European Journal of Social Sciences Studies
ISSN: 2501-8590
ISSN-L: 2501-8590
Available on-line at: www.oapub.org/soc

doi: 10.5281/zenodo.3690168 Volume 4 | Issue 6 | 2020

DIFFERENCES IN FORENSIC SCIENCE TRAINING AMONG THE INVESTIGATING POLICE OFFICERS IN NIGERIA

Zakariyya, M. S.[i],
Geshina A. M. S.
Forensic Science Programme, School of Health Sciences,
Universiti Sains Malaysia, 16150 Kubang Kerian,
Kelantan, Malaysia

Abstract:
Training remains an important activity which organisations should embrace to ensure achievement of organizational goals. With modernization and development in science and technology, police organisations should train their personnel in the area of forensic investigation, because it is a fair and reliable means of understanding how crimes and related issues occurred. Sociodemographic factors play an important role in determining who goes for training among workers in an organisations; this could apply to the Nigeria Police (NP) agency. The aim of this study was to understand whether there were differences in the attendance of forensic science training among the Investigating Police Officers (IPOs) in the NP, based on their sociodemographic characteristics, namely, gender, age, marital status, highest educational qualification, rank and years spent in service. Using sample survey method, information related to the frequency of forensic science training attendance and sociodemographic profiles of 401 IPOs was collected. SPSS was used to analyze the data. Although forensic training was generally infrequent among the IPOs, the results showed that the frequency of training attendance was not similar among the categories of age, marital status, highest educational qualification and years spent in service, but was the same in the categories of gender and rank of the IPOs. It is recommended that sociodemographic profiles of IPOs need to be properly considered in selecting who should attend forensic training among the IPOs.

Keywords: forensic investigation; Investigating Police Officers; Nigeria Police; police reform; police training

1. Introduction

Forensic science is important to the police because its various techniques could assist in the prevention and control of crimes and criminal activities. There is an opinion that

[i] Correspondence: email geshina@usm.my; zakariyya.sarki@fud.edu.ng

forensic criminal investigation is reliable, fair and sometimes quicker in determining who committed what crime (Collins & Jarvis, 2009). The methods of forensic science are often used in criminal investigations to establish the nature of the crime committed as well as the characteristics of the perpetrator, which could lead to arrest and prosecution (Siegel & Mirakovits, 2015). These are some of the reasons for police organizations around the world to embrace and utilize forensic science methods.

For obvious reasons, the level of knowledge, training, and application of forensic science in policing work are more advanced in some countries than in others. They could be linked to national agenda, budgets, and political climate. However, with continued globalization, complex social changes, emerging crimes and advancements in science and technology; all nations must continuously train their police investigators.

In Nigeria, the federal and the only police organization in the country, i.e. the Nigeria Police (NP), started using forensic science techniques way back in 1982 with a laboratory established at the Force Criminal Intelligence and Investigation Department in Lagos (Hills, 2008). At that time, several police officers were trained to man the laboratory. However, as a result of the prolonged military administration, the laboratory was virtually abandoned with inadequate working facilities and a lack of training of the personnel (Nte, 2012). With the return to democracy, a new forensic laboratory was established in 2016 at the police headquarters in Abuja to complement the hitherto first and only laboratory which was already old with few and outdated facilities (Out and Elechi, 2018). The main justification for establishing the laboratories was to assist in conducting a criminal investigation.

There are arguments that because of the corruption that entangled Nigeria and specifically the Nigeria Police (Agbiboa, 2015); together with other peculiar challenges faced by the NP (Ojo, 2014), training opportunities were not adequately, properly and fairly given to the IPOs (Owen, 2014). Certain monetary and promotional benefits are usually attached to training while not all officers could be sent for the training at once; only a few officers are sent at a time. If not correctly done, then, the selection of who attends could affect the successful discharge of police duties as those sent for training may not be the most in need of the said training. Since all categories of officers are important in executing various investigative functions, it is expected that equal opportunities for training are given to all IPOs despite their social or demographic status. A situation whereby a sociodemographic category is unjustifiably denied training will likely not augur well for the adequate performance of the police agency.

The review of literature on policing in Nigeria conducted by the current authors indicated that there is a dearth of studies about whether the training opportunities really differ, specifically among some of the critical sociodemographic markers of the IPOs. Individuals' sociodemographic characteristics, which in some cases are inherent and unavoidable, are part of markers that influence organizational and managerial decisions (Kuntz, Kuntz, Elenkov, & Nabirukhina, 2013; Boateng, 2014). Therefore, this current study sought to determine the sociodemographic differences in forensic training attendance of the officers. One of the benefits of this study is that it will add to the

knowledge about how forensic science could be better integrated into the police system in Nigeria and perhaps other countries that have similar situation; as it could be understood, the application of forensic science in criminal investigation is still at its infancy stage in Nigeria. In order to achieve the objective of the study, the following six null hypotheses were formulated:

H_{01}: there is no difference in forensic science training attendance among the categories of the gender of the IPOs.

