

SHIFT WORK AND HEALTH IN NIGERIA

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ABSTRACT

Although a lot has been written in recent years on the effect of shift work on health, information available from the developing countries on this subject is still scanty. A study is described in which 29 factories representing a cross section of the manufacturing industries in Western Nigeria were surveyed in order to investigate the effect of shift work on health. In five of the fourteen industries operating a shift system, 456 workers were interviewed and information was obtained as regards their job, past medical history, and their attitude to shift work. Records of sickness and non-medical absences were also obtained from their personal records.

The findings indicate that the majority of the workers (71%) were in favour of shift work. Five per cent of the shift workers as compared with thirty-three per cent of the day workers were not in favour of shift work. The major factors which influenced workers against shift work were the inadequacy of medical, social and welfare facilities in the factories and the poor transport system in the country. Only six (14%) of the 44 workers who were not in favour of shift work opposed it for health reasons. The shift workers had a lower sickness absence rate but a higher rate of non-medical absences than the day workers. However, there were no significant differences in the diagnostic pattern of sickness absence among the two groups.

A lot has been written in recent years on the effect of shift work on health in the developed countries, but some of these reports are rather conflicting. Some authors hold the view that shift workers are healthier and live longer than day workers^{8,10,12}. Others assert that shift work is detrimental to health^{1,2,5,6,15}. Unfortunately very little information is available about the effect of shift work in developing countries like Nigeria where an increasing number of factories have adopted shift work in the past few years⁹. In order to investigate the effect of shift work on the health of industrial workers in Nigeria, a survey of 29 factories representing a cross section of the manufacturing industries in Western Nigeria was carried out.

SUBJECTS AND METHODS

The study was carried out in two industrial cities, Ibadan and Abeokuta, the capitals of two of the nineteen states of Nigeria. The decision was influenced by the fact that 61% of all registered industrial establishments and a representative

cross section of the types of industries in these states are to be found in the two cities. By means of the stratified sampling method thirty-four factories were selected from the industrial directory for the first part of the study. Three of the factories could not be traced but all, except two, of the remaining thirty-one gave full co-operation. The 29 factories surveyed were drawn from the manufacturing industry including food, drinks and tobacco, light and heavy engineering, furniture and joinery, textiles, chemicals and cement. Information about the labour strength, types of shift and health, safety and welfare provisions in each factory was obtained by means of a questionnaire administered at an interview with the personnel manager.

The second part of the study involved 5 of the 14 factories where shift work was practised. A second questionnaire was personally administered to a 10% stratified sample of the production workers in each factory. This was designed to provide information about personal data, occupational history and factors related to the job, attitude to shift work, and past medical history. In addition records of sickness and non-medical absences were obtained from personal records of each worker.

RESULTS

Fourteen of the twenty-nine factories surveyed operate a shift system. In addition to continuous day work two main types of shift, the double and treble shifts, were in operation in these 14 factories. Although overtime duty attracts a higher rate of pay in all the factories, only six pay shift allowance.

Characteristics of the workers

In all 456 workers were interviewed, 405 male and 51 female. There were 380 shift workers and 76 day workers. The age distribution of the shift and day workers were very similar ranging from 18 to 55 years with the majority being in the 20 to 30 years age group (Fig. 1). Only 2 (0.5%) of the workers were above 50 years of age. Table 1 shows that about 95% of the workers on each of the three types of shifts were married.

TABLE 1
Marital status versus type of shift.

Type of shift	Marital status				Total
	Married		Single		
	Number	%	Number	%	
Single	76	95.0	4	5.0	80
Double	243	95.3	12	4.7	255
Treble	115	95.0	6	5.0	121
Total	434	95.2	22	4.8	456

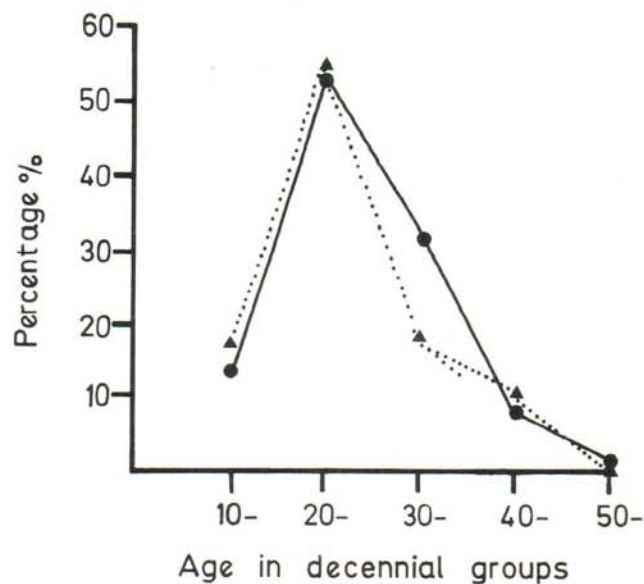


FIG. 1 - Comparison of the age distribution of the day and shift workers. Shift workers full line, day workers, dotted line.

