

Original Research Article

Community Based, Cross Sectional Study on Sickness Absenteeism among Agriculture Workers in Ramanagara District, Karnataka

Dr K N Prasad¹, Mr. M Puttaswamy²¹Professor and Head, Department of Community Medicine, Dr B R Ambedkar Medical College, Bangalore²Assistant Professor in Biostatistics, Department of Community Medicine, Dr B R Ambedkar Medical College, Bangalore***Corresponding author**

Dr K N Prasad

Email: drknprasad2@gmail.com

Abstract: The loss of work in agriculture related activities plays an important role in the productivity. The research or reports on the absenteeism due to sickness are limited and an effort has been made to find the sickness absenteeism in agriculture workers. The objective is to find the prevalence of sickness absenteeism and the determining factors among the agricultural workers in the Ramanagar district of Karnataka. A descriptive, cross sectional, quantitative and community based study conducted during October 2016 in the selected villages of Ramanagara district, Karnataka in population of 2051. Data was collected at the door steps by direct interview using pre designed, pilot tested semi open ended questionnaire. The data included the information on characteristics of the family, size, absent for work, reasons for absence for the past three months, and it was analysed in SPSS version 20. There were 778 and 736 male and female subjects in the study respectively, and prevalence of sickness absenteeism was 171 in males and 110 in females. The overall prevalence was 281 accounting to 18.6% and the median duration of absence was 3 days. Nearly 45 percent were absent for less than 3 days. The common reason for absence was musculoskeletal problems (31.1%), Fever (19.8%), CNS (11.7%) and others. The reasons were different for different age groups. The total duration of absence was 2091 days among 281 individuals in 1514 population. The common reasons for absence were musculoskeletal, fever and CNS related health problems. Most of the men aged less than 40 were absent for one or two days and 7 or more days among 51 years or above.

Keywords: Agriculture, Sickness Absenteeism, Musculoskeletal, Labourer, Farming

INTRODUCTION

Absent for work deals with issues of health among the workers and mal adjustments of the employees to the management or administration or policy of the industries. Sickness or illnesses affects the general health status of the workers and results in decreased production in the industries. The farming or agriculture sector is one of the big establishments in terms of work in rural areas in the world and 60 percent of the population in India is in agriculture related activities and accounts 35 % as self employed and 25% are labourers [1, 2]. The agriculture related activities involves exposure to odd environmental conditions and timings in different seasons. The agricultural workers are thus exposed to different germs from soil, animal, insects and injuries from machines or equipments [2-4].

Agriculture may be defined as the work related to sericulture, floriculture, horticulture, mushroom production, Bee keeping, Plant nurseries, farming, domestic poultry farming etc Agriculture is considered as non salaried and self employed or own business. Their morbidity and work loss are rarely considered as important as an unorganized sector and economic, social, medical or health supports are least in this country [1]. Absenteeism is recognized as indicator of psychology, medical or social maladjustment to work. It also a useful index to assess the physical, mental and social wellbeing of workers [2-4]. Availability of data is limited on workday loss due to illness, disease or injuries in India and other Asian countries. The studies done in Africa and other countries has revealed that the nearly 20 percent is the prevalence of sickness absenteeism among agricultural workers [1, 5, 6]. The

National Productivity Council stated that the rate of sickness absenteeism is high as 20% [1, 4, 7]. The common morbidity being the musculoskeletal problems followed by injuries and infections [3, 6, 7]. There is a need of information on sickness absenteeism and work loss days among agricultural workers in India. This study has done with the objective to find the absenteeism from morbidity and work loss among agricultural workers in rural population of Ramanagar district in Karnataka.

METHODOLOGY

A cross sectional, descriptive, quantitative and community based study was conducted during October 2016 in the randomly selected villages of Kanakapura taluk in Ramanagar district. The estimated sample size 1514 was selected based on pilot study. The house to house survey was conducted to select the study subjects and data was collected by direct interview technique using the pilot tested pre designed semi open ended questionnaire. The importance of the study and its outcome was explained to the family members and consent was taken before the data collection. The data was collected on the prevalence of morbidities since last three months. Details on factors from each family size, ages, nature of morbidity, number of days of absent for the work and other determinant factors were included in the data.

