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Kannan, Srinivasan and P Sarma, Sankara

Sree Chitra Tirunal Institute for Medical Sciences and Technology

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Self rated performance and perceived workload among the public health nurses of Kerala

Srinivasan Kannan Ph.D. *, P.Sankara Sarma Ph.D

Achutha Menon Centre for Health Science Studies,
Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum
Trivandrum 695011, India.

kannansrini@ymail.com

Background

According to van den Hombergh P(2009), in healthcare workload or job stresses have negative effect on performance (van den Hombergh P 2009). Higher workload among health workers leads to poor performance. The paper analyzes the association between self assessments of performance and workload. This study was conducted among public health nurses in five districts of Kerala state, India. We have interviewed 1238 public health nurses with a self administered questionnaire. Of 1238 only 1225 have responded on self rated performance. The association between self rated performance and three aspects of workload namely role overload, role stagnation and self role distance (RODS) are analyzed. In total, 7 percent of respondents have reported they were unable to perform at an expected level. The poor performance neither gives them any good nor affects their career. This is because; there exists no reward or promotion system or any punishment in the system. The extent of services delivered by health worker and workload affects their performance is an important area of research in health management.

In general, the literature in nursing focuses either on official duties or practices of nurses in hospitals. A study on public health nursing professionals in India conducted by the Academy of Nursing Studies, Hyderabad (2005) gives a situational analysis of the nursing manpower situation in India by compiling data from six districts including Assam, Bihar, Gujarat, Tamil Nadu, Uttaranchal, and West Bengal. Studies by Sharma et al. (2010) and Conrad et al. (1985) studied the job satisfaction of the nurses and their official roles and duties. Likewise, the occupational hazards of the nurses also become a topic of interest. An increasing number of nurses are suffering from back injuries on the job from lifting and moving patients and heavy equipment (Helmlinger 1997).

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Fragar and Depczynski studied the challenges at work for older nurses who were 50 and above in Australia. The study found work and age related factors increase difficulties and that leads to perceived workload (Fragar and Depczynski 2011). O'Donnell et.al study in UK on practice nurses' workload and its impact on isolation found nurses working alone are in a team of two more likely to feel isolated compared to 3 or more (O'Donnell et.al 2010). Nabirye et.al 2011 study on occupational stress among hospital nurses in Uganda found differences in occupational stress, job satisfaction and job performance between public and private hospitals.

Hegny et al. 2004 study on workforce issues in Queensland found, the workload was heavy, skills and experiences are rewarded poorly, high work stress, and poor morale. Findings were consistent with the earlier study conducted in 2001(Hegny et al. 2006). Feng et al. study on low back pain among the female nurses in Taiwan found, manual transfer of patients, perceived physical exertion and psychological demands were associated with low back pain (Feng et al. 2007).

Objective

Present study is an attempt to study the workload of public health nurses and its effect on their self rated performance in Kerala.

Methodology

This is a cross sectional study. Primary data was collected from public health nurses including staff nurses from Community Health Centres. The respondents of the study are Junior Public Health Nurses (JPHN), Junior Health Inspectors (JHI), Staff nurses, Lady Health Inspectors (LHI) and Lady Health Supervisors (LHS) in five districts of Kerala.

Sampling

Samples were drawn from the following five study districts of Kerala, viz. Thiruvananthapuram, Alappuzha, Ernakulam, Malappuam and Wayanad. First, a list of health centres in each of the five districts was collected from Directorate of Health Services (DHS), Government of Kerala. Then, an expert who is familiar with the district was consulted while selecting the Community Health Centres (CHCs) to be included in data collection. The inclusion criteria for the CHCs were based on the representation of all types of landscape in each district. As the study is relating

to the workload, keeping the difficulties in delivering the services, different geographical locations of each district was included.

