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Factors Affecting Performance of Nurses at Selected Health Facilities: A Cross-Sectional Study in Eritrea

Tecle Haile Hagos[1], Senait Abraham Tesfamichael[2], Henok Afewerki Kidane[3], Yonatan Mehari Andemeskel[*,4]

Abstract

Background: The quality of health services provision depends on the availability of skilled, competent health professionals. Performance of professional nurses is closely related to the quality and productivity of health care provision. This study is conducted with the aim of assessing the factors that affect the performance of nurses at the selected health facilities of Eritrea.

Methods: This was a descriptive cross sectional study design conducted among 270 nurses working at different health settings. A structured questionnaire was used to collect the data. Descriptive statistics for the demographic data, independent sample t-test, one-way and factorial ANOVA, Pearson's correlation coefficient, and mediation analysis were used to analyse the data. Statistical significance level was set at $p<0.05$.

Results: This study found out that with increased age and years of experience, the performance of nurses also increases ($p<0.001$). Nurses working in health stations and health centers where found with higher performance than those working at the community and the national referral hospital (p value & p trend <0.001). Furthermore, having clear mission and goals, and ensuring reward and recognition had significant correlation with performance (p-value<0.001). In addition, the total effect of management style on performance was positive and significant ($\beta c = 0.351$, 95% CI: 0.282-0.420, p-value<0.001). This effect was significantly mediated by commitment and satisfaction ($\beta a*b = 0.076$, Boot strapped 95% CI=0.043-0.117).

Conclusions: Over all in this study, it is concluded that the view on performance was significantly related to mission and goals, reward and recognition, commitment and satisfaction as well as management style.

Keywords: Nurses, Performance, Satisfaction, Eritrea

Introduction

The quality of health of a nation is very much determined by the health care system of the nation [1]. Health care delivery is highly labor demanding. The quality, efficiency and equity of services are all dependent on the availability of skilled and competent health professionals. It is essential that health workers are appropriately trained and motivated to deliver the required services at a high standard [2]. Nursing care is an integral component of patient care and is an important determinant of quality of healthcare services [3]. It is a demanding profession thus more stressful than other health professions [4-6]. It has been mentioned that there is a positive relationship between the ratio of the nurses and the population ration as well as population health index

Affiliation:

[1]Department of Intensive Care Unit, Orotta Medical Surgical National Referral Hospital

[2]Emergency and Critical Care Unit, Department of Nursing, Orotta College of Medicine and Health Sciences

[3]Department of Internal Medicine, Barentu Zonal Referral Hospital

[4]Anesthesia Unit, Department of Nursing, Orotta College of Medicine and Health Sciences

***Corresponding author:**
Yonatan Mehari Andemeskel, Anesthesia Unit, Department of Nursing, Orotta College of Medicine and Health Sciences, Eritrea.

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[7]. Nurse performance has been defined as an organizational behaviour centered on quality of care largely measured by patient outcome and achievement of organizational goals [8]. It is a behaviour that contributes directly to the organization's technical care and includes those activities that are typically recognized as part of a worker's job [9]. For decades, researchers have been studying factors influencing performance in health organizations with emphasis on worker factors and work environment factors. Nurses constitute the largest human resource element in healthcare organizations, and therefore have a great impact on quality of care and patient outcomes [3]. When referring to the conceptualizations of nursing care performance it has been emphasized that the factors influencing the job performance divided into several domains including organizational, social, cultural, economic, environmental, and occupational factors [3, 4, 6, 10].

Environmental domains as factors may influence job performance inside clinical nursing setting, such as motivation, fairness, safe work environment and type of the hospital [4, 5, 11]. Furthermore, the type of patients, workplaces, availability of technological support and the socioeconomic factors are all factors that seems to have an influence on the performance of nurses who are working in a variety of clinical nursing setting [3, 4, 12, 13]. An emphasis on the shortage of nurses as an influence on the performance of staff, also suggest that shortage of nurses is one of the major causes of poor performance in nursing [14]. Such insufficiency in the number and performance level of health personnel is regarded as a major constraint in achieving the development goals in many African countries [15, 16]. Economic factors have also emerged as factors affecting the performance of the nurse. Studies emphasizes a monthly salary as the most influential factor for nursing performance [12]. Moreover, it is suggests that the lack of resources for nursing training, the feeling of overworked, lack of role clarity, low control over job performance, lack of career opportunities, lack of trust and collaboration with co-workers, not receiving recognition for contribution and poor communication with management courses contributed to a decrease in the performance level of nurses and a cause an increase in stress [4, 17].

Meanwhile, the quality, efficiency and equity of services depend on the availability of skilled, competent health professionals when and where they are needed. Health care workers need appropriate training to deliver the required standard of services [18]. It is emphasized that the need for continuous education of nurses as an effective factor in improving performance [4]. The existence of opportunities for continuing education, especially for nursing in the organization, is reflected in the performance of the nurse [3, 12, 13, 19] suggested that a good relationship between nurses also with other teams can reduce stress and enhance performance, thereby increasing outcomes for nurses [19].

The level of dissatisfaction and demotivation has been higher among African healthcare workers resulting in poor performance [11, 20]. In Eritrea, the Ministry of Health of the country is keen to meet the highest standards of safety at its facilities without exception. The number of nurses has been increasing with the increased educational opportunities and increased number of students to join the nursing schools [21]. Nurses in Eritrea cover the largest numbers of health care professional and they have a major role in providing timely, quality services. It is necessary to generate relevant evidence through a detailed study to inform the health care system in Eritrea and other health partners to develop strategies for improving the performance of nurses. Nevertheless, and to the best of our knowledge, factors affecting the performance of nurses have not been adequately assessed in the country and there is a need to seek evidence about nurses' performance and to develop strategies to monitor and improve their performance. Therefore, this study is conducted with the aim of assessing the factors that affect the performance of professional nurses at the selected health facilities of the country.

Methodology

Study Design

This was a descriptive, cross-sectional study design conducted between October 2017 and January 2018, to evaluate the factors affecting the performance of nurses. This approaches enabled the researcher to generate new knowledge of the nurses' view on their performances upon breaking it into its various dimensions.