The information on absent for work was obtained from the eligible subjects for the past three months. This takes into account the particular season, as a result it will not refer to the sickness absenteeism for the whole year.

Exclusion criteria: The age group of less than 20 years was excluded for the analysis since most of them in this group were students among both sexes.

Absence for work: The absent was considered as the subjects reveal that they remain absent when there was work. Hence the absence for work applies to appropriate as absenteeism.

Data and Analysis

The data was entered into Microsoft excel and analyzed in SPSS version 20. The morbidity was categorised according to the system and the others includes injuries, insect bites and non specific reasons. The data was analysed for prevalence of sickness absence for work, mean or median duration of absence and reasons for absence of work in different categories.

The range of duration of sickness or absent for work was wide and as a result the median was considered as the best for comparison however the standard deviation for the mean in categories were too high reflecting the wide variation in the data. The standard normal test (Z test) applied to test the difference between proportions and Chi square test was used to test the association with absenteeism and age, sex, occupation and system wise illnesses. Mann-Whitney U test is employed to test the differences in medians for duration of absence among both sexes and the test was not used when the number of individuals was less than 5 among both sexes. The level of significance was considered as significant when p values if less than 0.05.

RESULTS

There were 1037 and 1014 number of males and females in the study population of 2051 as shown in Table 1. The number of subjects decreased with increase in age group and similar observation was noticed in females and males. However the proportion of men aged more than 60 years were higher than the women. Nearly 58% of the subjects were involved in farming or agricultural work either on their own property or activities. Agricultural labourers were more in males than females. Nearly 70% of the adult subjects were completed primary schooling. The subjects were already suffering from chronic illnesses among both sexes were 18.6%. Majority were already hypertensive patients and more prevalent among males. The prevalence of arthritis was high in females (6.3%) than males (3.3%).

The sickness absenteeism of 281 among 1514 population in the study area as depicted in Table 2. There were 171 and 110 male and female subjects accounting for prevalence of 16.5 and 10.8 percents among them respectively. The highest number of absentees was in the age group of 41 to 60 years among males and 51-60 years among females, accounting for four out of every ten sickness absenteeism subjects. One fifth of subjects among above 60 years. The differences in the prevalence of sickness absenteeism among females and males was found to be statistically significant ($p < 0.05$).

Majority of the subjects absent were agriculture related activities than laborers and others. The prevalence was high among farmers of owning land or property than labourers. Musculoskeletal system disease or problem is common reason for absenteeism (31.3%), fever (19.2%) and others. The other conditions includes insect bites, allergies etc. The

differences in system wise sickness between males and females was to be statistically not significant ($p>0.05$).

Table 3 depicts the musculoskeletal problems were the common problem in more than one third subjects followed by fever in all age groups except for 21-30 and 60 years or above. The common reasons for absence of work in the age group of 21 to 30 years was fever (39%) followed by gastrointestinal disturbances (16.9%) and musculoskeletal problems (16.9%). The second common reason among the subjects aged above 60 years was CNS and respiratory diseases.

The median duration of absent for work was 3 days in total of 2091 days lost due to sickness and the range of median was 1 to 25 days in different sicknesses

was shown in Table 4. The proportion of absent for work accounts to 56.3 % (1177 days) and 43.7 % (914 days) among male and female respectively. The number of absent days was more in males than females. The number of days the subjects was absent due to musculoskeletal problems (571), CNS (437), Injuries (288), CVS (203) and others (213). The median duration of absent was more among females suffering from CVS health problems (25 days) compared to males. The more number of females were absent due to musculoskeletal problems (358 days) than males (213 days). The differences in median duration absent due to different health problems between male and female is found to be statistically not significant except for the musculoskeletal problems ($p<0.05$).