Table 1 Number of health centres selected from five districts

Name of district	No. of CHCs	No. of PHCs	No. of SCs	Total
Thiruvananthapuram	12(Out of 28)	44	242	298
Alappuzha	10(Out of 20)	25	141	176
Ernakulam	12(Out of 35)	29	207	248
Malappuram	14(Out of 15)	40	141	195
Wayanad	7(Out of 5)	21	131	159

From the selected CHCs, the CHC, Primary Health Centre(PHC), and Sub-centre(SC) were identified for data collection. The list based on the selected health centres were shared with the data collection agencies for collecting data from the centres. Table 1 shows the CHCs, PHCs and SCs under each of the district (Table 1). The investigators collected data from the different respondent categories viz. JPHNs, JHIs, Staff Nurses, LHIs and LHSs from the listed centres.

Table 2 Sample Size and sampling design N=1238

Sl No	District	JPHN	JHI	Staff Nurse	LHS	LHI	Total
1	Wayanad	137	70	24	2	17	250
2.	Malappuram	126	69	20	7	29	251
3.	Ernakulam	117	52	31	8	28	236
4.	Trivandrum	124	62	25	6	38	255
5.	Alapppy	131	50	26	7	32	246
	Total	635	303	126	30	144	1238

Currently there are 10,203 public health nurses and other health workers in Kerala. For sample selection about 10% of the above mentioned number i.e. about 1000 was decided as sample size. For sample selection, first we randomly selected two to three blocks from a district and included the selected category of health workers from all health institutions (Taluk Hospitals(TH), PHCs, CHCs and SCs) within selected blocks. The selection of blocks varied as per the requirement of the intended respondents. We collected the data from the consented health workers. The number of respondents from each of the five districts who were included for the study is given in Table 2. In total 1238 respondents participated in the study.

Data collection

Data was collected by the qualified field investigators who have experience in similar studies. Data was collected at the workplace of the health workers using a self administered questionnaire. The questionnaire comprised of four sections. They are, (a) Information and consent form, (b) General information, (c) Personal profile, (d) Duties and responsibilities related to Profession, (e) Perceptions, aspirations and ambitions related to work and career, (f) Role Overload, Distance and Stagnation (RODS)scale. All the sections excepting the RODS scale were developed by the investigators. RODS scale is, the RODS scale which was developed by Pareek and Purohit(2010). RODS is used to measure the 3 role stresses; role overload, self-role distance and role stagnation. The scale has 30 items; 10 for each of the 3 role stresses.

For the field investigators and supervisors we organized one day training programme in each of the study district along with the data collection agency engaged for this purpose.

Confidentiality and anonymity was maintained throughout the study. There was an informed consent process followed while administering the questionnaire. The questionnaire was in simple Malayalam language and was easily understood by the respondents. The contact details of the principal investigators were mentioned in the instrument. The respondents were free to participate. All eligible men and women health workers (JPHN, JHI, Staff Nurse, LHI and LHS) who are working permanently in the selected health centres were included in the study. The study took 20 months from July 2010.

Workload

The workload in the present study comprises of three elements, viz. Role overload, self role distance, and role stagnation. As referred earlier for the purpose of measuring the workload RODS scale was administered among different categories of public health nurses. Following tables show the prevalence of three aspects of workload. As per the scale, the cut off point for the categories were kept at 25 out of 50(maximum value). People who score more than or equal to 25 are classified as high in the respective aspect of workload viz. Role overload, role distance and role stagnation.

Table 3 Role Stresses

Role Stresses	%(No)
Role Overload (N=1237)	75.3%(931)
Self Role Distance (N=1238)	12.0%(149)
Role Stagnation (N=1237)	55.6%(688)

Table 3 shows the prevalence of role stresses among the public health nurses. 931 out of 1237 of them have reported role overload. That means 75.26 % (95% CI*: 72.78, 77.59) of them have role overload as per the values they scored on the RODS scale. (*Confidence Interval)

The prevalence of self role distance among the public health nurses. Only 149 out of 1238 of them have reported role distance. That means only 12.04% (95% CI: 10.34, 13.97) of them have reported self role distance as per the values they scored on the RODS scale.