Study Setting and Population

The study was conducted in randomly selected health facilities of Zoba Maekel (Central Region), one of the six zobas of Eritrea, a country located in the horn of Africa. There are three levels of health facilities in Eritrea namely, primary (community-based health services by health stations, health centers, and community hospitals), secondary (zonal hospitals) and tertiary (referral hospitals) and the study is conducted at these three health facility levels. A simple random sampling selection method was utilized to select the study sites and Godaif and Biet Mekae from community hospitals, Tsaeda Christian and Geza Banda from Health Centers, Embaderho, Kutmewlie, Zoba Saba and Maitemenay from Health stations and Orotta Maternity hospital were selected for the study. According to the Zonal ministry of health office, department of human resource management, the total number of nurses (associate Nurses, diploma holder nurses and degree holder nurses) at the time of study was 553. These nurses are dispersed in 37 health facilities. The pre-study visits revealed homogeneity of performances and attitudes of the nurses between the health facilities and hence selection of seven health facilities was considered as adequate for the Zoba. The selected health facilities along with the number of nurses are given in the table below (Table 1).

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Table 1: Nurses in the selected health facilities by health facility type

Health Facility Name	Health Facility Type	Expected Number of Nurses
Maitemenay	Health Station	7
Saba	Health Station	7
Embaderho	Health Station	7
ketemewilie	Health Station	7
Tsaeda-Christian	Health Center	25
Adis Alem	Health Center	25
Bietmekae	Community Hospital	73
Godaif	Community Hospital	65
Orotta	National Referral Hospital	92
Total		**308**

The target population for this study was nurses who were currently and actively giving immediate care and services to patients at the selected health facilities. Nurses who didn't consent to participate in the study, those who graduated before six months and those who were not available during the data collection procedure were excluded from the study.

Sampling size and sampling technique

The sample size for this study was determined by using the formula:2

$$n=\frac{N.\delta^2.(\frac{Z\alpha}{2})^2}{(N-1).(E)^2+\delta^2.(\frac{Z\alpha}{2})^2}$$

Where,

n=sample size

N=population size (nurses actively working in all health facilities of Zoba Maekel & Orotta National Referral Hospital=700)

δ =population standard deviation (Standard deviation of the knowledge/attitude scores from pretest=19.67)

Z=level of significance (conventionally taken as 1.96 for α=0.05)

E=Margin of error (precision of the estimate which was taken as 2)

Inserting the values into the sample size formula, the sample size was found to be 243. Finally, 10% of the sample size was added for the expected non-response. Therefore, the final sample size was 270.

Data Collection Tool and technique

A structured questionnaire which was developed focusing on the objectives of the study and with the guidance of the conceptual framework by Bennett & Franco (1999) and the model by Sharpely (2002) [22, 23]. The questionnaire had mainly three sections: socio demographic characteristics (Section A), skills development, performance assessment, workspace and incentives (Section B), and opinion survey (Section C).

Data Collection Procedure:

Permission for conducting the research was initially obtained from the ethical committee of Ministry of Health at the department of research and human resource development. Further permission was obtained from the study sites after an organized meeting with the hospital heads prior to carrying out the study. Verbal and written informed consent was obtained from the participants before administering the questionnaire. A self-administered structured questionnaire was used for data collection. All researchers involved in this study undertook one day of training for each setting on questionnaire administration and data collection procedures. Data was collected in the morning and evening shifts whereby convenient time for the participants was during half an hour break of their work schedule. To avoid errors in the data collection, researchers at certain occasions translated the questions to the local language. Each of the questionnaire was promptly checked for a range of valid values and completion of all items without any skip, before leaving from each data collection site.

Predictor variables

The dependent variable for this study is the performance of the nurses. The independent variables are the socio demographic variables (age, gender, level of education, qualification, and total experience), management style, performance appraisal and motivation.

Variable measurement

Validity & Reliability

The face and content validity of the questionnaire was ensured by experts in the field of nursing. The internal consistency was tested with Cronbach's alpha. In this study, Cronbach-α for the subscales commitment and satisfaction, management style, performance, mission and goals, and reward collectively was computed and found as good (Cronbach- α=0.829). The questionnaire was then pretested at settings which were not involved in the main study. It was pretested for the purpose of assessing the comprehension and degree of understandability of the questions. The pretest was also done to find out the possible estimate of the variance used for final sample size calculation and this was done because no other similar studies were carried out previously in the country. All needed adjustments which were obtained during the pretest were once revised and the necessary modification was done to fit the study area and study population.

Data analysis

Data was cleaned, coded and entered into CSPro (Version 7.0) and then exported to SPSS (Version 22.0) for analysis. Internal consistency of the items was checked using Cronbach α before conducting the main analysis. Descriptive analysis was done using frequency, percentage for categorical variables and median (IQR) for continuous ones after checking normality. Differences in perception of performance scores among various categories of demographic variables was assessed using independent samples t-test and one-way ANOVA (with LSD post-hoc for significant variables). Variables found to be significant at bivariate level were further analysed at multivariate level. Correlations among the components of perception on performances of the nurses were computed using Pearson's correlation coefficient. Finally, a type of path analysis called mediation analysis was used to find out the role of commitment and satisfaction in mediating the relationship between management style and perception of performance. In order to test the mediating effects, a three-step regression suggested by Baron and Kenny (1986) was used [24]. Tables and graphs were used to make presentation of the analysed data. *P*-value less than 0.05 was rendered as significant in all the analyses.

Results

Nurses sociodemographic characteristics

The majority (73.4%) of the study participants were females The median age of the study participants was 30 (IQR=21) with the age range between 21 and 69 years. More than 50% of the study participants were under the age of 30 years. Furthermore, 45.2% of the respondents were diploma holders with 37.1% certificate and 17.8% bachelor's degree holders. The rest of the demographic and clinical details of the study participants are shown in Table 2.

Table 2: Socio-demographic characteristics of the nurses (n= 259)

Nurse characteristics		Frequency (n)	Percentage (%)
Age (Median=30, IQR=21)			
	≤ 30 years	135	52.1
	31 to 50 years	79	30.5
	≥ 51 years	45	17.4
Gender			
	Male	69	26.6
	Female	190	73.4
Educational Status			
	Certificate	96	37.1
	Diploma	117	45.2
	Degree	46	17.8
Experience in health care (years)			
	< 5 years	92	35.5
	5 to 10 years	74	28.6
	> 10 years	93	35.9

As shown in table 2 above, 90 (34.7%) are working in maternity hospital, while 93 (35.9%) in community hospitals, 44 (17%) in a health center and the remaining 32 (12.4%) are working in health stations. In addition, 162 (62.5%) have less than 5 years assignment on the same site as compared to 56 (21.6%) and 41 (15.8%) who have 5-10 and more than 10 years assignment in the same site respectively.