H_{02}: there is no difference in forensic science training attendance among the categories of the marital status of the IPOs.

H_{03}: there is no difference in forensic science training attendance among the categories of the age of the IPOs.

H_{04}: there is no difference in forensic science training attendance among the categories of highest educational qualification of the IPOs.

H_{05}: there is no difference in forensic science training attendance among the categories of the rank of the IPOs.

H_{06}: there is no difference in forensic science training attendance among the categories of years spent in service by the IPOs

2. Literature Review

Training is a designed method of learning and a process that provides employees with knowledge and skills which will help improve their performance toward achieving the organizational goals (Asad & Mahfod, 2015). Not only help the organization but training also enhances employees' job satisfaction (Sajuyigbe and Amusat, (2012). It thus should be a continuous activity (Uma, 2013), since every organization, whether private or the public, would want to realize its goals and advance its workers' satisfaction. Depending on the services provided by an organization, opportunities for training may differ according to the employees' specific characteristics, for example, rank or level of expertise. In public agencies like the police that serve all categories of individuals, sociodemographic markers of officers could likely play a role in determining who should be sent for training so that the agency would have the capacity to serve all denizens well.

Sociodemographic factors have continued to be determinants of human behavior and actions. Some studies (e.g., Rydberg & Terrill, 2010; Boateng, 2014; Padmanabhan & Magesh, 2016) have reported how these factors affect training and related issues in police organizations. On the matter of gender, for instance, even with the changes in traditional gender roles and numerous findings on the adequate performance of women like that of men; the former is still seen to be more accommodating and considerate than the latter and are believed to be less effective as police officers. Men are seen to possess the assertive personality traits needed for a competent police officer (Gerber, 2001); for example, they were more likely to use force than females (McElvain & Kposowa, 2008). It is important to note that some previous studies have reported women seeing themselves as good as male police in carrying out all tasks in law enforcement (Kakar, 2002), including patrol

(Rabe-Hemp, 2009), maintaining authority, and using force (Garner & Maxwell, 2002; Paoline & Terrill, 2007). It could be said that both categories of officers should have equal opportunities in receiving forensic science training and other human resources development opportunities.

Ojedokun (2008), and Afolabi & Omole (2011) found that the level of training police officers received increased with their ages, which seemed to support the finding that perceived organizational support was more in older officers (Boateng, 2014). However, it was reported that older employee had no motivation for further training (Colquitt, LePine, & Noe, 2000; Ebner, Freund, & Baltes, 2006; Van Vianen, Dalhoeven & De Pater, 2011) and did not care to initiate opportunities to acquire more training through education (Warr & Fay, 2001), because of the belief that their learning capabilities were declining (Maurer, Barbeite, Weiss, & Lippstreu, 2008).

Age was reported to have influenced different aspects of police behaviour. For instance, perceived organizational support which influences employee's effectiveness was found to be higher in older police officers in Ghana (Boateng, 2014). Related to this, job burnout was reported to be less among older officers in Nigeria (Odedokun, 2015). Younger police personnel showed a positive attitude towards unethical behaviour while older officers indicated a negative attitude (Ojedokun, 2008). Similarly, Afolabi and Omole (2011) found that older officers scored higher on a professional ethical scale than younger ones. It is possible that older officers receive more training than the younger ones; hence, they shun unethical behaviour. However, police organizations should also invest resources in younger officers because the policing job requires the energy and vibrancy of younger individuals.

Also, it was reported that work-family-conflict affected police officers' ability to perform their duties by increasing their absenteeism to work and turnover rates (Mikkelsen & Burke, 2004; Johnson, Todd & Subramanian, 2005). Nevertheless, the responsibilities attached to marriage (Padmanabhan & Magesh, 2016) could also make an employee seek training because of the monetary benefits (in the form of allowance) that could be derived from the training. This is because the extra money gained after the training could be used to deal with some of the family responsibilities. However, it has been reported that married workers in Nigeria faced work-family-conflict (Akintayo, 2010); therefore, they may not be committed to discharging the duties and tasks assigned to them by their organization. This situation clues for the need to consider marital status in assigning responsibilities.

Decker & Huckabee (2002) and Rydberg & Terrill (2010) reported that the importance of formal education to the police has now been recognised. The Report of the Presidential Committee on the Reform of the Nigeria Police Force (2009) and the Ratified Force Order of the Nigeria Police (2013) have all recognized the importance of higher education for the police (Owen, 2014). According to Hoekstra and Van Sluijs (2003), although traits and intelligence are foundational blocks for ensuring competencies, they are affected by education. Also, it was found that Nigerian police personnel with higher education had negative attitudes towards unethical behavior (Ojedokun, 2008). Officers

with higher education would probably do better when they are sent for forensic training, mainly when the language of communication during police training is always English; English is believed to be understood better by those with higher education. Understanding the English language will give them a better chance of grasping the content of the training manuals and instructions.

