as well as technical skills scores (p=0.045). It didn't give significant p value for any other source effects. Bonferroni test finally revealed that in the soft skills, those participants who have studied less than tenth standard (level one of E) and have ≤ 2 years of working experience (level one of X) had significantly lesser score than those who have studied higher than tenth Standard (level three of E) and have more than five years of experience (level three of X) [p= 0.038]. As far as technical skills were concerned, again those participants who have studied less than tenth standard and have ≤ 2 years of working experience had significantly lesser score than those who have studied higher than tenth Standard and have more than five years of experience [p= 0.018]. In addition, in technical skills, even those participants who have studied less than tenth standard and have 2-5 years of working experience (level two of X) had significantly lesser score than those who have studied higher than tenth Standard and have more than five years of experience [p= 0.029]. Bonferroni test didn't give any other significant p values.

Discussion

As training to these security personnel was only limited to 'on the job' casual training drills after joining SGPGIMS, their performances in this study clearly avow a need for formal hands on training with greater emphasis on technical skills. This is in accordance with the study published by the International Association for Hospital Security that clearly avers the need for continuous formal training workshops for hospital security personnel so as to bolster their technical skills[15]. Again, as the mean age of these ex-servicemen was 48.30 years vis-à-vis a mean working experience as security guard of only 5.10 years, this may be cited as a reason for their unsatisfactory performance in technical skills front. It is imperative that a participatory type of formal workshop should be arranged for them to orient themselves towards their relatively new role as security personnel. This becomes even more crucial as almost one-third of the security men working at SGPGIMS are not even high school pass. This recommendation is in consonance with numerous studies carried out in western healthcare setups which have shown that a two-way communication workshop is especially desirable in case of less educated categories of hospital staff such as security personnel. [16]

Multivariate analysis further helps us by identifying our most desirable target groups during the recommended workshops. In fact, it would be better for the hospital administration to arrange separate workshops for these target groups, and the number of participants per workshop for these groups should be carefully optimized so as to enable individual attention, group discussion and two-way communication. For soft skills training, those participants who have studied less than tenth standard and have ≤ 2 years of working experience (n=20) should be targeted whereas for technical skills training, this very same group of 20 security men along with those participants who have studied less than tenth standard and have 2-5 years of working experience (n=11) should be given special attention. Thus a detailed statistical analysis of the data identifies approximately 14 percent of the security staff as the most desirable target group for soft skills workshop where as an approximately 22 percent of the security staff for the technical skills workshop.

Conclusion

To conclude, the methodology adopted in this study, though intricate, is an effective way of identifying the training needs of hospital security personnel. It is also more cost effective vis-à-vis elaborate techniques like assessment centres approach. Though this scientific paper averred the effectiveness of a statistically sound questionnaire based approach in gauging the skills of the hospital

security personnel in particular, the same can be used as a prototype by healthcare delivery institutions worldwide, after situation specific customizations, to identify the training needs of any category of healthcare staff.

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