

## **A Method of assigning socio-economic status classification to British Armed Forces personnel**

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**SUMMARY:** The objective of this paper was to develop and evaluate a socio-economic status classification method for British Armed Forces personnel. Two study groups comprising of civilian and Armed Forces families were identified from livebirths delivered between 1 January - 30 June 1996 within the Northallerton Health district which includes Catterick Garrison and RAF Leeming. The participants were the parents of babies delivered at a District General Hospital, comprising of 436 civilian and 162 Armed Forces families. A new classification method was successfully used to assign Registrar General's social classification to Armed Forces personnel. Comparison of the two study groups showed a significant difference in social class distribution ( $p=0.0001$ ). Conclusion: This study has devised a new method for classifying occupations within the Armed Forces to categories of social class thus permitting comparison with Registrar General's classification.

### **Introduction**

There have been concerns raised that children of Armed Forces personnel may have a lower standard of health than civilian children, particularly in relation to postnatal mortality (1,2). Previous studies examining perinatal and infant mortality in relation to military families have shown conflicting results (3,4). None of these studies have accounted for the potential effect of confounding socio-economic factors within the Armed Forces as the Registrar General's classification (5) aggregates military personnel into one category.

Much of the available literature on comparing health status between civilian and Armed Forces infants has been retrospective studies with all ranks of servicemen assigned a homogeneous social classification. This is clearly inadequate in the light of known associations between social class, perinatal mortality and infant health. The present study describes the first step in a research project designed to compare infant health status in the Armed Forces with a surrounding civilian population.

This report describes a method of assigning socio-economic status to Armed Forces personnel.

### **Method**

#### *The British Army*

The British Army is organised into ARMS and SERVICES divisions. The ARMS are units trained and equipped for actual combat e.g., infantryman or gunner, while the SERVICES, although always prepared for combat, provide professional skills (trades) equivalent to civilian counterparts, e.g. mechanic, cook.

Most regiments recruit from a selected area of the country, whilst corps recruit nationally. All applicants undertake the Army

Entrance Test which is computer based and is designed to test basic intelligence and "trainability". Recruits are further assessed through interviews and medical and physical fitness tests. All recruits undergo a ten week basic induction course. The Army will teach recruits a skill and there are many skilled trades. Specialist employment training, dependent on the trade selected, will start after completion of the basic recruits course. As progress is made in the Army, there is opportunity to climb ranks after obtaining the Education for Promotion Certificate.

Since April 1990 all soldiers have been awarded qualifications by the National Council for Vocational Qualification (NCVQ) or the Scottish equivalent (SCOTVEC) depending on their length of service and rank. All soldiers will qualify for an NVQ or SCOTVEC Level 1 certificate after initial training. The purpose behind these awards is to provide a guide to future employers as to the capabilities of personnel who have purely military skills e.g. a gunner. Many trades and employment lead directly to vocational civilian qualifications such as BTEC, City & Guilds and Higher National Certificate.

NVQs are based on national occupational standards. They are qualifications which are based upon demonstrating competence in a range of practical working activities, using the necessary knowledge and skills to carry them out to a required standard.

#### **NVQ Levels**

5. Professional/Senior Managerial
4. Managerial/Specialist
3. Complex/skilled and/or supervisory work
2. A broad range of skills and responsibilities
1. Foundation and basic work activities

**Table 1**  
**Ranks of Army and Air Force Personnel**

Army	Military Ranks Air Force
Private	Aircraftsman
Lance Corporal	Leading Aircraftsman
Corporal	Senior Aircraftsman
	Junior Technician (Technical Trade)
	Corporal
Sergeant	Sergeant
Staff Sergeant	Chief Technician (Technical Trade)
Warrant Officer 2	Flight Sergeant
Warrant Officer 1	Warrant Officer
2nd Lieutenant	Pilot Officer
Lieutenant	Flying Officer
Captain	Flight Lieutenant
Major	Squadron Leader
Lieutenant Colonel	Wing Commander
Colonel	Group Captain
Brigadier	Air Commodore
Major General	Air Vice Marshal
Lieutenant General	Air Marshal
General	Air Chief Marshal
(Field Marshal) now defunct	Marshal of the Royal Air Force

**The Royal Air Force**

Even though the organisational structure appears to be similar between the Army and the Royal Air Force (RAF), it is acknowledged that there are significant differences between both military traditions. Air Force personnel tend to have higher educational qualifications compared to that of the Army. Employment training in the RAF involves special training in highly skilled trades, for example, avionics or airframe maintenance. By virtue of the job titles and details of tasks performed by RAF personnel, the RAF has to be considered with the SERVICE branch of the Armed Forces organisation.

**Classification Method**

The Registrar General’s classification places military personnel in one of three broad groups according to rank - commissioned officers, non commissioned officers and other ranks - and does not attempt a more specific socio-economic classification.