Earlier studies (e.g., Riksheim & Chermak 1993; Bayley & Garofalo 1989) and later Aamodt (2004), as well as Paoline and Terrill (2007), have found that experienced officers were better in dealing with citizens in a difficult situation and were involved in training less experienced officers about how to use minimal and acceptable force in encounters with the public. Kuo (2015) has reported that dedication to work was positively related to years spent in service. The years spent by an officer in police service is therefore crucial in determining how the officer sees her or his job and behaves in different working environments, including training situations. Although there were several studies concerning the sociodemographic influence on police organizational behaviours and related concerns, little was done to explore how forensic science training opportunities are distributed among the sociodemographic markers of police officers.

3. Material and Methods

This study was a cross-sectional sample survey. The location of the study was Zone 1 of the NP, which comprised of one zonal and three state Criminal Investigation and Intelligence Departments (CIIDs). Ethical approval was obtained from the Human Research Ethics Committee (JEPeM) of the Universiti Sains Malaysia and the NP authority. JEPeM adopts research ethics guidelines outlined by the Helsinki Declaration, and the committee is listed under the Office for Human Research Protections (OHRP), United States Department of Health & Human Services.

Based on the IPOs population of 3,503 in Zone 1, a sample size of 347 was determined using Krejcie and Morgan's (1970) formula. A potential 20% dropout rate was added, making the sample size 416. Systematic sampling was used to select the research participants. The inclusion criteria were: 1) An investigator must have spent at least two years in service, 2) he or she should have been in the location of the study on a regular posting and not on special assignment, loan or operation and, 3) he or she was also serving at the state or zonal CIID in Zone 1 at the time of study. Any participant who did not fulfill the criteria was excluded.

Data were collected via a self-administered questionnaire with the informed consent of the participants. The information collected was on the socio-demographic markers, namely: gender, age, marital status, highest educational qualification, rank, years spent in service, and the number of forensic science training attended by the IPOs. At the end of the data collection exercise, the response rate was 96.4% which was equivalent to 401 filled questionnaires; this number exceeded the minimum size required.

SPSS version 24 was used to analyze the data. Descriptive statistics were generated using frequency distribution and percentages, while Mann-Whitney (for Gender) and the

Kruskal-Wallis tests for other variables were conducted to test the hypotheses. Post hoc analyses were also carried out where relevant.

4. Results and Discussion

4.1 The sociodemographic information of the respondents

The sociodemographic information about the respondents is shown in Table 1 below. The majority (87.3%) of the respondents were male, while 12.7% were female. Respondents aged between 28 and 37 years constituted the highest percentage (37.2%) compared to other categories of age. The category that follows in terms of frequency is the 38-47 category (34.4%). Very few respondents (9.7%) fall in the 18-27 years' category. In general, the mean age was 39, while the standard deviation was 6.9.

Table 1: Sociodemographic characteristics of the respondents (n=401)

Variables	f (%)	Variables	f (%)
Gender		**Rank**	
Male	350 (87.3%)	Officers	132 (32.9%)
Female	51 (12.7%)	Inspectors	125 (31.2%)
Age		Men	144 (35.9%)
18-27 years	39 (9.7%)	**Years spent in service**	
28-37 years	149 (37.2%)	1-5 years	73 (18.2%)
38-47 years	138 (34.4%)	6-10 years	72 (18.0%)
48-57 years	75 (18.7%)	11-15 years	73 (18.2%)
Marital status		16-20 years	94 (23.4%)
Single	78 (19.5%)	21-25 years	30 (7.5%)
Married	313 (78.1%)	26-30 years	54 (13.5%)
Ever married	10 (2.5%)	31-35 years	5 (1.2%)
Highest educational qualification		**Forensic investigation training attended**	
Primary Certificate	16 (4.0%)	No training	257 (64.1%)
Secondary Certificate	101 (25.2%)	Attended training once	96 (23.9%)
Diploma Certificate	141 (35.2%)	>1 training attended	48 (12.0%)
Degree/HND Certificate	115 (28.7%)	**Note:** Mean (SD) for age = 39 (6.9). Mean (SD) for years spent in service = 14.5 (5.3)	
Postgraduate	28 (7.0%)		

As the data in Table 1 indicate, the majority (78.1%) of the respondents were married, several respondents were single, and a small percentage were ever married. In terms of educational qualification, more than one-third (35.4%) of the respondents were Diploma holders, one-quarter of the respondents have secondary certificates (25.2%), and 28.7% have bachelor's degrees or its equivalent. Smaller percentages of respondents have primary (4.0%) and postgraduate (7.0%) education.