Knowledge and Skill

In this section the level of knowledge and skills of the respondents were recorded on a five point Likert Scale. Majority of the nurses (between 81.1% and 90%) responded that their knowledge and skills on planning of nursing care, assessment of patient, health education, clinical competencies (skills), patient counselling skills and maintaining equipment were either good or excellent. On the other hand, the response on the rest of the items had an average score (Table 3).

Table 3: Items on knowledge & skills of the nurses

Items	Very poor/Poor (n%)	Average (n%)	Good/Excellent (n%)
Knowledge/Skill			
Planning of nursing care	22 (8.5)	26 (10)	211 (81.5)
Assessment of patient	8 (3.1)	18 (6.9)	233 (90.0)
Health education	5 (1.9)	33 (12.7)	221 (85.3)
clinical competencies (skills)	5 (1.9)	26 (10.0)	228 (88.0)
Patient councelling skills	7 (2.7)	25 (9.7)	227 (87.6)
Supervision of nursing care	61 (23.6)	44 (17.0)	154 (59.5)
Supervising student nurses	64 (24.7)	44 (17.0)	151 (58.3)
Providing inservice training	78 (30.1)	41 (15.8)	140 (54.1)
Maintaining equipment	22 (8.5)	27 (10.4)	210 (81.1)

Performance Appraisal and Utilization

Respondents were asked for the presence and the rationale of workplace performance appraisal of all the nurses, 148 (57.1%) responded that there is no any. From the remaining 42.9% who stated that there is some sort of appraisal, they were asked for the purpose and 57 (51.4%) responded that it is not utilized properly, while the remaining 54 (48.6%) said that it is used mainly for rotation and training (Fig. 1).

Salary, benefit, and recognition

Many of the respondents were in disagreement with the most of the items of this dimension. The majority (74.5%)

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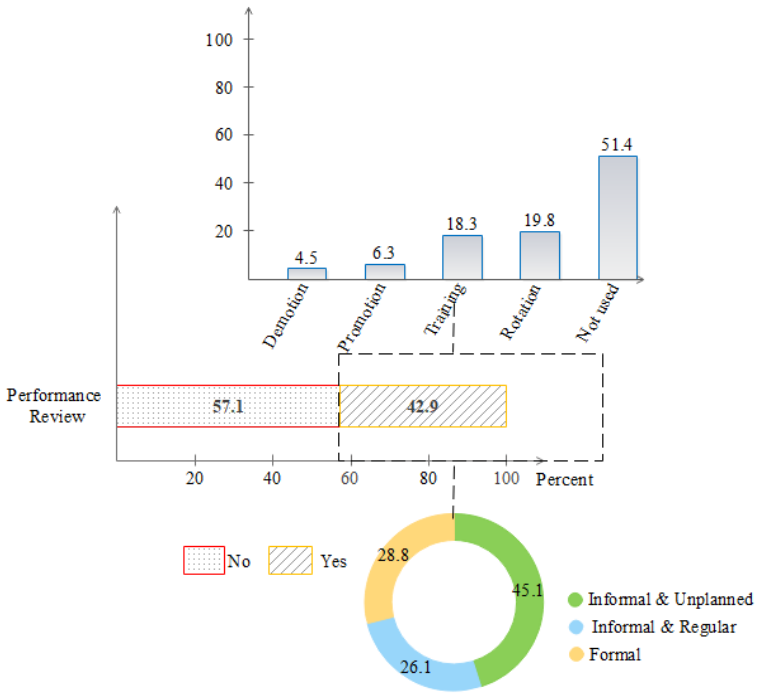

Figure 1: Performance appraisal and utilization

disagreed that the remuneration is in accordance with their job responsibilities, 71.4% disagreed that is it in accordance with their job responsibilities. Furthermore, the nurses' disagreement regarding the questions on the existence of fringe benefits and their satisfaction with it was found to be high (Table 4). The results on the rest of the items is found in table 4.

Staffing and work schedule

As indicated in table 4, 64.1% of the respondents agreed/ strongly agreed that opportunities exist for flexible work schedule, and that the overall work schedule is fair was stated as fair by 70.7% of them. The Payment for work overtime work is impractical and denied by 89.6% of the respondents. Almost half of them (51%) stated that the unit is enough to cover the workload during the study period.

Staff development

Question were also asked on staff development and the more than half of the respondents disagreed/strongly disagreed if opportunities for advancing in the organization existed (61%), if good opportunities for continuing education are available (53.3%), if incompetent nurses are identified and replaced 58.7% and if professional nurses participate in identifying staff development needs (60.6%). On the other hand, 48.6% of the respondents agreed/strongly agreed that job specific refresher courses are available at times (Table 4).

Work place and environment

According to table 4, nurses more than half of the nurses agreed that their work pace is safe and free from hazards (54.1%) instruments are available and in good working condition (58.3%). Moreover, 71.8% of them stated that infection control strategy guidelines are available at their working place. On the other hand, 58.3% of them complained that materials and supplies are not sufficient and 62.9% stated protective antiseptic solutions are hardly available.

Mission and Goals

In this section, healthcare workers were asked if they were clear about the objectives they need or they are required to achieve and whether the organizational mission is understood by all. To these two interrelated questions 79.5% agreed/strongly agreed that the objectives are clear and 67.2% agreed/strongly agreed that organizational mission is understood by all. Similarly, almost the same number 66.4% agreed/strongly agreed that people in the organization had a shared a sense of purpose (Table 5).

Reward and recognition

In this dimension, nurses were asked whether they find their work is rewarding, and 51% agreed/strongly agreed to this statement and 59.1% responded that their payment is competitive to other similar qualifications. In addition, 75.3%, responded that the work they do gives them a sense of achievement. Meanwhile, 66.4% Disagreed/strongly disagreed or are uncertain that they will receive a reasonable pension when they retire. As to prompt recognition the responses are almost equally distributed (Table 5).