Attitude to shift work

The results further show that 326 (71%) of the 456 workers were in favour of shift work, 44 (10%) were not, whilst the remaining 86 (19%) were non-committal. The distribution of the workers by the type of shift and attitude to shift work is shown in Table 2. A larger proportion of the shift workers 79% compared with 33% of the day workers were in favour of shift work. Only 5% of the shift workers were not in favour of shift work, whereas as many as 33% of the day workers were opposed to the system. Application of the chi-squared test to the numbers in favour and against shift work among the workers on the separate shifts (single, double and treble) shows a significant difference ($p < 0.01$) between the groups.

TABLE 2
Distribution of workers by the type of shift and attitude to shift work.

Attitude to shift work	Day worker		Shift worker	
	N	%	N	%
Totally in favour	25	32.9	300	79.0
Totally against	25	32.9	20	5.2
Non-committal	26	34.2	60	15.8
Total	76	100.0	380	100.0

Problems of shift work

The reasons given by the 44 workers who were strongly against shift work are shown in Table 3. The lack of canteen facilities was the most frequently mentioned problem. Even where factory canteens exist, the facilities were usually not available at night. Transportation was the next major problem. This transport problem is particularly acute at night and in the early mornings when public transport ceases to operate. Low wages were mentioned by 8 workers and Table 4 shows that there is significant difference in the average earnings of the day and shift workers ($p < 0.01$).

TABLE 3
Distribution of workers by causes of opposition to shift work.

Reason given	No	%
No canteen facilities	12	27.3
Transport problem	10	22.7
Low wages	8	18.2
Family opposition	7	15.9
Injurious to health	6	13.6
Disallows evening studies	1	2.3
Total	44	100.0

TABLE 4
Type of shift versus average monthly wages.

Shift	₦100 (< \$ 75)	₦100 \$ 75)	Total
Single	43	37	80
Double	155	99	255
Treble	97	24	121

$\chi^2 = 8.91$ ($p < 0.01$)

Seven workers were not in favour of shift work because their families disliked the night shift. Some workers' wives feel unsafe at night without their husbands because of the increasing wave of burglary. For the same reason, some wives were concerned about their husbands' safety at night, especially on pay day, since many of these workers walk home through bushy paths and dark alleys.

Only 6 (14%) of the workers were opposed to shift work for health reasons. These workers believed that shift work is injurious to their health because they have sleep difficulties when on night shift. The night shift was also regarded as more risky because there are usually no medical and sometimes no first-aid facilities available on the night shift in some of the factories.

One of the young workers claimed that shift work did not allow him time to undertake evening studies which was essential for his advancement.

Absences and medical consultations

The inception rate spells per man and the average annual duration per man (standardized for age) for the day and shift workers are shown in Figures 2 and 3 respectively. The two figures show that the shift workers had fewer sickness absences than the day workers. Although the distribution of diseases within the two groups was remarkably similar (Fig. 4), the frequency of respiratory and gastro-intestinal diseases was significantly higher among the shift workers.

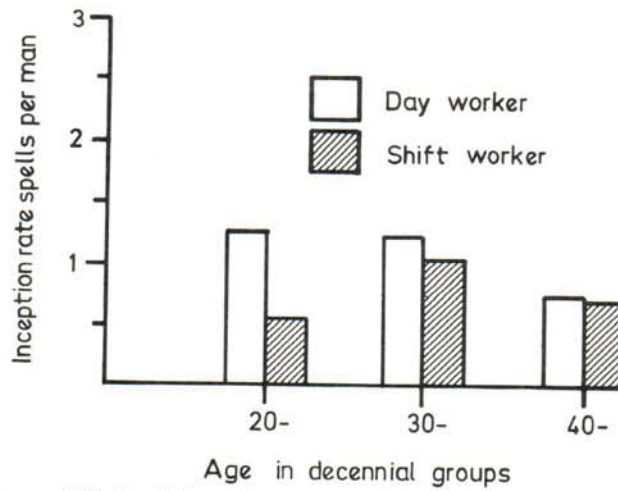


FIG. 2 - Sickness absence rates of day and shift workers.