Concerning the rank of the respondents, Men (35.9%) constituted the largest group. This was followed by Officers (32.9%), and Inspectors (31.2%). Although the percentage of the Men category is a little bit higher, this shows that the CIIDs were

composed of IPOs from all categories of rank (that is, higher, middle, and lower ranks almost equally) who were involved in criminal investigations.

As for years spent in service, the 16-20 years' category has the highest percentage (23.4%) of the respondents. Categories like 1-5 years, 6-10 years and 11-15 years have a similar number of respondents with 18.2%, 18.0% and 18.2% respectively. The most experienced categories of the respondents, i.e., 21-25 (7.5%), 26-30 years (13.5%), and those above 30 years (1.2%), have the lowest percentages. Thus, the CIIDs constitute IPOs who have more years to spend in service. The Mean and Standard deviation of the years spent in service were 14.5 and 5.3 respectively (Table 1 is referred).

Also, close to two-thirds (64.1%) of the respondents did not have any forensic investigation training. About one-quarter (23.9%) attended forensic training once, and only 12.0% have forensic science training more than once during their service years. Therefore, it can be said that most of the IPOs have little or no training in forensic investigation.

4.2 Hypotheses tests

The results of the hypotheses tests revealed that the distributions of forensic investigation training attended were different for groups of the socio-demographic variables, as assessed by visual inspection of a boxplot. Specifically, the distributions of the forensic training were statistically significantly different across age ($\chi^2(3) = 28.761$, $p = 0.000$), marital status ($\chi^2(2) = 18.167$, $p = 0.000$), highest educational qualification ($\chi^2(4) = 28.565$, $p = 0.000$) and years spent in service ($\chi^2(6) = 25.664$, $p = 0.000$). The differences were not statistically significant in the categories of gender ($p = 0.740$), and rank of the IPOs ($p = 0.117$); see Table 2.

Table 2: Forensic science training attendance across categories of sociodemographic variables

No	Null hypothesis (H_o)	χ^2	p-value	Decision
H_{01}	The distribution of forensic science training attended is the same across categories of gender	9143.000	0.740	Retain the H_o
H_{02}	The distribution of forensic science training attended is the same across categories of age	28.761	**0.000**	Reject the H_o
H_{03}	The distribution of forensic science training attended is the same across categories of marital status	18.167	**0.000**	Reject the H_o
H_{04}	The distribution of forensic science training attended is the same across categories of highest educational qualification	28.565	**0.000**	Reject the H_o
H_{05}	The distribution of forensic science training attended is the same across categories of rank	4.292	0.117	Retain the H_o
H_{06}	The distribution of forensic science training attended is the same across categories of years spent in service	25.664	**0.000**	Reject the H_o

Pairwise comparisons to determine the difference between pairs of significant variables were performed with a Bonferroni correction for multiple comparisons. Values stated here are mean ranks unless otherwise stated. Among the age categories, the post hoc analysis revealed statistically significant differences in forensic training attended

between '18-27 years' (180.63) and '48 years and above' (255.59) categories (p = 0.012), '28-27 years' (187.62) and '48 years and above', 255.59 (p = 0.000), and '38-47 years' (191.54) and '48 years and above' (255.59) categories (p = 0.001).

Table 3: Pairwise comparison among the categories of age

Sample 1 – Sample 2	Test statistics	p-value	Adjusted p-value
18-27 years – 28-37 years	0.059	0.808	1.000
18-27 years – 38-47 years	0.192	0.661	1.000
18-27 years – >47 years	9.535	0.002	**0.012**
28-37 years – 38–47 years	0.095	0.758	1.000
28-37 years – >47 years	16.881	0.000	**0.000**
38-47 years - >47 years	14.376	0.000	**0.001**

For marital status, the pairwise comparison was significant between single, 159.34, and married, 210.17, (p = 0.000) as well as between single (159.34) and ever married, 238.85, (p = 0.049), but was not significant between married and ever married (p = 1.000). See details in Table 4.

Table 4: Pairwise comparison among the categories of marital status

Sample 1 – Sample 2	Test statistics	p-value	Adjusted p-value
Single-Married	-50.833	0.000	**0.000**
Single-Ever married	-79.510	0.016	**0.049**
Married-Ever married	-28.677	0.364	1.000

In the highest educational qualification, the following pair comparison were significant: primary certificate (151.06) and postgraduate certificate (273.07) categories (p = 0.000), secondary certificate (175.29) and degree/HND certificate (215.47) (p = 0.028), secondary certificate category (175.29) and postgraduate (273.07) (p = 0.000), as well as diploma certificate (198.97) and postgraduate (273.07) categories (p = 0.003). There was no statistically significant difference in other pairs. See Table 5.