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Table 4: Items on the salary, benefits & recognition; staffing & working schedule; staff development; work place & environment

Items	Disagree/Strongly Disagree n (%)	Uncertain n (%)	Agree/ Strongly Agree n (%)
Salary, benefits & recognition			
Salary is competitive to similar organization	132 (51)	39 (15.1)	88 (34)
Salary in accordance with experience	193 (74.5)	24 (9.3)	42 (16.2)
Salary in accordance with job responsibility	185 (71.4)	30 (11.6)	44 (17)
Fringe benefits are known to you	220 (84.9)	4 (1.5)	35 (13.5)
You are satisfied with your fringe benefits	220 (84.9)	11 (4.2)	28 (10.8)
Opportunities exist for carrier advancement	147 (56.8)	40 (15.4)	72 (27.8)
Hard working nurses are recognized	170 (65.6)	33 (12.7)	56 (21.6)
Staffing & work schedule			
Opportunities exist for a flexible work schedule	54 (20.8)	39 (15.1)	166 (64.1)
The overall work schedule is fair	40 (15.4)	36 (13.9)	183 (70.7)
Payment for overtime work is available	232 (89.6)	9 (3.5)	18 (6.9)
Good balance b/n supervisors & health workers	102 (39.4)	42 (16.2)	115 (44.4)
Staff in the unit is enough to cover current load	132 (51)	18 (6.9)	109 (42.1)
Care & support of staff in the work place is available.	99 (38.2)	30 (11.6)	130 (50.2)
Staff development			
Opportunities for advancing exists	158 (61)	41 (15.8)	60 (23.2)
Good opportunities for continuing education	138 (53.3)	41 (15.8)	80 (30.9)
Job specific refresher courses are available	99 (38.2)	34 (13.1)	126 (48.6)
Incompetent nurses identified & provided with support	152 (58.7)	43 (16.6)	64 (24.7)
Nurses participate in identifying staff development needs	157 (60.6)	30 (11.6)	72 (27.8)
Work place & environment			
My work place is safe and free from hazards	97 (37.5)	22 (8.5)	140 (54.1)
Instruments are available &in good working condition	117 (45.2)	36 (13.9)	151 (58.3)
Materials and supplies are sufficient	151 (58.3)	35 (13.5)	73 (28.2)
Antiseptic solution for protec. Of staff &pts available	163 (62.9)	22 (8.5)	74 (28.6)
Infection control strategy guidelines are available	55 (21.2)	18 (6.9)	188 (71.8)

Commitment and satisfaction

Commitment and satisfaction are entities that are believed to improve performance. Nurses responded to the affirmative that doing their nursing job makes them feel good (81.1%), and that they are proud to tell people where they work (59.8%). Moreover, 48.3 stated that the organization provides them with skills and knowledge that will benefit their future carrier. In addition, 74.5% disagreed/strongly disagreed to the statements; whether they were subject to personal criticism and abuse and 47.9% stated that they don't like the way the organization functions (Table 5).

Management style

To determine this dimension nurses were asked whether they trust and respect their supervisor, whether their supervisor inspires them to do their best and whether senior managers are open to new ideas. The respondents agreed/strongly agreed that they respect and trust their supervisor (73.4%), that supervisors inspired them to do their best (49.8%), and that managers are open to new ideas and suggestions (40.2%). In addition, just more than half (54.4%) agreed/strongly agreed that if they have idea for improving their work their supervisors listen to them. However, 45.5% disagreed/strongly disagreed or were uncertain to this statement. Similarly, 49.4% disagreed/strongly disagreed or were uncertain to whether supervisors give them timely feedback. In addition, 51% agreed/strongly agreed that they are afraid to express their ideas (Table 6).

Performance

The items in this dimension were asked to determine nurses' views on their performance. As shown in table 6, 75.7 % agreed/strongly agreed that they feel their work contributes to the organizations performance and 75.3% of them stated

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they are given enough authority to do their job effectively. On the other hand, 46.3% agreed/strongly agreed that their managers emphasize their positive contributions when reviewing their performance and 45.9% believe that judgment about their work is fair. Likewise, 54.8% disagreed/strongly disagreed that people in their organization put more energy on identifying mistakes than do things right, and 55.2% stated that the way things are organized around their organization makes it hard for people to do their best (Table 6).

Attitude of nurses towards the profession

Nurses were also asked questions that reflect their attitude towards their profession. To the item that addresses if they joined the profession due to lack of options, surprisingly, those who agreed and disagreed was equal (115 or 44.4% in each group). Meanwhile, only 51.4% agreed to the item; I would advise my daughter/son to join the nursing profession (Table 6).

Demographic factors affecting performance

The difference in nurses' view of performance score by categories of demographic characteristics was investigated using independent samples t-test or one-way ANOVA. There was significantly different view of performance among the three age groups (p=0.002). LSD post-hoc analysis revealed that nurses who were 51 or above years old (M=21.76, SD=3.81) had higher view of their performance than 31 to 50 years (p=0.046). Moreover, those who were at 51 or above age group (M=20.41, SD=3.55) had higher view of their performance than those aged 30 or less years (M=19.55, SD=3.55) (p<0.001). However, there was no significant difference in view of performance between the 31 to 50 and 30 or less years old (p=0.094). Finally, a significant trend of view of performance was observed with increase in age (p trend<0.001). The scores of view of performance didn't differ between the categories of gender (p=0.888), and level of nursing education (p=0.363). View of Performance scores of those with five years or less (M=18.87 SD=3.58) was significantly lower than respondents with 5 to 10 years (M=20.88 SD=3.30) (p<0.001) and more than 10 years (M=20.96SD=3.72) (p<0.001). However, no significant difference in the view of performance was observed between 5 to 10 years and more than 10 years' age groups. Moreover, increasing trend of view of performance was observed with increase in years of experience (p<0001). Experience in the health care setting in which the nurses work currently was not a significant determinant of view of performance (p=0.088). View on their performance of the nurses at health stations (M=22.03, SD=3.83) and health centers (M=21.91, SD=3.24) was significantly higher than those nurses assigned in community hospitals (M=19.20, SD=3.94) (p<0.001). Similarly, view of performance of the nurses at both health stations and health centers was significantly higher than those nurses assigned in maternity (M=19.72, SD=2.99) (p=0.002, and p=0.001 respectively). No significant difference in view of performance was observed between health station and health center (p=0.881), as well as community hospital and maternity (p=0.319) (Table 7).