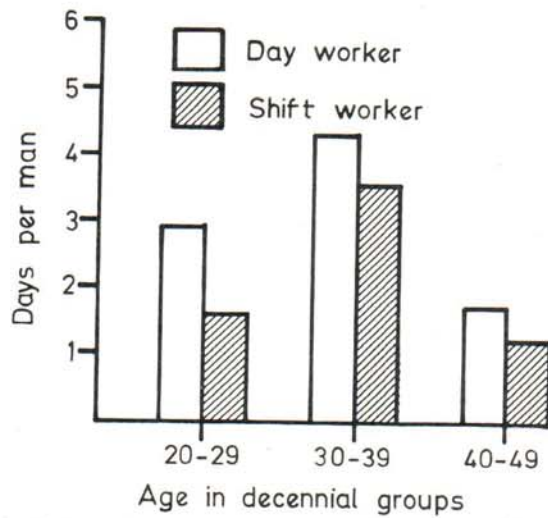


FIG. 3 - Sickness absence of day and shift workers, average duration per man.

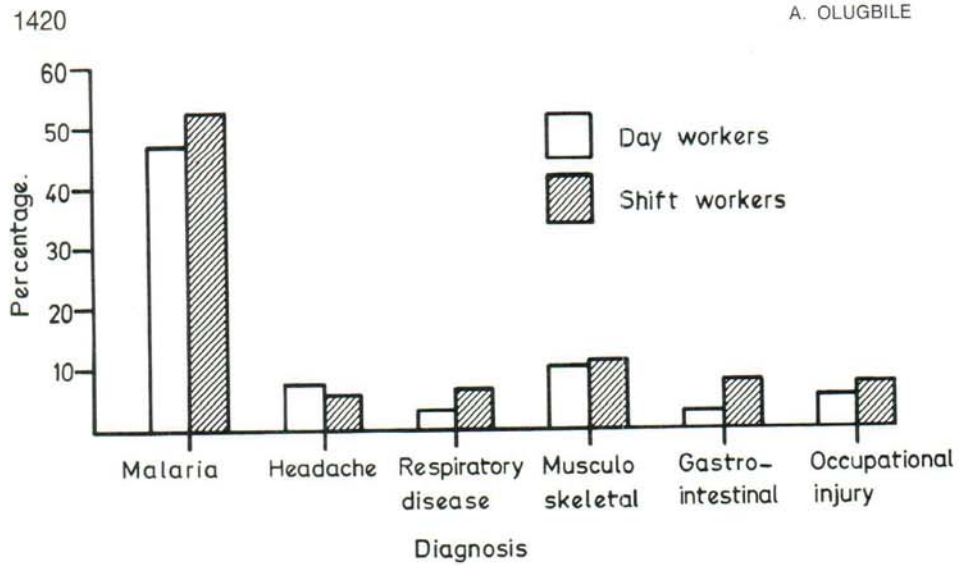


FIG. 4 - Main causes of sickness absences among 456 workers.

The average number of non-medical absences of the two groups is shown in Figure 5. In this respect the shift workers clearly have a higher rate than the day workers and the rate appears to rise with age.

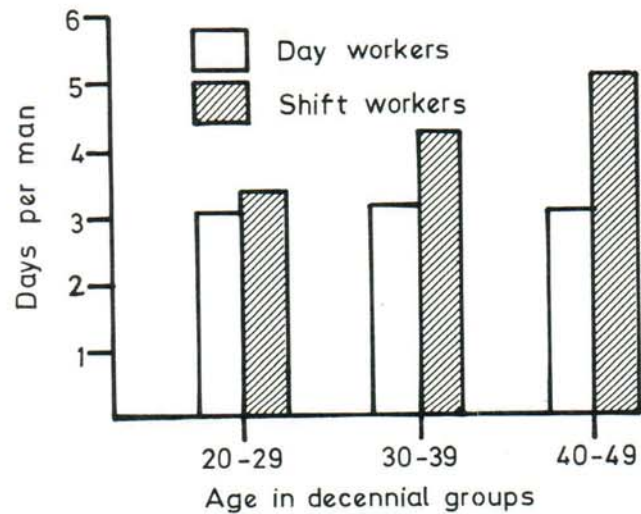


FIG. 5 - Absenteeism of day and shift workers average duration per man.