The prevalence of role stagnation among the public health nurses. 688 out of 1237 of them have reported role stagnation. That means 55.62 % (95% CI: 52.84,58.37) of them have role stagnation as per the values they scored on the RODS scale.

Table 4 Self rated performances of respondents

Respondent Category	Self assessment of performance			Total
	Couldn't satisfy expectations	Satisfactory	Better than expected	
JPHN	76	505	44	625
	12.2%	80.8%	7.0%	100.0%
JHI	18	265	18	301
	6.0%	88.0%	6.0%	100.0%
SN	9	110	6	125
	7.2%	88.0%	4.8%	100.0%
LHI	14	116	14	144
	9.7%	80.6%	9.7%	100.0%
LHS	6	22	2	30
	20.0%	73.3%	6.7%	100.0%
Total	123	1018	84	1225
	10%	83.1%	6.9%	100.0%

Note: The total number of respondents was 1238. For this question only 1225 responded.

Pearson Chi-Square 16.686^a df 8 Sig. (2-sided) .034 a. 2 cells (13.3%) have expected count less than 5.

Table 4 presents the self rated performance of the health workers during one year prior to data collection. Irrespective of the respondent category, majority of the respondents rated their work performance over last one year as satisfactory. Above 80% all categories of respondents excluding LHSs satisfied by their performance. Overall 10% of the respondents have stated that they could not satisfy their expectations.

When a question on consequence of poor performance, more than 80% stated they may have to work more (Table 5). 18% perceived this will delay their promotion. In general they do not expect any adverse consequence from poor performance.

TABLE 5 PERCEIVED CONSEQUENCES OF POOR WORK PERFORMANCE

Name of activity	Yes%(No)	No%(No)
Delay in promotion	18.2(225)	81.8(1013)
More work	42.9(531)	57.1(707)
Transfer	20.8(257)	79.2(981)
Suspension	5.3(66)	94.7(1172)
Termination	.6(7)	99.4(1231)
Asking explanation	2.6(32)	97.4(1206)
Verbal/mental abuse	1.5(18)	98.5(1220)
Dissatisfaction	.9(11)	99.1(1227)

Table 6 Self assessments of performance and role stresses

		Self assessment of performance		
Role Stresses		Couldn't satisfy expectations	Satisfactory	Better than expected
Role Overload¹	High	106(86.2%)	746(73.4%)	70(83.3%)
	Low	17(13.8%)	271(26.6%)	14(16.7%)
Self Role Distance²	High	26(21.1%)	110(10.8%)	9(10.7%)
	Low	97(78.9%)	908(89.2%)	75(89.3%)
Role Stagnation³	High	81(65.9%)	549(54.0%)	49(58.3%)
	Low	42(34.1%)	468(46.0%)	35(41.7%)