Table 1: General Characteristics of the study Population

Age group in years	Male N (%)	Female N (%)	Total N (%)
<20	259 (25.0)	278 (27.4)	537 (26.2)
21-30	231 (22.3)	262 (25.8)	493 (24.0)
31-40	190 (18.3)	161 (15.9)	351 (17.1)
41-50	132 (12.7)	116 (11.4)	248 (12.1)
51-60	97 (9.4)	104 (10.3)	201 (9.8)
>60	128 (12.3)	93 (9.2)	221 (10.8)
Total	1037 (100.0)	1014(100.0)	2051(100.0)
Occupational Status			
Farmer	507 (65.2)	376 (51.1)	883 (58.4)
Home Maker	0 (0.0)	215 (29.2)	215 (14.2)
Labourer	118 (15.2)	78 (10.6)	196 (12.9)
Others	153 (19.6)	67 (9.1)	220 (14.5)
Educational Status			
Primary School	517 (66.5)	528 (71.7)	1045 (69.1)
High School and Intermediate	152 (19.5)	127 (17.3)	279 (18.4)
Graduation	33 (4.2)	13 (1.8)	46 (3.0)
Illiterates	76 (9.8)	68 (9.2)	144 (9.5)
Chronic Health Problems			
Arthritis	26 (3.3)	46 (6.3)	72 (4.8)
Asthma	7 (1.0)	7 (1.0)	14 (0.9)
Combination	10 (1.3)	15 (2.0)	25 (1.6)
Diabetes Mellitus	24 (3.1)	14 (1.9)	38 (2.5)
Hypertension	61 (7.8)	37 (5.0)	98 (6.5)
None	635 (81.6)	597 (81.1)	1232 (81.4)
Others	15 (1.9)	20 (2.7)	35 (2.3)
Total	778 (100.0)	736 (100.0)	1514 (100.0)

Table-2: Distribution of absenteeism among Age groups, Occupation, System wise illnesses and gender

Age group in years	Male N (%)	Female N (%)	Total N (%)	P-Value#	P-Value@
21-30	39 (22.7)	20 (18.2)	59 (21.0)	0.6818	0.0310*
31-40	36(21.1)	26 (23.5)	62 (22.1)	0.8181	
41-50	35 (20.5)	17 (15.5)	52 (18.4)	0.6672	
51-60	20 (11.7)	28 (25.5)	48 (17.1)	0.2380	
>60	41 (24.0)	19 (17.3)	60 (21.4)	0.5619	
Occupation					
Farming	120 (70.2)	93 (84.5)	213 (75.8)	0.0147	0.0173*
Labour/Daily workers	21(12.3)	9 (8.2)	30 (10.7)	0.7414	
Others	30 (17.5)	8 (7.3)	38 (13.5)	0.4777	
System wise Illness					
CNS	18 (10.5)	15 (13.5)	33 (11.7)	0.8336	
CVS	1 (0.6)	7 (6.4)	8 (2.8)	0.9840	
FEVER	39 (22.8)	15 (13.6)	54 (19.2)	0.4533	
GI	21 (12.3)	6 (5.5)	27 (9.6)	0.6384	
INJURY	20 (11.7)	6 (5.5)	26 (9.3)	0.6599	
MUSCSKL	45 (26.3)	43 (39.1)	88 (31.3)	0.2005	
RS	15 (8.8)	2 (1.8)	17 (6.1)	0.7278	
UT	2 (1.2)	9 (8.2)	11 (3.9)	0.7263	
OTHERS	10 (5.8)	7 (6.4)	17 (6.1)	0.9601	
Total	171 (100.0)	110 (100.0)	281 (100.0)		

#; z test @; chi square test * statistically significant at 5% level of significance

CNS: Central Nervous System, CVS: Cardio Vascular System, GI: Gastro-intestinal MUSCSKL: Musculoskeletal problems, RS: Respiratory System, UT: Urinary Tract problems

Table-3: Distribution of Absenteeism according to Age group and System wise Illness