Table 5: Items on mission & goals; reward & recognition; commitment & satisfaction

Items	Disagree/Strongly Disagree n (%)	Uncertain n(%)	Agree/ Strongly Agree n(%)
Mission & goals			
I am clear about objectives I need to achieve	22 (8.5)	31 (12.0)	206 (79.5)
Organizational mission is understood by all	36 (13.9)	49 (18.9)	174 (67.2)
People here have a shared sense of purpose	59 (22.8)	28 (10.8)	172 (66.4)
Reward & recognition			
I find my work rewarding	90 (34.7)	37 (14.3)	132 (51)
When I retire I will receive reasonable pension	117 (45.2)	55 (21.2)	87 (33.6)
My pay is competitive to similar qualifications	80 (30.9)	26 (10)	153 (59.1)
Receive prompt recognition for doing good job	119 (45.9)	29 (11.2)	111 (42.9)
The work I do gives me feeling of achievement	43 (16.6)	21 (8.1)	195 (75.3)
Commitment & satisfaction			
Doing this job makes me feel good	33 (12.7)	16 (6.2)	210 (81.1)
I am subject to personal criticism and abuse	193 (74.5)	21 (8.1)	45 (17.4)
I don't like the way the organiza. functions	124 (47.9)	51 (19.7)	84 (32.4)
I am proud to tell people that I work here	82 (31.7)	22 (8.5)	155 (59.8)
The organization provides me with skills and Knowledge that will benefit my carrier	85 (32.8)	49 (18.9)	125 (48.3)

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Table 6: Items on management style; performance; attitude of nurses towards their profession

Items	Disagree/ Strongly Disagree n (%)	Uncertain n(%)	Agree/ Strongly Agree n(%)
Management style			
I am afraid to express my ideas	90 (34.7)	37 (14.3)	132 (51)
I trust and respect my supervisor	37 (14.3)	32 (12.4)	190 (73.4)
My supervisor inspires me to do my best	94 (36.3)	36 (13.9)	129 (49.8)
Senior managers are open to new ideas & suggestions	110 (42.5)	45 (17.4)	104 (40.2)
During changes mgt 1st informs those to be affected	98 (37.8)	52 (20.1)	109 (42.1)
If I have idea for improving our work my supervisor listens to me	77 (29.7)	41 (15.8)	141 (54.4)
My supervisor gives me timely feedback that helps me improve	128 (49.4)	35 (13.5)	96 (37.1)
Performance			
People in this organization put more energy on identifying mistakes than do things right	142 (54.8)	34 (13.1)	83 (32)
The way things are organized around here makes it hard for people to do their best	143 (55.2)	32 (12.4)	84 (32.4)
Judgment about my work is fair	81 (31.3)	59 (22.8)	119 (45.9)
I feel my work contributes to the organization	28 (10.8)	35 (13.5)	196 (75.7)
My manager emphasize my +ve contribution when reviewing my performance	97 (37.5)	42 (16.2)	120 (46.3)
I am given enough authority to allow me do my job effectively	34 (13.1)	30 (11.6)	195 (75.3)
Attitude of nurses towards the profession			
I joined the profession due to lack of options	115 (44.4)	29 (11.2)	115 (44.4)
I would advise my daughter/son to join the nursing profession	133 (51.4)	29 (11.2)	97 (37.5)

Table 7: Demographic factors affecting performance

Variables		Mean (SD)	P-value	P-trend	Post Hoc
Age					
	≤ 30 years	19.55 (3.55)	0.002	<0.001	A3>A2, A1
	31 to 50 years	20.41 (3.55)			
	≥ 51 years	21.76 (3.81)			
Gender					
	Female	20.17 (3.84)	0.888		
	Male	20.25 (3.22)			
Educational Status					
	Certificate	20.61 (3.24)	0.363		
	Diploma	19.91 (3.88)			
	Degree	20.02 (3.68)			
Experience in health care (years)					
	< 5 years	18.87 (3.58)	<0.00	<0.00	E3, E2>E1
	5 to 10 years	20.88 (3.30)			
	> 10 years	20.96 (3.72)			

E1= Experience less than 5 years, E2= Experience 5-10 years, E3= Experience > 10 years
A1= Age in years<30, A2= Age in years 31-50, A3= Older than 50,
M=maternity, CH=community hospital HC=Health Center, HS= Health Station

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Variables that were significant at bivariate analysis were selected for multivariate analysis to control the confounding effect of the variables among each other (Table 8). At multivariate model, both total years of experience (p=0.022) and health care setting (p<0.001) were found to significantly influence the performance but not age (p=0.157). The percent of variability in performance explained by the knowledge of health care setting and total years of experience were 7.6% and 3.0% respectively. Moreover, the total variance explained by the three variables was 13.4% (R2=0.134).

Correlation among the dimensions of perception on performance

The possible correlation of the mission and goals, reward and recognition, commitment and satisfaction, management style, performance, and attitude was investigated using pearson correlation coefficients (Table 9). The result reveals that mission and goals was significantly correlated with reward and recognition (r=0.30, p<0.001), commitment and satisfaction (r=0.39, p<0.001), management style (r=0.27, p<0.001), performance (r=0.37, p<0.001) but not with attitude (r=0.03, p=0.617).

Path analysis of relationship of management style and performance

The process in which performance might be affected by management style through the mediation effect of commitment and satisfaction was also investigated using Baron and Kenny procedure. In order to test the mediating effects, a three-step regression suggested by Baron and Kenny (1986) was used. The three steps are: (1) the management style affects the commitment and satisfaction; (2) the commitment and satisfaction affects the performance; and (3) after including the mediating variable into the second regression equation of the previous step, the relationship between management style and performance has to significantly diminish.