1 Pearson Chi-Square 12.823^a df 2 Sig. (2-sided) .002 a. 0 cells(.0%) have expected count less than 5

2 Pearson Chi-Square 11.336^a df 2 Sig. (2-sided) .003 a. 0 cells(.0%) have expected count less than 5

3 Pearson Chi-Square 6.559^a df 2 Sig. (2-sided) .038 a. 0 cells(.0%) have expected count less than 5

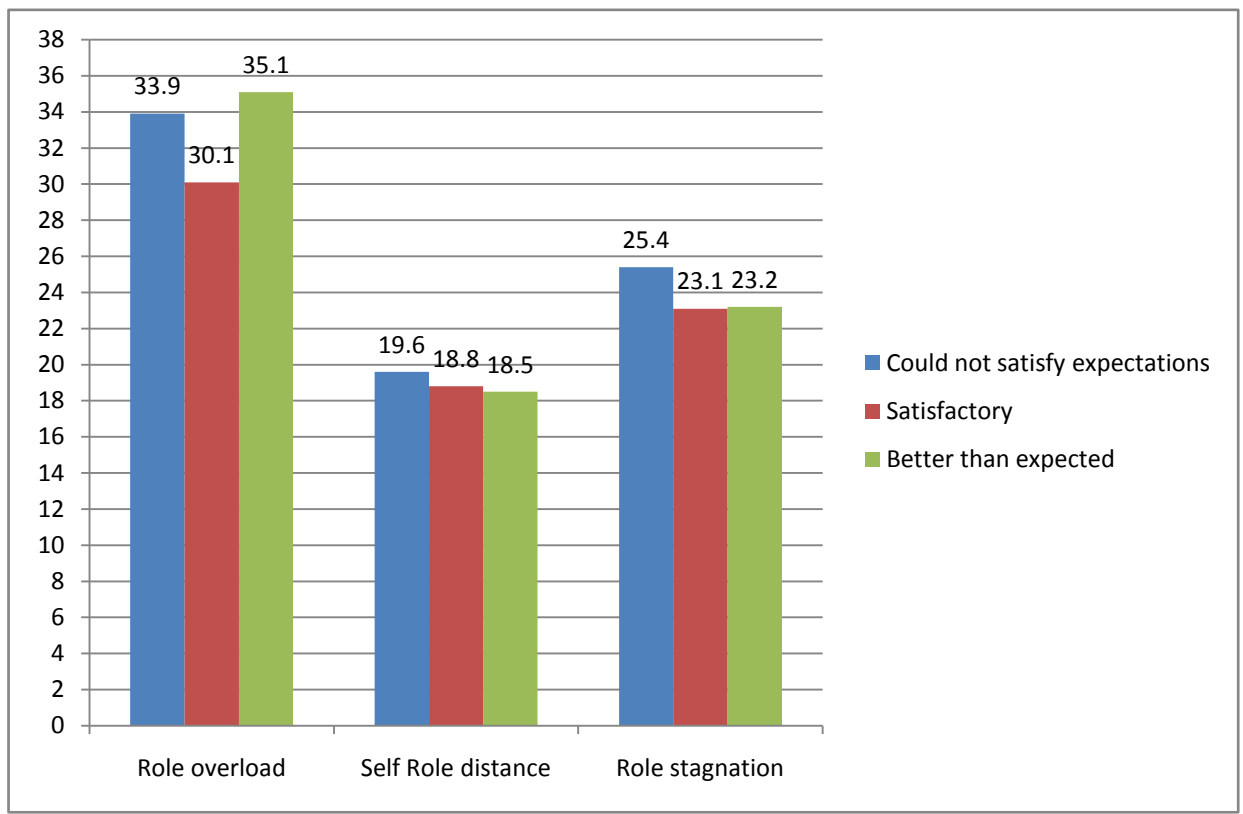
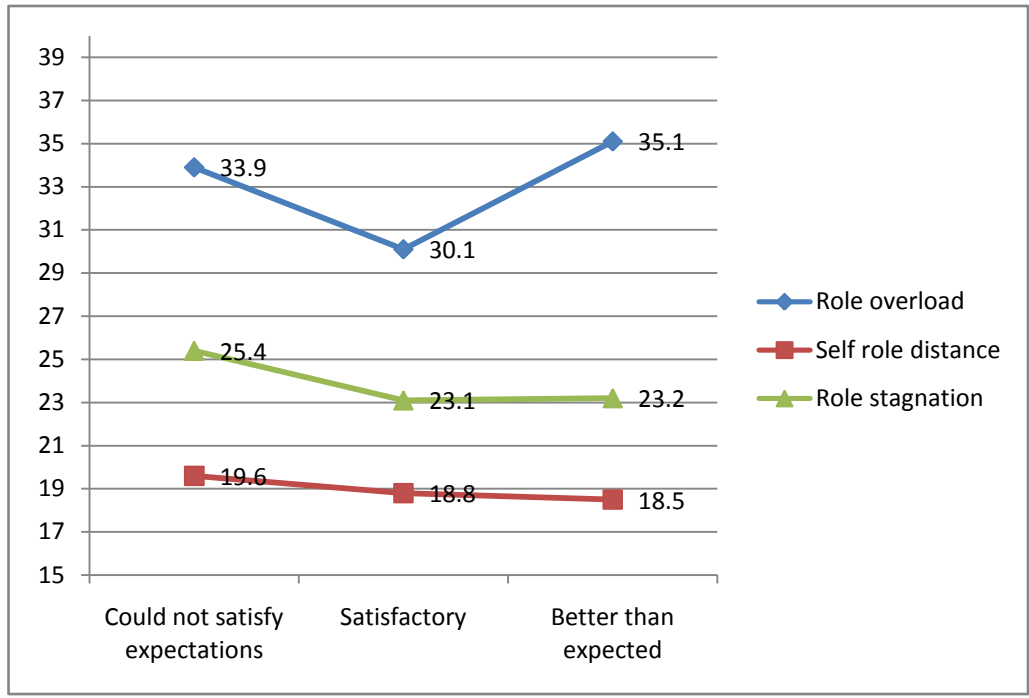
Table 6 shows the association between role stresses and self assessment of performance. From the table, it is clear that among the high role overload, more percentage of respondents were in could not satisfy expectations. The same is true with self role distance and role stagnation.