System wise Illness	Age group in years					Total N (%)
	21-30 N (%)	31-40 N (%)	41-50 N (%)	51-60 N (%)	>60 N (%)	
CNS	4 (6.8)	6 (9.6)	3 (5.8)	5 (10.4)	15 (25.0)	33 (11.7)
CVS	1 (1.7)	2 (3.2)	0 (0.0)	3 (6.3)	2 (3.3)	8 (2.8)
FEVER	23 (39.0)	12 (19.4)	8 (15.4)	6 (12.4)	5 (8.3)	54 (19.2)
GI	10 (16.9)	5 (8.1)	5 (9.5)	3 (6.3)	4 (6.7)	27 (9.6)
INJURY	5 (8.5)	6 (9.7)	8 (15.4)	4 (8.3)	3 (5.0)	26 (9.3)
MUSCSKL	10 (16.9)	20 (32.3)	19 (36.5)	19 (39.6)	20 (33.3)	88 (31.3)
RS	2 (3.4)	3 (4.8)	3 (5.8)	2 (4.2)	7 (11.7)	17 (6.1)
UT	1 (1.7)	6 (9.7)	3 (5.8)	1 (2.1)	0 (0.0)	11 (3.9)
OTHERS	3 (5.1)	2 (3.2)	3(5.8)	5 (10.4)	4 (6.7)	17 (6.1)
Total	59 (100)	62 (100)	52 (100)	48 (100)	60 (100)	281 (100)

CNS: Central Nervous System, CVS: Cardio Vascular System, MUSCSKL: Musculoskeletal problems, RS: Respiratory System, UT: Urinary Tract problems

Table-4: Distribution of absent days according to Sex and System wise Illness

System wise Illness	Male		Female		Total		P-Value
	N	Days(Median)	N	Days(Median)	N	Days(Median)	
CNS	18	281(4)	15	156(5)	33	437(5)	0.4881
CVS	1	2(2)	7	201(25)	8	203(25)	
FEVER	39	134(2)	15	39(3)	54	173(2)	0.9203
GI	21	30(1)	6	7(1)	27	37(1)	0.8415
INJURY	20	242(6)	6	46(3.5)	26	288(4.5)	0.5419
MUSCSKL	45	213(2)	43	358(5)	88	571(3)	0.0029**
RS	15	130(4)	2	6(3)	17	136(3)	0.1443
UT	2	7 (3.5)	9	26 (3)	11	33 (3)	
OTHERS	10	138(10.5)	7	75(2)	17	213(7)	
Total	171	1177 (2)	110	914 (3)	281	2091 (3)	

CNS: Central Nervous System, CVS: Cardio Vascular System, MUSCSKL: Musculoskeletal problems, RS: Respiratory System, UT: Urinary Tract problems

** Statistically significant at 1% level of significance

The subjects were absent for less than 3 days was 43.7% and one fifth of subjects were absent for more than 7 days as shown in Table 5. Half of the male subjects were absent for work for one or two days compared to 36 percent of the female subjects. In this study nearly one fourth and half of the total subjects in the age group of 21 to 30 years were absent for one day

and two days respectively. The increase in age was observed to be directly proportional to increased number of days absent. One third of elderly aged people were absent for seven or more number of days (33%) and it was high among women in the same age group.

Table-5: Distribution of absent days in different age groups and sex

Parameters	Duration of absent in days N (%)								Total N (%)
	1	2	3	4	5	6	7	>7	
Age Group									
21-30	17(28.8)	15(25.4)	11(18.6)	4(6.8)	1(1.7)	1(1.7)	2(3.4)	8(13.6)	59(100)
31-40	14(22.6)	22(35.5)	8(12.9)	4(6.5)	4(6.5)	0(0.0)	4(6.5)	6(9.7)	62(100)
41-50	8(15.4)	12(23.1)	6(11.5)	3(5.8)	7(13.5)	0(0.0)	3(5.8)	13(25.0)	52(100)
51-60	7(14.6)	8(16.7)	7(14.6)	5(10.4)	4(8.3)	3(6.3)	6(12.5)	8(16.7)	48(100)
>60	7(11.7)	15(25.0)	7(11.7)	1(1.7)	5(8.3)	0(0.0)	5(8.3)	20(33.3)	60(100)
Sex:									
Male	38(22.2)	47(27.5)	20(11.7)	12(7.0)	11(6.4)	1(0.6)	13(7.6)	29(17.0)	171(100)
Female	15(13.6)	25(22.7)	19(17.3)	5(4.5)	10(9.1)	3(2.7)	7(6.4)	26(23.6)	110(100)
Total	53(18.19)	72(25.6)	39(13.9)	17(6.0)	21(7.5)	4(1.4)	20(7.1)	55(19.6)	281(100)