To permit a more precise classification the following method is proposed:

**SERVICE** Personnel with specific professional skill (trade) were assigned Registrar General’s social classification by reference to the occupation described e.g. mechanic.

**ARMS** Personnel where there were no equivalent civilian standard occupation were allocated social classification at rank levels.

The underlying rationale for using rank in ARMS military personnel reflects a composite of:

- Professional competence (NVQ levels framework)
- Responsibility/accountability
- Social status within the military society
- Work pattern
- Experience
- Selection criteria (military tests and assessments)
- Salary
- Housing/accommodation

**Result**

Table 1 details the names and military ranks within the Army

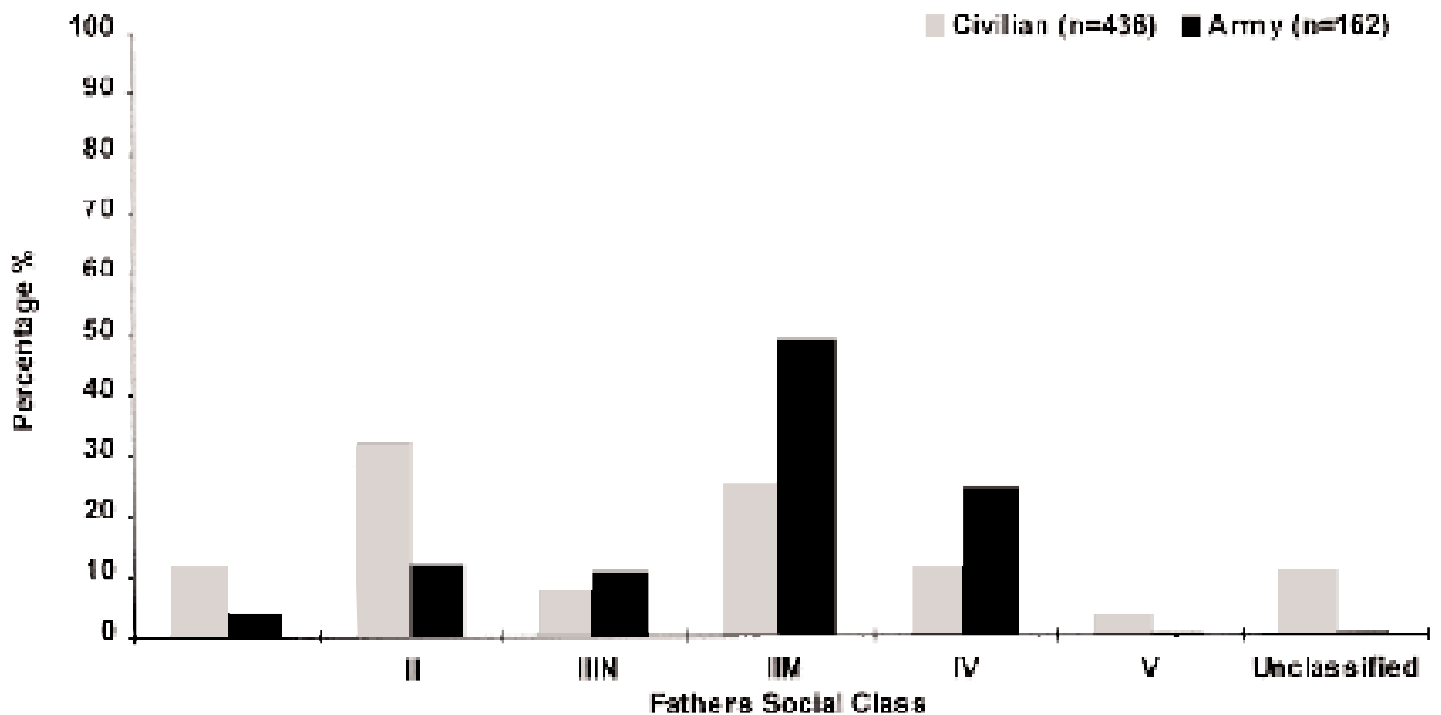
**Table 2**  
**Allocation of OPCS Social Classification to Arms**

Military Ranks (Arms)	Military Personnel	OPCS Social Classification (Level)	NVQ Framework (level)
Major and above		Professional (I)	Professional/Senior Managerial (5)
Captain		Managerial & Technical	Managerial/Specialist (4)
Lieutenant		(II)	
2nd Lieutenant			
Warrant Officer 1			
Warrant Officer 2		Skilled non manual (IIIN)	Complex/skilled and/or supervisory work (3)
Staff/Colour			
Sergeant			
Sergeant		Skilled manual (IIIM)	A broad range of skills and responsibilities (2)
Corporal			
Lance Corporal		Partly skilled (IV)	Foundation and basic
Private			work activities (1)
		Unskilled (V)	