Table 5: Pairwise comparison among the categories of highest educational qualification

Sample 1 – Sample 2	Test statistics	p-value	Adjusted p-value
Primary certificate – Secondary certificate	-24.225	0.360	1.000
Primary certificate – Diploma certificate	-47.906	0.065	0.651
Primary certificate - Degree/ HND certificate	-64.411	0.014	0.142
Primary certificate – Postgraduate certificate	-122.009	0.000	**0.001**
Secondary certificate – Diploma certificate	-23.681	0.065	0.650
Secondary certificate - Degree/ HND certificate	-40.187	0.003	**0.028**
Secondary certificate – Postgraduate certificate	-97.784	0.000	**0.000**
Diploma certificate - Degree/ HND certificate	-16.506	0.182	1.000
Diploma certificate – Postgraduate certificate	-74.103	0.000	**0.003**
Degree/HND certificate - Postgraduate certificate	-57.598	0.005	0.055

As shown in Table 6, two sets of pairs were significant among the pairs compared in the years spent in service. Thus, there was a statistically significant difference between the 1-5 years' category (167.24) and 21-25 years' category (249.53), $p = 0.002$; also, between 1-5 years' category (167.24) and 26-30 years (234.58), $p = 0.003$. The remaining pairs had no statistically significant differences.

Table 6: Pairwise comparison among the categories of highest educational qualification

Sample 1 – Sample 2	Test statistics	*p*-value	Adjusted *p*-value
31-35 years - 1-5 years	38.240	0.401	1.000
31-35 years -6-10 years	62.382	0.171	1.000
31-35 years -16-20 years	75.601	0.094	1.000
31-35 years -26-30 years	105.583	0.022	0.457
31-35 years -21-25 years	120.533	0.011	0.236
1-5 years -6-10 years	-24.142	0.140	1.000
1-5 years -11-15 years	-32.514	0.046	0.966
1-5 years -16-20 years	-37.361	0.015	0.315
1-5 years -26-30 years	-67.344	0.000	**0.003**
1-5 years -21-25 years	-82.294	0.000	**0.002**
6-10 years -11-15 years	-8.371	0.609	1.000
6-10 years -16-20 years	-13.219	0.391	1.000
6-10 years -26-30 years	-43.201	0.015	0.310
6-10 years -21-25 years	-58.151	0.007	0.138
11-15 years -16-20 years	-4.848	0.752	1.000
11-15 years -26-30 years	-34.830	0.049	1.000
11-15 years -21-25 years	-49.780	0.020	0.414
16-20 years -26-30 years	-29.982	0.074	1.000
16-20 years -21-25 years	-44.932	0.029	0.619
26-30 years -21-25 years	14.950	0.505	1.000

5. Discussion

The results from this study revealed that the level of forensic science training was different across the categories of age, marital status, highest educational qualification and years spent in service, but was the same in the categories of gender and rank of the IPOs. Specifically, as age increased, the level of training increased; consequently, the older officers might have known forensic investigation better and could likely exhibit ethical conduct during an investigation. This result is similar to what Ojedokun (2008), Afolabi and Omole (2011) found concerning the NP officers and has also supported Boateng's (2014) finding that perceived organizational support was more in older officers. In contrast, some studies have reported that older employees had no passion for further training (Colquitt, LePine, & Noe, 2000; Ebner, Freund, & Baltes, 2006; Van Vianen, Dalhoeven & De Pater, 2011) and indeed did not care to seek for opportunity to acquire more training through education (Warr & Fay, 2001), as a result of the seemingly declining learning abilities (Maurer, Barbeite, Weiss, & Lippstreu, 2008). Thus, training

older employees may not always be in favor of the organizational objectives, especially as job burnout was reported to be less among older police officers in Nigeria (Odedokun, 2015). It is however expected that older officers should have received more training than the younger ones as they must have spent more years in the police work, therefore, have had training opportunities in the agency.

This study provided some evidence that the IPOs who were ever married has the highest training, followed by married and lastly single IPOs. The result may not be surprising as those who were ever married may likely have less family-related commitments or conflicts that will prevent them from going to attend training if they are asked to go, as a result of which the police department responsible are more readily prepared to send this class of IPOs for forensic training. Previous studies (for example, Howard, Donofrio & Boyles, 2004; Mikkelsen & Burke, 2004; Johnson, Todd & Subramanian, 2005) have reported that work-family-conflict affected police officers' ability to perform their duties by increasing their absenteeism to work and turnover rates.

Nevertheless, the responsibilities associated with marriage (Padmanabhan & Magesh, 2016) could likely make an employee seek to go for training because of the financial benefits derivable from it; extra money gain at the end of the training could be used to solve some financial needs of the family. This could be true in Nigeria, where the police are believed to have poor welfare (Enweremadu, 2019), considering the risks involved in their job and compared to other occupations.