Figure 1 shows the absent for work was high among people suffering from arthritis or rheumatic problems followed by Diabetes Mellitus or associated co

morbidity. However, the proportion of sickness absent among people suffering from pre existing conditions was found to be statistically not significant $p > 0.05$.

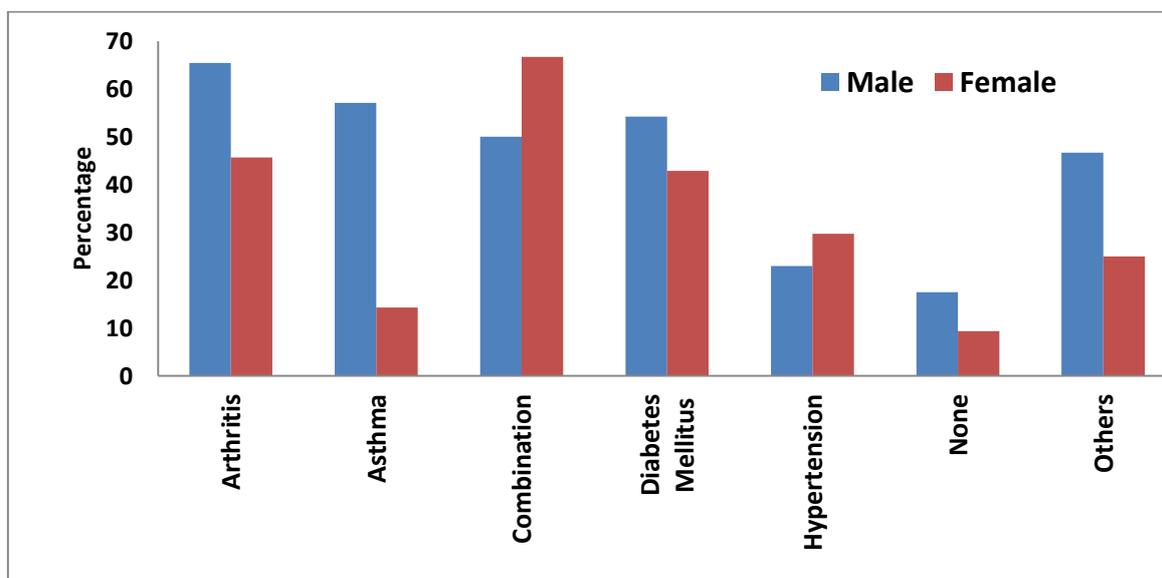


Fig 1: Distribution of Absent for work among People Suffering from Chronic Health Problems

DISCUSSION:

The problem of absent for work is common in all industries irrespective of traditional or modern industries and includes all categories of workers or employees. The agriculture sector is not an exception to the loss of work due to sickness. The problem of employer or employee is a complicated issue in farming sector and the absent for work applies failure to complete their activities. Some of the agriculture activities are seasonal and time bound task. Hence their absence for work results in loss of income, economy or waste of agriculture products which is difficult to estimate such loss in terms of monetary or economics [1, 7-9]. This study highlights the prevalence of absenteeism from morbidities, duration and system wise illnesses among agriculture workers [9, 10].

The farming work does not include the specific age group because most of them are working in the agricultural field from their childhood. In this study the age group most commonly involved in agriculture was less than 40 years age which determines the health status and reason for absence as shown in Table 1. Most of the subjects were having their own farm land and around 13 percent are labourers or daily wagers for agriculture activities. Most of the home makers are actively involved directly or indirectly to the agriculture activities but this study has not considered the criteria of absence for work among them.