Hayes PROCESS macro - a macro attached by Hayes to SPSS (Hayes, 2012), was used for mediation analysis using Baron and Kenny procedure. PROCESS uses a path analytical framework to estimate direct and indirect effects in mediator models. In order to estimate the reliability of the associated serial indirect effect (i.e, the total effect minus the direct effect), 5,000 iterations were used to obtain bias-corrected and accelerated bootstrap 95% confidence intervals. The variables that were controlled during the mediation analysis in the model were age, gender, qualification, level of education and years of experience. In the model examining commitment and satisfaction as a potential mediator of the relation between management style and performance of the nurses, the total effect of management style on performance was positive and significant (βc =0.351, 95% CI: 0.282-0.420, p-value<0.001). This effect was significantly mediated by commitment and satisfaction (βa*b = 0.076, Boot strapped 95%CI=0.043-0.117). The fact that the confidence interval excluded zero, indicates a significant indirect effect of management style on performance of the nurses via commitment and satisfaction. On the other hand, the direct effect of management style became significant (βc' =0.275, 95%CI: 0.204-0.346, p-value<0.001) after controlling the effect of commitment and satisfaction in their relationships, thus suggesting partial mediation, following the stipulations of Baron and Kenny (1986). Furthermore, the standardized effect size for the indirect effect was 0.115 (Bootstrapped 95%CI: 0.066–0.173), indicating that performance increases

Table 8: Multivariate analysis

Variables	p-value	Partial Eta Squared
Age	0.157	0.015
Total years of experience	0.022	0.03

R Squared = .158 (Adjusted R Squared = .134)

Table 9: Correlation among the perception dimensions of the health workers

Perception	Mission & goals	Reward & recognition	Commitment & satisfaction	Management style	Performance	Attitude
Mission & goals	1	0.30***	0.39***	0.27***	0.37***	-0.03
Reward & recognition		1	0.37***	0.56***	0.35***	0.40***
Commitment and satisfaction			1	0.39***	0.48***	0.32***
Management style				1	0.54***	0.48***
Performance					1	0.17**
Attitude						1

***. Correlation is significant at less than 0.001 level, ** Correlation is significant at less than 0.01 level.

Reward and recognition was also found to be significantly correlated with commitment and satisfaction (r=0.37, p<0.001), management style (r=0.56, p<0.001), performance (r=0.35, p<0.001), and attitude (r=0.40, p<0.001). Commitment and satisfaction was also correlated with management style (r=0.39, p<0.001), performance (r=0.48, p<0.001), and attitude (r=0.32, p<0.001). Management style was significantly correlated with performance (r=0.54, p<0.001) and attitude (r=0.48, p<0.001). Finally, performance was correlated with attitude (r=0.17, p=005).

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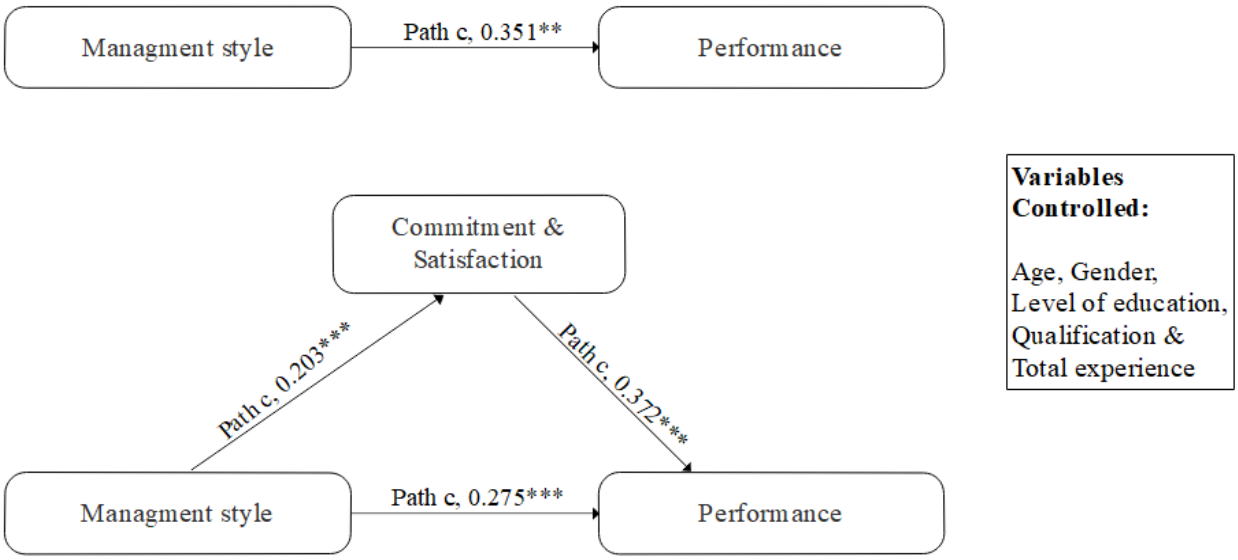

Figure 2: Path analysis of the relationship of management style and performance through commitment and satisfaction.

Table 10: Commitment and satisfaction as mediator in the relationship of management style and performance.

Path Coef.	Predictor variable	Outcome Variable	Potential Mediator	Variables controlled	β(SE)	p-value
Depressive symptom as a potential mediator						
A	MS	C&S		Socio-demographics	0.203(0.030)	<0.001
B	C&S	P		Socio-demographics, MS	0.372(0.070)	<0.001
C	MS	P		Socio-demographics	0.351(0.035)	<0.001
c'	MS	P	C&S	Socio-demographics, C&S	0.275(0.036)	<0.001

MS=Management style, C&S=Commitment and satisfaction, P=Performance, Socio-demographics=Age, gender, Qualification, Level of education, and Total experience.

by almost 0.115 SDs for every 1-SD increase in management style indirectly via commitment and satisfaction. Path-analytic results for predicting Performance are presented in Figure 2.

Discussion

This study was conducted under the main objective of assessing the factors that potentially affect the performance of nurses and are discussed in this section with a broad aspect.

Knowledge base and skill

In this dimension, the responses on majority of the items was encouraging as the score was either good or excellent. Similar studies conducted in African countries, Namibia and Ethiopia, also found out that nurses indicated that their knowledge and skills were satisfactory [11]. Meanwhile, almost one fourth of the respondents admitted that their knowledge and skills on supervision of nursing care, supervising student nurses, and providing in service training was either poor or very poor. Most of the study sites are teaching areas where the medical and health sciences students are attached for their clinical practice and finding such a performance level needs a curious attention.