Some authors, for instance, Collins and George (2004) and Akintayo (2010), have reported that married workers in Nigeria faced work-family-conflict. Consequently, they may not be committed to discharging the duties assigned to them by their organization. Therefore, the lower level of training among single IPOs is surprising; one would have expected them to be more trained looking at the arguments against married workers. It is the opinion of the current researchers that single officers with less working experience may have been perceived as too new in the force to justify the decision to be sent for forensic science training. Nevertheless, ideally, forensic training should be allowed for all categories of marital status; this could help the police investigation in dealing with suspects who would belong to any of the three categories.

Regarding education, the higher the educational level of the IPOs the higher the number of forensic training attended. Decker & Huckabee (2002) Jaschke & Neidhardt (2007) Quarino & Brettell (2009), and Rydberg & Terrill (2010) have reported on the role of formal education to the police, just as discovered in this study. In Nigeria, the authorities have recognized that obtaining higher degrees and certificates by Nigeria Police personnel would lead to improved job performance and that the poor qualifications of the police have significantly limited the capacity of the agency to achieve its mandate and compete with their counterparts in other parts of the world (Owen, 2014). Forensic science is generally natural science-based; the NP might have considered those with higher education to be more competent to attend because they could have enough educational background to grasp the scientific ideas and principles associated with the science. It is likely officers with basic and primary education, for example, could find the

forensic knowledge difficult and tedious and consequently lost interest in it, thereby render the essence of the training useless.

As for the years spent in service, IPOs who were in the middle of their carriers have the most training than those approaching the end of their carriers. Those with less working experience have less training among the three categories in forensic science. From this, it can be deduced that the NP prepared to send IPOs who were assumedly aware of how the police system operates and have more time to serve before they retire. This class of personnel could perhaps be the most active officers in the police workforce. Hence, it seemed appropriate that they receive the most forensic training. Those in their early careers could have been engaged in trying to assimilate and learn the basic police operations, while the most experienced officers might be planning to retire; therefore, their training may not benefit the agency. In support of this finding, earlier studies (e.g., Riksheim & Chermak 1993; Bayley & Garofalo 1989; Aamodt, 2004; Paoline and Terrill, 2007), have found that experienced officers were better in dealing with citizens in a difficult situation and were involved in training less experienced officers about how to use minimal and acceptable force in encounters with the public.

One possible negative implication of this, however, could be the early retirement of the middle careers. Johnson (201) had found that well-experienced police officers were less likely to be satisfied with their job and may decide to retire for a better job. In other words, if an experienced officer decided to retire, the knowledge acquired during the training may be missed by the agency and likely detrimental to the police agency.

6. Conclusion and recommendations

Training remains the most important means through which employees of an organization improve their capacity to be able to cope with the challenges of continuous changes the society goes through. Among the NP investigators, forensic science training is an important activity that should be regularly and appropriately conducted, putting into consideration all categories of IPOs. Despite the vital role of sociodemographic variables in shaping individual, organizational behavior and opportunities, little was done previously to study the relationship between these factors and attendance of forensic science training by the IPOs. While this current study discovered that there was inadequate training on forensic investigation among the IPOs, it was also found that there were imbalances in forensic training among the officers. Some categories were given training more than others where every category ought to have been appropriately trained. The training is equal in gender and rank, which is suitable for the police; it was also appropriately distributed among the age categories, educational qualifications and years spent in service. However, the distribution among the marital statuses was seemingly not favorable to the NP.

It is therefore recommended that the selection pattern should be maintained by the NP when sending IPOs for training, however with modification in case of the marital status. Every category should be considered appropriately in the training because each

has a contribution to make in achieving the aims of the police agency. Evidenced-based priority could be given to some categories as found in this study.

Other markers, which were not covered by the current study, may also be considered prior to decisions on sending personnel for forensic science training; this is one area that future studies could explore. Examples include the range of actual tasks or future tasks expected of personnel, departments in which personnel is based, geographic risk analyses, and the trend of crimes in specific districts of the police. These markers depict decision based on crime control needs, rather than decisions solely based on sociodemographic markers. One other limitation of this study was its ability to study only one zone out of 12 zones. This limitation was unavoidable due to the time constraints, funding and the homogeneity of the NP system. Although the current findings can still be applied to the zone studied, it is acknowledged that the results would have been more applicable to the NP had many zones were involved.

Acknowledgements
The authors wish to thank TETFUND Abuja Nigeria for the research grant used to conduct the study. We will also like to acknowledge the Nigeria Police authority and the Investigating Police Officers for their approval and participation in the study respectively.

Conflict of interest
There is no competing interest to declare by the authors.