Table 7 Self assessments of performance and mean of role stresses

		Self assessment of performance		
Role Stressors		Couldn't satisfy expectations	Satisfactory	Better than expected
Role Overload	Mean(SD)	33.94(7.13)	30.15(7.11)	35.13(9.00)
	N	120	967	83
Self Role Distance	Mean(SD)	19.58(4.37)	18.76(4.74)	18.59(5.05)
	N	64	546	56
Role Stagnation	Mean(SD)	25.40(5.78)	23.09(5.94)	23.22(6.27)
	N	110	922	82

Table 7 shows a diminishing trend of the mean scores of role stresses, starting from could not satisfy to better than expected in self assessments of performance. This suggests that the respondents who expressed they could not satisfy expectations in self assessment of performance have higher mean score on each one of the role stresses viz. self role distance and role stagnation. This is also shown in Figure 1. In role overload, the mean score is more in better than expected in self assessment of performance than other categories. It was an exception.

Figure 1 Self assessments of performance and mean of role stresses



This is also shown in the following figure (Figure 1).

Table 8 Self assessments of performance and Age

Age category	Self assessment of performance			Total
	Couldn't satisfy expectations	Satisfactory	Better than expected	
<=29	5.6%(3)	88.9%(48)	5.6%(3)	100.0%(54)
30-39	7.1%(28)	87.1%(343)	5.8%(23)	100.0%(394)
40-49	11.9%(66)	80.6%(448)	7.6%(42)	100.0%(556)
>=50	11.8%(26)	81.0%(179)	7.2%(16)	100.0%(221)
Total	10.0%(123)	83.1%(1018)	6.9%(84)	100.0%(1225)

The table 8 suggests that the respondents could not satisfy their expectations of performance when the age increases. However, it was not statistically significant.

Table 9 Self assessment of performance and Experience

Experience category No of years	Self assessment of performance			Total
	Couldn't satisfy expectations	Satisfactory	Better than expected	
<5	6.3%(9)	91.7%(132)	2.1%(3)	100.0%(144)
5-9	8.8%(22)	83.5%(208)	7.6%(19)	100.0%(249)
10-14	9.2%(22)	85.4%(205)	5.4%(13)	100.0%(240)
15-19	11.2%(21)	80.3%(151)	8.5%(16)	100.0%(188)
20-24	13.2%(27)	78.4%(160)	8.3%(17)	100.0%(204)
25-29	10.2%(18)	81.8%(144)	8.0%(14)	100.0%(176)
>=30	16.7%(4)	75.0%(18)	8.3%(2)	100.0%(24)
Total	10.0%(123)	83.1%(1018)	6.9%(84)	100.0%(1225)

Further, we analysed the association between the self assessments of performance with the experience. It has also shown that the respondents could not satisfy their expectations of performance with the increase in number of years of experience(Table 9). It was also not statistically significant.