Performance Appraisal and Utilization

Performance management is generally absent or limited in national health systems in developing countries [25]. In congruent with this, in this study, it was reported that performance appraisal is hardly practiced, and if there it is not properly utilized. Similar studies conducted in a neighbouring country Ethiopia and another African country, Namibia reported similar findings in which performance appraisal is poorly utilized [11, 26]. Rafferty (2005) stresses the importance of feedback on the outcomes of performance appraisal by stating that it is the means by which staff can be informed about their performance outcome and it should be discussed with them [27].

Salary, benefit, and recognition

Employee motivation holds a critical key to organizational success. When healthcare workers are motivated and subsequently satisfied with their jobs, it leads to patient satisfaction and, ultimately, organizational effectiveness. This part contains professional nurses' responses regarding aspects related to remuneration, benefits and recognition that may affect the performance of nurses. Meanwhile, in this

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current study, the majority of respondents expressed their dissatisfaction regarding their remuneration and they believe that their remuneration doesn't correspond with their work experience and the job responsibility that they carry. Similar findings were reported in a previously conducted national study which found out that two third of the respondents were dissatisfied with their monthly salary [28]. Moreover, a similar a study conducted in different parts of Ethiopia came up with similar findings in which health care workers were dissatisfied with the payment, promotion, and fringe benefits [26, 29]. Similar findings were also reported in another African studies [11]. Failure to recognize nurses' accomplishments and providing them with rewards is determined as one of the main factors for nurses' poor performance [17]. Majority of the respondents in this study stated said that fringe benefits are not known to them and that they are not satisfied with such benefits which might have affected their performance level. Therefore, health facilities need to work on the recognition and reward of professional performance.

Staffing and work schedule

Staff scheduling is aimed at assigning the available nurses to do the tasks effectively and it should be done as much as possible so that it will cater healthcare workers' duty preferences [30]. Some of the main reasons for staff attrition and burnout are work schedule and heavy work load, thus managers should optimize methods used to set work schedules to be supportive and flexible so as to accommodate individual preferences as much as possible [17]. Majority of the respondents in this current study agreed that opportunities exist for flexible work schedule and that the overall work schedule is fair. Similar studies reported differently in which the nurses' work schedule to be unfair and that it doesn't meet job needs or expectations [11, 29]. One of the underlying and confounding factors that affect performance negatively is the unparalleled shortage of health professionals, and this is become more obvious in nurse professionals as their work is more loaded than any other profession [17, 31]. In this current study, 51% of the respondents stated that staff number in their respective units is not enough to cover the current work load. On the other hand, this shows an improvement in the last two years as the score on this item from a previously conducted study was 69.1%, which could be associated with the assignment of new staff members in the areas of study. This is congruent with the other similar studies [11, 28, 32].

Staff development

The staff development package in an organization is designed to ensure that staff knowledge and skills are developed, strengthened and kept up to standard to ensure excellent care of patients. In this current study, nurses were asked whether there are opportunities for advancing in the organization existed and only 23.2% responded that there is. This result is almost similar to the findings of Ghirmay et al, (2016), a previously conducted national study, in which it was 24.6%. In congruent with the above findings, similar results were reported in the Ethiopian older study in which 34.1 agreed with the item [32]. Moreover, another similar Ethiopian study by Sinidu (2014), stated that only less than 3% were satisfied with the opportunity for training opportunities [33]. On the other hand, more than 30% of the respondents from this current study agreed that there are opportunities for continuing education, as opposed to Ghirmay et al, (2016) of finding which is only 14%. Such a discrepancy could be explained by the increased educational opportunities since after this study. In contrast to this, in studies done in Ethiopia, 42.5% and 44.1% respectively have the opinion that continuous education opportunities exist [11, 32]. This seems that the problem is universal in Africa. According to Munjaja (2005), career progression systems for nurses in Africa have not been well developed and have also lacked adequate numbers of experienced mentors, preceptors and role models [31]. This constitutes an area of frustration for many nurses in Africa; progression to higher qualification and career status is only achieved after many difficulties. From all these, one could conclude that upgrading programs should be strengthened further, and more effort should be spent on the advancement of nurses in every corner of the profession.

Workplace and environment

The items of the dimension, workplace and environment are related to physical conditions such as equipment and materials, work tools, as well as physical layout such as clean free from hazard, conducive environment and adequate space. Safety is a major issue in a medical profession and more than half of the nurses agreed that their workplace is free from hazards and infection control strategy guidelines are available. Such reports were similar with the previously conducted national study [28]. However, it was described that antiseptic hand solutions are poorly available. In contrast to these, the reports from a studies conducted in Ethiopia stated that non-conductive and unsafe are some of the factors that result in poor job satisfaction which in turn results in poor performance [26, 33].

Regarding the equipment availability, though materials and instruments are available and generally in good working condition, there is insufficiency. In situations where there is shortage of materials and instruments it is unrealistic to expect nurses to perform superbly. Ghirmay et al. (2016), identified a strong association between adequacy of materials and equipment and performance of nurses. Therefore, it is high time that the ministry of health to avail medical equipments and supplies to increase job satisfaction and performance of nurses and to enhance the quality of care.

Mission and Goals

Mission statement of an organization is the roadmap of an organizational process. It is from this that specific goals

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and objectives are derived and the health workers expected to meet. It is therefore imperative that mission and goals of an organization should be explicit and understood by the implementers. People who are aware of the mission and goals of an organization have strong identification with the organization, are committed and remain longer in the organization than those who do not. In this study, nurses were asked if they were clear about the objectives they need to achieve and whether the organizational mission is understood by all. To these two interrelated questions, majority of nurses responded that they are clear with the objectives they need to achieve and the organizational mission are understood by all.

Fort & Voltero (2004), mentioned that factors that are closely related to the level of performance include clear goals and objectives [34]. In support of this, in this current study, the results reveal that mission and goals was significantly correlated with performance (r=0.37, $p<0.001$). Moreover, the dimension, mission and goal was significantly related with reward and recognition (r=0.30, $p<0.001$), commitment and satisfaction (r=0.39, $p<0.001$), and management style (r=0.27, $p<0.001$). From all these results, it can be concluded that being clear with the mission and goals of an organization elates the feeling of ownership and improves the commitment & satisfaction of the nurses enhancing and their confidence and performance. The findings on this dimension was relatively low in the other referenced studies [11, 32].