About the Author(s)
Zakariyya Muhammad Sarki (B.Sc., M.Sc., *pnm*) is a lecturer in the Department of Sociology**,** Federal University Dutse, Jigawa State, Nigeria, where he teaches sociology and criminology courses. He is currently a Ph.D. candidate in the Forensic Science Programme at the School of Health Sciences, Universiti Sains Malaysia; his research is on the application of forensic science in criminal investigations. Zakariyya is a trained criminal investigator and a member of the Association of Professional Negotiators and Mediators in Nigeria; he is also a member of the Association for Applied and Clinical Sociology (AACS) as well as the American Society of Industrial Security (ASIS) International. He has published more than 15 academic articles in the area of crime prevention, policing and forensic science.
Geshina Ayu Mat Saat, Associate Professor, obtained her BHsc in Psychology from International Islamic Universiti Malaysia, M.Sc. in Applied Criminology from the University of Leicester, UK, and a Ph.D. in Criminology from Loughborough University, UK. She lectures at the Universiti Sains Malaysia in the Forensic Science Programme. She has published seven books, over 40 research articles, and 80 media-related materials. Geshina conducts researches and assists Malaysian Royal Police, Prison Department of Malaysia and other government agencies. She is a permanent voluntary committee member of the Malaysia Crime Prevention Foundation (MCPF).

References

Aamodt, M.G., 2004. *Research in law enforcement selection*. Universal-Publishers.

Afolabi, O.A. and Omole, E.O., 2011. Personality type and workforce diversity as predictors of ethical behaviour and job satisfaction among Nigerian policemen. *Current Research Journal of Social Sciences*, *3*(5), pp.381-388.

Agbiboa, D.E., 2015. Patronage politics and electoral violence in Lagos, Nigeria: understanding the micro-level dynamics. *Africa Now*, p.215.

Akintayo, D.I., 2010. Work-family role conflict and organizational commitment among industrial workers in Nigeria. *International Journal of Psychology and Counselling*, *2*(1), pp.1-8.

Asad, M. and Mahfod, J., 2015. Performance Management System in Action, Survey and Questionnaire Finding in Higher Education in Bahrain. *International Journal of Business and Management*, *10*(8), p.96.

Bayley, D.H. and Garofalo, J., 1989. The management of violence by police patrol officers. *Criminology*, *27*(1), pp.1-26.

Boateng, F.D., 2014. Perceived organizational support and police officer effectiveness: Testing the organizational support theory in Ghana. *International Criminal Justice Review*, *24*(2), pp.134-150.

Collins, J.M. and Jarvis, J., 2009. The wrongful conviction of forensic science. *Forensic Science Policy and Management*, *1*(1), pp.17-31.

Colquitt, J.A., LePine, J.A. and Noe, R.A., 2000. Toward an integrative theory of training motivation: a meta-analytic path analysis of 20 years of research. *Journal of applied psychology*, *85*(5), p.678.

Ebner, N.C., Freund, A.M. and Baltes, P.B., 2006. Developmental changes in personal goal orientation from young to late adulthood: from striving for gains to maintenance and prevention of losses. *Psychology and aging*, *21*(4), p.664.

Enweremadu, D.U., 2019. Understanding Police Corruption and Its Effect on Internal Security in Nigeria. In *Internal Security Management in Nigeria* (pp. 327-350). Palgrave Macmillan, Singapore.

Gerber, G.L., 2001. *Women and men police officers: Status, gender, and personality*. Greenwood Publishing Group.

Hakim, H.M., Lalung, J., Khan, H.O., Khaw, N.R., Narayanen, S., Chambers, G.K. and Edinur, H.A., 2019. Experiences, challenges and the future direction of forensic DNA data banking in Malaysia. *Journal of Sustainability Science and Management*, *14*(2), pp.127-141.

Hills, A., 2008. The dialectic of police reform in Nigeria. *The journal of modern African studies*, *46*(2), pp.215-234.

Hoekstra, H.A. and van Sluijs, E., 2003. *Managing competencies: Implementing human resource management*. GITP.

Iwama, Y., 2010, July. International Donors and the Reform of Indonesian National Police. In *Workshop*.

Jaschke, H.G. and Neidhardt, K., 2007. A modern police science as an integrated academic discipline: A contribution to the debate on its fundamentals. *Policing & Society*, *17*(4), pp.303-320.

Johnson, L.B., Todd, M. and Subramanian, G., 2005. Violence in police families: Work-family spillover. *Journal of family violence*, *20*(1), pp.3-12.

Johnson, R.R., 2012. Police officer job satisfaction: A multidimensional analysis. *Police Quarterly*, *15*(2), pp.157-176.

Kakar, S., 2002. Gender and police officers' perceptions of their job performance: An analysis of the relationship between gender and perceptions of job performance. *Criminal Justice Policy Review*, *13*(3), pp.238-256.