Table 10 Self assessment of performance and Sex

Sex	Self assessment of performance			Total
	Couldn't satisfy expectations	Satisfactory	Better than expected	
Female	10.9%107	82.4%812	6.7%66	100.0%985
Male	6.7%16	85.8%206	7.5%18	100.0%240
Total	10.0%123	83.1%1018	6.9%84	100.0%1225

We have also analysed the association between the self assessments of performance with sex. We have found that female respondents could not satisfy their expectations compared to their male counterpart. It was also not statistically significant.

Table 11 Self assessment of performance and Outcome of not satisfying the expectations-Delay in Promotion

Self assessment of performance	Delay in Promotion		
	No	Yes	Total
Couldn't satisfy expectations	80.5%(99)	19.5%(24)	100.0%(123)
Satisfactory	81.6%(831)	18.4%(187)	100.0%(1018)
Better than expected	83.3%(70)	16.7%(14)	100.0%(84)
Total	81.6%(1000)	18.4%(225)	100.0%(1225)

The respondents who believed that the poor performance lead to delay in promotion were those who could not satisfy expectations on performance. This suggests that they believe that they were not promoted due to poor performance. This association was not statistically significant.

Table 12 Self assessment of performance and Outcome of not satisfying the expectations- More work

Self assessment of performance	More work		
	No	Yes	Total
Couldn't satisfy expectations	43.9%(54)	56.1%69	100.0%(123)
Satisfactory	57.8%(588)	42.2%(430)	100.0%(1018)
Better than expected	61.9%(52)	38.1%(32)	100.0%(84)
Total	56.7%(694)	43.3%(531)	100.0%(1225)

Pearson Chi-Square 9.595^a df 2 Sig. (2-sided) .008 a. 0 cells (.0%) have expected count less than 5.

The respondents who believed that poor performance lead to more work were those who could not satisfy expectations on performance. This suggests that they believe that they were given additional work because of their poor performance. This association was statistically significant.

Table 13 Self assessment of performance and Outcome of not satisfying the expectations- Transfer

Self assessment of performance	Transfer		
	No	Yes	Total
Couldn't satisfy expectations	74.0%(91)	26.0%(32)	100.0%(123)
Satisfactory	79.3%(807)	20.7%(211)	100.0%(1018)
Better than expected	83.3%(70)	16.7%(14)	100.0%(84)
Total	79.0%(968)	21.0%257	100.0%(1225)

The higher proportion of respondents who believed that the poor performance lead to transfer were those who could not satisfy expectations on performance. This suggests that they believe that they would be transferred if they perform poorly. However, this association was not statistically significant.

Table 14 Self assessment of performance and Outcome of not satisfying the expectations-Suspension

Self assessment of performance	Suspension		
	No	Yes	Total
Couldn't satisfy expectations	97.6%(120)	2.4%(3)	100.0%(123)
Satisfactory	95.3%(970)	4.7%(48)	100.0%(1018)
Better than expected	82.1%(69)	17.9%(15)	100.0%(84)
Total	94.6%(1159)	5.4%(66)	100.0%(1225)

Pearson Chi-Square 28.624^a df 2 Sig. (2-sided).000 a. 1 cell (16.7%) have expected count less than 5

The respondents who believed poor performance will lead to suspension, performed better than those who did not believe. This association was statistically significant.

Table 15 Self assessment of performance and Outcome of not satisfying the expectations- Termination

Self assessment of performance	Termination		
	No	Yes	Total
Couldn't satisfy expectations	100.0%(123)	.0%(0)	100.0%(123)
Satisfactory	99.3%(1011)	.7%(7)	100.0%(1018)
Better than expected	100.0%(84)	.0%(0)	100.0%(84)
Total	99.4%(1218)	.6%(7)	100.0%(1225)

Almost all respondents believed that the poor performance will not lead to termination. The association between Self assessment of performance and termination was not statistically significant.