and Royal Air Force. Table 2 shows the proposed allocation of social class for military rank and NVQs fitted to the Registrar General’s classification. This newly devised method was applied in a study of infant health status on a cohort of sequential series of livebirths at Northallerton health district which includes Catterick Garrison and RAF Leeming. The social class distribution of our study population of 436 civilian and 162 Armed Forces families is shown in Figure 1. Those families with unemployed fathers (n=22) or single parents (n=25) have been categorised as unclassified. Statistical analysis (Pearson  $\chi^2$ ) showed a significant difference in the social class distribution of the groups ( $\chi^2=80.85$ ,  $df=7$ ,  $p.<0.0001$ ). Service families had a smaller proportion of social classes I and II and a large proportion of social classes IIIM and IV than civilian families. There was a slightly greater representation of class IIIN among Service families, while there were few subjects from class V in either group. Ten percent of civilian families could not be classified because the mother was single or the father unemployed. The single unclassified Service family was from an unemployed father married to a female Service personnel.

**Discussion**

Previous studies reporting an association between adverse infant health outcome and Armed Forces families have provided limited insight into the nature of this relationship. None of these published studies have specifically examined the effect of socio-economic status on infant health outcome after adjustment for the “social heterogeneity” within the Armed Forces population. Military families were allocated a homogeneous social classification with little reference to distinguishing variations in socio-economic status among the different units and ranks. Care should, therefore, be taken in the interpretation of these data since social class differences are known to have a role in determining the pattern of infant morbidity (6-14) and it is crucial that potential confounding from socio-economic status can be



Comparison of social class distribution: Pearson  $\chi^2=80.85$   $df=7$   $p<0.0001$  (two tail)

Fig 1. Frequency & Proportion of Civilian and Armed Forces Families by Fathers Social Class

accounted for.

The Registrar General's classification has made some provision for military occupations specified in terms of commissioned officers and non commissioned officers and other ranks. The basic classificatory assumption is that all ranks of commissioned officers or all ranks of non commissioned officers will be coded to the same groups without any distinction being made between them.

This newly devised method of allocation of socio-economic status to Armed Forces personnel allows each Service family in the study to be assigned to a Registrar General's social class group. This new development enables direct comparison with equivalent civilian families.

Comparison of the study populations showed a significant difference in social class distribution ( $p<0.0001$ ). Armed Forces families from this birth cohort have demonstrated a preponderance of lower social groups while the civilian profile reflected Northallerton's affluent middle class population. The exclusion of the Armed Forces from social class classification has a significant limitation to epidemiological studies of this population. This study, which has Ministry of Defence approval and co-operation, has provided a new scheme for classifying the occupations of Armed Forces personnel to categories of social class which permits comparison with the Registrar General's classification.

Future studies on health status of Armed Forces personnel and their families can now account for social class differences using these newly defined categories and thus avoid potential confounding by socio-economic factors. The interpretation of results of comparative studies between Armed Forces and civilian populations will be greatly enhanced.

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#### REFERENCES

1. RAO M, HOINVILLE E. Review of post perinatal mortality in a health district with a garrison town. *BMJ* 1988;**297**: 662.
2. KIMMANCE KJ, WATERS WE. Infant mortality and Army families a case control study. *BMJ* 1992;**305**: 1197.
3. POWELL J, MACHIN D, KERSHAW CR. Unexpected sudden infant deaths in Gosport - some comparisons between service and civilian families. *JR Nav Med Serv* 1983;**69**: 141-150.
4. ATALLA MA, PAGE I, OAK M. Review of perinatal mortality in BAOR 1970-84. *JR Army Med Corps* 1986; **132**: 173-6.
5. OFFICE OF POPULATION CENSUSES & SURVEYS. Standard Occupational Classification. London:HMSO, 1990.
6. BOR W, NAJMAN JM, ANDERSEN M, MORRISON J, WILLIAMS G. Socio-economic disadvantage and child morbidity: Australian longitudinal study. *Soc Sci Med* 1993; **36(8)**: 1053-1961.
7. BRADSHAW J. Child poverty & deprivation in the UK. National Children's Bureau, 1990.
8. BURGHESS L. What happens to the children of single parent families? *BMJ* 1994; **308**: 1114-5.
9. JUDGE K, BENZEVAL M. Health inequalities: new concerns about children of single mothers. *BMJ* 1993;**306**: 677-80.
10. SPENCER NJ. Child poverty and deprivation in the UK. *Arch Dis Child* 1991;**66(10)**: 1255-7.
11. SPENCER NJ. Poverty and child health. Oxford and New York: Radcliffe Medical Press, 1996.
12. DUNNELL K. Mortality, morbidity and health related behaviour in childhood. Recent Advances in Paediatrics. Churchill Livingstone, 1994; Vol 12: 1-11.
13. TOWNSEND P, DAVIDSON,(Eds). Inequalities in health: the Black Report. Hammondsworth: Penguin, 1982.
14. TOWNSEND P, PHILLIMORE P, BEATTIE A. Health and deprivation, inequality and the North. London and New York: Routledge, 1988.