Kay Decker, L. and Huckabee, R.G., 2002. Raising the age and education requirements for police officers: will too many women and minority candidates be excluded?. *Policing: An International Journal of Police Strategies & Management*, *25*(4), pp.789-802.

Kuntz, J.R.C., Kuntz, J.R., Elenkov, D. and Nabirukhina, A., 2013. Characterizing ethical cases: A cross-cultural investigation of individual differences, organisational climate, and leadership on ethical decision-making. *Journal of Business Ethics*, *113*(2), pp.317-331.

Kuo, S.Y., 2015. Occupational stress, job satisfaction, and affective commitment to policing among Taiwanese police officers. *Police Quarterly*, *18*(1), pp.27-54.

Macvean, A. and Cox, C., 2012. Police education in a university setting: emerging cultures and attitudes. *Policing: A Journal of Policy and Practice*, *6*(1), pp.16-25.

Maurer, T.J., Barbeite, F.G., Weiss, E.M. and Lippstreu, M., 2008. New measures of stereotypical beliefs about older workers' ability and desire for development: Exploration among employees age 40 and over. *Journal of Managerial Psychology*, *23*(4), pp.395-418.

McElvain, J.P. and Kposowa, A.J., 2008. Police officer characteristics and the likelihood of using deadly force. *Criminal justice and behavior*, *35*(4), pp.505-521.

Mennell, J., 2006. The future of forensic and crime scene science: Part II. A UK perspective on forensic science education. *Forensic science international*, *157*, pp.S13-S20.

Mikkelsen, A. and Burke, R.J., 2004. Work-family concerns of Norwegian police officers: Antecedents and consequences. *International Journal of Stress Management*, *11*(4), p.429.

Milošević, G., Subošić, D. and Mićović, D., 2010. Practical training of students within the system of tertiary police education in the Republic of Serbia. *Nauka, bezbednost, policija*, *15*(3), pp.93-107.

Nte, N.D., 2012. An Evaluation of the Challenges of Forensic Investigation and Unsolved Murders in Nigeria. *African Journal of Criminology and Justice Studies: AJCJS*, *6*(1/2), p.143.

Odedokun, S.A., 2015. Differential influence of demographic factors on job burnout among police officers in Ibadan, Oyo state. *Mediterranean Journal of Social Sciences*, *6*(3 S1), p.520.

Ojedokun, O.A., 2008. Attitude towards unethical work behaviour among police personnel: the role of emotions. *Ibadan Journal of the Social Sciences*, *6*(3), pp.13-21.

Ojo, M.O.D., 2014. The Nigeria police and the search for integrity in the midst of diverse challenges: An effective police management approach. *International Journal of Police Science & Management*, *16*(2), pp.87-100.

Otu, N. and Elechi, O.O., 2018. The Nigeria Police Forensic Investigation Failure. *J Forensic Sci & Criminal Inves 9*(1), pp. 1-8.

Owen, O., 2014. The Nigeria Police Force: Predicaments and Possibilities. *Nigeria Research Network (NRN) Working Paper No*, *1*.

Padmanabhan, L. and Magesh, R., 2016. Difference between employees' marital status and performance level in IT industry. *Imperial Journal of Interdisciplinary Research*, *2*(6), pp.1173-1176.

Paoline III, E.A. and Terrill, W., 2007. Police education, experience, and the use of force. *Criminal justice and behavior*, *34*(2), pp.179-196.

Quarino, L. and Brettell, T.A., 2009. Current issues in forensic science higher education. *Analytical and bioanalytical chemistry*, *394*(8), pp.1987-1993.

Rabe-Hemp, C.E., 2009. POLICEwomen or policeWOMEN? Doing gender and police work. *Feminist criminology*, *4*(2), pp.114-129.

Riksheim, E.C. and Chermak, S.M., 1993. Causes of police behavior revisited. *Journal of criminal justice*, *21*(4), pp.353-382.

Rydberg, J. and Terrill, W., 2010. The effect of higher education on police behavior. *Police quarterly*, *13*(1), pp.92-120.

Sajuyigbe, A.S. and Amusat, W.A., 2012. Staff training and development as managerial tools for organizational effectiveness: An appraisal of First bank. *JABU International Journal of Social and Management Sciences*, *4*(1), pp.100-109.

Siegel, J.A. and Mirakovits, K., 2015. *Forensic science: the basics*. CRC Press.

Uma, S.N., 2013. A study on training importance for employees of their successful performance in the organization. *International Journal of Science and Research*, *2*(11), pp.137-140.

Van Vianen, A.E., Dalhoeven, B.A. and De Pater, I.E., 2011. Aging and training and development willingness: Employee and supervisor mindsets. *Journal of Organizational Behavior*, *32*(2), pp.226-247.

Warr, P. and Fay, D., 2001. Age and personal initiative at work. *European Journal of Work and Organizational Psychology*, *10*(3), pp.343-353.