Table 16 Self assessment of performance and Outcome of not satisfying the expectations- Asking explanation

Self assessment of performance	Asking explanation		
	No	Yes	Total
Couldn't satisfy expectations	99.2%(122)	.8%(1)	100.0%(123)
Satisfactory	97.2%(990)	2.8%(28)	100.0%(1018)
Better than expected	96.4%(81)	3.6%(3)	100.0%(84)
Total	97.4%(1193)	2.6%(32)	100.0%(1225)

Majority of respondents believed that the poor performance will not lead to an explanation been asked. This association was not statistically significant.

Table 17 Self assessment of performance and Outcome of not satisfying the expectations- Verbal/mental abuse

Self assessment of performance	Verbal/mental abuse		
	No	Yes	Total
Couldn't satisfy expectations	99.2%(122)	.8%(1)	100.0%(123)
Satisfactory	98.6%(1004)	1.4%(14)	100.0%(1018)
Better than expected	96.4%(81)	3.6%(3)	100.0%(84)
Total	98.5%(1207)	1.5%(18)	100%(1225)

Majority of respondent believed that the poor performance will not lead to verbal /mental abuse. This association was not statistically significant.

Table 18 Self assessment of performance and Outcome of not satisfying the expectations- Dissatisfaction

Self assessment of performance	Dissatisfaction		
	No	Yes	Total
Couldn't satisfy expectations	97.6%(120)	2.4%(3)	100.0%(123)
Satisfactory	99.4%(1012)	.6%(6)	100.0%(1018)
Better than expected	97.6%(82)	2.4%(2)	100.0%(84)
Total	99.1%(1214)	.9%(11)	100.0%(1225)

Majority of respondent believed that the poor performance will not lead to dissatisfaction. The association between Self assessment of performance and dissatisfaction was not statistically significant.

Discussion

Present study found the workload of public health nurses is high. This is in confirmation with other studies (Srinivasan and Sharan 2006). Introduction of new programmes added to their work. This is in confirmation with the Canadian study (Montour A.et.al 2009) in which nurses find it difficult to manage when there are structural changes in rural health system, routine scheduling issues among nurses due to rise in vacant positions and other problems.

The prevalence workload among public health nurses in terms of RODS scale found to be high on two aspects role overload (75%) and role stagnation (56%). This finding is in confirmation with Queensland study (Hegny et.al. 2004).

Self assessment performance shows more proportion of respondents who had higher role overload expressed that they could not satisfy their expectation (86%) compared to who were satisfied (73%) and better than expected(83%). This was true with other role stresses namely self role distance and role stagnation. The proportion of respondents who had high self role distance expressed that they could not satisfy their expectation (21%) compared to who were satisfied (11%) and better than expected (11%). The proportion of respondents who had high role stagnation expressed that they could not satisfy their expectation (66%) compared to who were satisfied(54%) and better than expected(58%). These shows, those who are highly stressed, could not perform satisfactorily. This is in confirmation with van den Hombergh P(2009) found that in healthcare workload or job stresses have negative effect on performance (van den Hombergh P 2009).

A diminishing trend of the mean scores of role stresses from could not satisfy in self assessment of performance to better than expected performance. This suggests that the respondents who expressed they could not satisfy in self assessment of performance have higher mean score on two of the role stresses viz.

Self role distance and role stagnation. For role overload there was a diminishing trend from could not satisfy to satisfactory but increased for better than expected. This suggests higher role stresses lead to poorer performance.

The respondents who believed they could not satisfy expectations of performance with an increase in age and experience. These were not statistically significant.

Female respondents could not satisfy their expectations compared to their male counterpart. Even this association is not statistically significant, the problem needs to attention.

Poor performance lead to delay in promotion and transfer for those who could not satisfy expectations on performance. These were not statistically significant.

The poor performance lead to more work were those who could not satisfy expectations on performance was statistically significant.