Reward and recognition

Recognition for doing a good job receiving a competitive pay and feeling of achievement are external and internal motivators expected to result in improvement of performance. Studies stated that not feeling respected and valued for contributions and capabilities, not receiving recognition or rewards for accomplishments are some of the factors that affect performance negatively [17, 33]. In this study, majority of the nurses responded that the work they do gives them a sense of achievement, which is very good as this is an internal reward which is long lasting as compared to external reward as a motivator [25, 35]. Similar findings were reported from a Pakistani's study [36]. Nurses having such a sense of achievement is noble, because as an internal reward it lasts longer as compared to external rewards [35]. Furthermore, Jones, (2007), suggests that awards for group or individual efforts; appropriate endorsements; exposure to new developments through meetings and conferences are some of the motivators that ultimately help improve performance [37]. Reward and recognition also affect nurses' performance as it was confirmed in this study by the significant (r=0.35, p<0.001) relationship among them. Moreover, reward and recognition was also found to be significantly correlated with commitment and satisfaction, management style, and attitude. From all these it is safe to conclude that, for the nurses in the study area, a program that combines monetary and non-monetary reward systems and activities that satisfies intrinsic, self-actualizing needs are potent motivators of nursing practice and have a major role in the enhancement of nurses' performance.

Commitment and satisfaction

The importance of job satisfaction to an organization in terms of its positive relationship with individual performance is well documented [17, 33, 37, 38]. It is therefore very essential that majority of nurses in this study responded to the affirmative that doing their nursing job makes them feel good and that they are proud to tell people where they work. This is similar to the findings of Naeem & Khanzada (2018). As Jones (2007), put it the heart of motivation for employees is to believe that their work is meaningful and satisfying. The intrinsic needs or motivators are growth, advancement, responsibility, the work itself, providing a stimulating work environment, and inspiring optimism. When one looks on these suggestions and compare the nurses' responses in this study, it is imperative that what is keeping them going is the fulfilment of the intrinsic needs. The strong correlation ($p<0.001$) identified between commitment and satisfaction and performance in this study supported and signified all the above mentioned views of different researchers.

Management style

Leadership style is defined as the manner and approach of providing direction, implementing plans, and motivating people. Leadership style is considered by many researchers as an important variable in influencing functions of health workers [39]. The findings in this current study concur with the preceding literature which highlights that management style has a positive association with employee performance. Nurses were asked whether they trust and respect their supervisor, and around three quarter of them responded positive. Furthermore, the nurses were asked whether their supervisor inspires them to do their best and almost half of them agreed to this statement. But to the statement that managers are open to new ideas and suggestions the affirmative response was less than half. All these findings are almost similar to the findings of Naeem & Khanzada (2018), and Dhaifallah (2015). Hazelburg (2003), which stated that one of the basic needs that motivate subordinates to perform better is positive relationship with managers. Poor communication with management results in dissatisfaction and burnout [17]. The effect of utilizing proper system of management has been very effective as demonstrated in this study, whereby, management style was significantly correlated with performance *($r=0.54$, $p<0.001$)*. Similarly, a study conducted in Jordan by Alawneh et al, (2015), and Dhaifallah, (2015), found out that employees' job satisfaction mediated the effect between leadership styles and health care providers' performance.

Performance

The most important function of any organization is to enhance employee's performance so that it could improve the quality of health care it provides. Job performance of an employee increases with greater job satisfaction and commitment. In turn, increasing employee performance will positively influence the organization's performance and ultimately, the quality of services. Furthermore, when employees are contented with their work, they are likely to perform better and also to perform decision making and problem solving more effectively. Performance is enhanced when employees become dedicated to their assignments [3, 36, 40, 41]. In congruent with these statements, in this current study, more than three fourth of the nurses responded that they feel their work contributes to the organizations performance and that they are given enough authority to allow them to do their job effectively. Findings from Ghirmay et al, (2016) and Dhaifallah, (2015) are similar to the findings of this study. It has additionally been reported that increasing organizational commitment leads to decreasing workforce turnover and consequently, increasing employee performance [17, 31, 42]. The performance of the entire organization is very tightly linked to each individual's performance The higher the level of employee performance, the better the overall organizational effectiveness will be. In this current study, performance was significantly related to mission and goals, reward and recognition commitment and satisfaction and management style.

Demographic factors affecting performance

Demographic variables were also scrutinized to look for any significant association and it showed that as the age in years increased, the view on performance score also increased. This finding is similar to the Eritrean finding of Ghirmay et al, (2016), which identified that performance was shown to increase with an increasing age of health care providers. Similarly, a study conducted in Ethiopia, age of the respondents was significantly associated with job performance [29]. Another association found was the total years of experience whereby those with more than 5 years of experience have significantly higher performance scores (p value and p trend <0.001). This finding is similar to the finding of Al- Ahmadi, 2009, whereby job performance is positively related to some personal factors, including years of experience [3]. At last the association identified in this research from the demographic variables is that people who are assigned in heath stations and health centers have significantly higher view on their performance (p value and p trend <0.001). At multivariate analysis, both total years of experience (p=0.022) and health care setting (p<0.001) were found to significantly influence the performance but not age (p=0.157).

Limitations

All measures of performance may not have been dealt with and measures were based on self-reports, it would have been holistic if patients' views were incorporated. Moreover, the study is conducted in one geographical location which prevents making inferences of nurses in other locations of the country.

Conclusions

Performance was significantly related to mission and goals, reward and recognition commitment and satisfaction as well as management style. Therefore, it is suggested that re-establishment of performance appraisal system, nonmonetary reward systems, and salary scale that addresses years of experience plus the responsibility the nurses carry, increasing number of graduating nurses and assigning heads of health facilities based on their management background instead of based on seniority only are expected to improve the performance of nurses.

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Authors' contributions

TH: Study conception and design of the study, acquisition, analysis and interpretation of data; SA: revising the manuscript critically for important intellectual content; HA: revising the manuscript critically for important intellectual content; YMA: revising the manuscript critically for important intellectual content, drafting and submission of manuscript. All authors read and approved the final manuscript.

Data availability statement

The datasets generated and/or analysed during the current study are available from the authors on reasonable request.

Competing interests

The authors declare that they have no competing interests.

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