DISCUSSION

Before drawing any conclusions from this study, it is necessary to consider those sources of bias that may have influenced the findings and therefore may affect any interpretation.

The sample of workers included in the survey may not be representative of the industrial workers in the two states, since only the medium and large sized firms kept the detailed record of absences and medical consultations used in the study. Furthermore, the use of questionnaires in this type of study is open to criticism, particularly if the subjects know that shift work is being investigated. However, the subjects in this study were unaware that shift work was being investigated. Finally, the fact that all absences for which a sick certificate is not produced is penalized by a deduction in wages encourages Nigerian workers to obtain sick certificate under false pretences. Therefore the record of sickness absence in this study is not necessarily a true reflection of morbidity among the workers.

The study has shown that shift work is a feature of work in 14 (48%) of the 29 factories surveyed. A larger proportion of the shift workers compared with the day workers in the study were in favour of shift work (Table 2). One inference that could be made from this finding is that either the shift workers liked shift work and therefore opted for the system or that the shift workers simply found themselves there and have got used to the system.

The main reason given in favour of shift work by these Nigerian workers is the long spare-time characteristic of the night shift. This the workers claim allows for the pursuit of hobbies, socials and other secondary occupational activities such as farming. In a similar survey in Britain¹¹, the majority of the workers (76%) were against shift work because it adversely affected their social life. This difference in the attitude of the British and the Nigerian workers to shift work probably stems from the fact that the majority of the Nigerian workers are migrants. On their "days off" most workers in the rural areas usually travel to the cities in pursuit of hobbies and social life, whilst many of those working in the cities go to farm in their villages.

The major factors which influenced workers against shift work in Nigeria seem to be the absence or inadequacy of canteen facilities in the factories and the poor transport system in the country. It is interesting comparing these results with those of Marris⁷ who found that transportation did not constitute any problem for shift workers in Britain where 60% of the workers have their own cars¹⁰ compared with 3% of workers in the present study.

Other factors include the poor wage structure and the fact that overtime duty attracts a higher rate of pay. Thus although the basic wage of the shift worker is higher than that of the day worker, the latter does a lot of overtime duty which more than offsets the small difference in the basic wage of the two groups.

It is surprising that only a very small percentage of the workers opposed shift work for health reasons. The main problem identified by these workers is

difficulty in getting adequate sleep. Similar findings have been reported among workers in Europe^{1,8,15}. None of the Nigerian workers were opposed to shift work because of digestive or nervous complaints which were consistently common among shift workers in Europe^{1,3,4,6}. However, the records show that respiratory and digestive disorders were significantly more frequent among the shift workers in Nigeria (Fig. 4). This observation calls for further studies.

There was also a general tendency for the shift workers in this study to have less sickness absence than day workers (Figures 2 and 3). However, these findings are not so dramatic as those reported from an oil refinery in Britain where the shift workers had only about half as much sickness as the day workers¹⁰. The fact that the prevalence of illness was found to be practically the same among the two groups of workers is also consistent with the findings in Europe^{1,10,13,14}.

Finally, the shift workers have a higher rate of non-medical absences than the day workers. This finding is in contrast to those obtained among workers in Europe. It is possible that some of these absences were due to sickness of one-day duration for which a sick certificate could not be obtained because the clinics are closed at night. Another possible explanation is that some workers who engage in secondary occupational activities such as farming, take some days off during certain seasons, such as harvesting, when work on the farm is heavy. The fact that the rate rises with age also raises the possibility that social and family responsibilities may account for the higher rate among the older workers.

In conclusion, shift work is acceptable to the majority of Nigerian workers because the system allows them more time for socials, pursuit of hobbies and secondary occupational activities. Transport, social and medical facilities, the rate of pay, and the type of shift rota, were the major factors which influence the attitude of the small number of workers who were not in favour of shift work. There is no evidence to suggest that shift work is detrimental to health. However, further studies are necessary to confirm this and also to measure the long-term effect on health of the different types of shift rota operating in Nigeria.

ACKNOWLEDGEMENTS

This study was supported by grants from the Medical Research Council of Nigeria. I am grateful to Dr. A. Oyemade for reading the first draft of this paper and to Mr. Sokoya of the Medical Illustration Unit, U.C.H., Ibadan.

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