On the other hand, respondents who believed poor performance will lead to suspension performed better than those who did not believe. However, this was not statically significant.

The association between those who could not satisfy expectations on performance and poor performance will lead to either termination or ask for explanation or verbal/mental abuse or dissatisfaction were not statistically significant.

Conclusion

Present study found the workload of public health nurses is high. Introduction of new national programmes adds to their workload. Self assessment performance shows more proportion of respondents who had higher role overload expressed that they could not satisfy their expectation compared to satisfied and better than expected. This shows that those who are highly stressed were unable to perform satisfactorily. This was found in another study by van den Hombergh P(2009). Van den Hombergh found, in healthcare workload have negative effect on performance (van den Hombergh P 2009). Further, a diminishing trend of the mean scores of role stresses starting from could not satisfy to better than expected performance in self assessment of performance. This suggests that the respondents who expressed they could not satisfy in self assessment of performance have higher mean score on role stresses. The higher role stresses lead to poorer performance. It is also found that female respondents could not satisfy their expectations compared to their male counterpart. The only outcome of poor performance found to be significant was more work. This means more workload. The workload and performance are in vicious circle. We need find a way to address the problem of poor performance without increasing the workload or with a solution of providing an optimum workload to public health nurses.

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Ethical Approval

The study was cleared by Institute Ethics Committee of Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum, India (Approval No. SCT/IEC-317/November 2010). Confidentiality and anonymity was maintained throughout the study. There was an informed consent process followed while administering the questionnaire.

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Competing interests

The authors do not have any conflict of interest.

References

1. Conrad, Karen M., Kendon J. Conrad and Jane E. Parker. 1985. 'Job Satisfaction among Occupational Health Nurses', *Journal of Community Health Nursing*, 2(3): 161-173.
2. Feng, CK, Chen ML, and Mao IF. 2007. Prevalence of and risk factors for different measures of low back pain among female nursing aides in Taiwanese nursing homes. *BMC Musculoskeletal Disorder*. 8:52. <http://www.biomedcentral.com/1471-2474/8/52> (Accessed on 17 December 2011).
3. Fragar, Lyn J. Depczynski, Julie C. 2011. 'Beyond 50. challenges at work for older nurses and allied health workers in rural Australia:a thematic analysis of focus group discussions'. *BMC Health Services Research*, 11:42 <http://www.biomedcentral.com/1472-6963/11/42> (Accesed on 28 October 2011)
4. Helmlinger, Connie. 1997. ' A Growing Physical Workload Threatens Nurses' Health', *The American Journal of Nursing*, 97(4): 64-66.
5. Nabirye, RC, Brown KC, Pryor ER, and Maples, EH. Occupational stress, job satisfaction and job performance among hospital nurses in Kampala, Uganda. 2011. *Journal of Nursing Management*, 19, 760–768
6. O'Donnell, Catherine A. Jabareen, Hussein. Watt, Graham CM. 2010. Practice nurses' workload, career intentions and the impact of professional isolation: A cross-sectional survey. . *BMC Nursing*. 9:2. <http://www.biomedcentral.com/1472-6955/9/2> (Accesed on 28 October 2011).

7. Pareek, Udai and Purohit, Surabhi, 2010. Training Instruments in HRD and OD. New Delhi: Tata McGraw-Hill Publishing Company Limited.
8. Sharma, Bharati, Sweta Roy, Dileep Mavalankar, Pallavi Ranjan and Poonam Trivedi. 2010. 'The Role of the District Public Health Nurses: A Study from Gujarat'. www.iimahd.ernet.in/publications/data/2010-02-04Sharma.pdf. Accessed on 04-08-2010.
9. van den Hombergh P, Kunzi B, Elwyn G, van Doremalen J, Akkermans R, Grol R, Wensing M. High workload and job stress are associated with lower practice performance in general practice: an observational study in 239 general practices in the Netherlands. BMC Health Serv Res. 2009 Jul 15;9:118.