The information about the absence for the work as half or full day was included in the questionnaire. The number of individuals remained absent for half day

was observed only 3 individuals, hence this was excluded from the analysis and the absent days in this study represent only full day loss of work as shown in Table 2. The prevalence of sickness absenteeism ranges from 11.7% to 25.5% in different age groups in both sexes. The prevalence rate was nearly equal among subjects aged between 31-40 and 51-60 years among females and similar observation was noted among males aged less than 50 years. However, the differences in prevalence of absenteeism in different age groups between male and female were found to be statistically not significant ($p > 0.05$). It appears that the work related musculoskeletal problems are found to be the common reason for sickness absenteeism and this problem has affected all the age group in the similar way. The prevalence of absent for work was high among farmers having own land compared to labourer class or daily wagers. The daily wages do not wish to lose their earning as being a sick person hence they were working in spite of serious sickness or injuries. The differences in the prevalence between males and females subjects in each age group were statistically significant ($p < 0.05$).

Home makers are not considered for the loss of work in the field and the rare would be higher if this group was included. However it is difficult to estimate the existing prevalence of absence of work among home makers due to various complicated issues or factors involved in assessing them. The musculoskeletal problem was common among the total subjects who were absent for work but other reasons for absence were different for different age groups [2, 3]. Work related musculoskeletal disorders are associated with work

patterns that include, fixed or constrained body positions, continual repetition of movements, force concentrated on small parts of the body, such as the hand or wrist, a pace of work that does not allow sufficient recovery between movements [4, 6, 10]. Whilst agriculture in Great Britain is highly mechanized and not as labour intensive as other countries agricultural workers are still at risk from work related musculoskeletal disorders such as lifting and carrying heavy loads, sustained or repeated full body bending and very highly repetitive hand work. The reason for absence for work in farming sector in United States of America was attributed to 66% for sickness [3]. Allergic pneumonitis, asthma is common problems among farming workers and some are worsening due to their smoking habits [6]. They are grouped in respiratory diseases which accounts for 17(6%) number among subjects for absenteeism in this study. The health problems like fever, gastro intestinal disturbances and injuries accounted to more than 40 percent among aged less than 40 years as in Table 3. This suggests that this age group is probably exposed to eating habits outside their homes hence susceptible for water or food borne diseases.

The total number of days absence for work was 2091 which constitutes from system health problems such as musculoskeletal 27.3 %(571), CNS 20.9 %(437), Injuries 13.7 %(288), CVS 9.7 %(203) and others 10.2% (213) as shown in Table 4. The total mean duration was 7.5 days. The mean duration of absence for work was estimated to be 8.2 and 6.8 days among male and female respectively. The standard deviation was high suggesting the wide gap in number of day's absence of work. The absent rate in US in the year 2015 among agriculture workers was 2.1 to 2.4%³. We assume this kind of health problems may be present in the agricultural sectors and the authors urge the need for such data throughout the world.

The forty percent of sick people had taken either one day or 7 and more days. The quarter of the study subjects were absent for two days as depicted in Table 5. This indicates that the inevitable situations to attend their work due to serious nature of their health problems. The subjects in the young age group were able to attend to their work after one or two days of absence. The average number of days for work in US in 2015 was 1.1 to 2.1 days among the sample of the agriculture workers [3]. The majority of subjects aged less than 51 years were not having severe health problems and may be associated with acute conditions or work related injuries. There is lack of published

studies on these aspects were difficult to compare the information.

The people suffering from preexisting health problems are likely to be absent for their work either due to aggravation of the preexisting conditions either with complications or new episode of infections [4, 6]. The differences in number of days absent with existing health problems were showing apparent differences, however those differences were found to be statistically not significant among the preexisting morbid people in this study as shown in Figure 1. The proportion of absentees were high among males with pre existing arthritis or rheumatic problems (65.4%), Diabetes Mellitus (54.2%) and other health problems(46.7%) compared to female population in this study. The female subjects suffering from two or more morbid conditions were found to be absent for work in higher proportions compared to male population. The similar trend was also noticed in studies done in other industries not related to farming sector [1, 3, 6, 7]. This study highlight the need of studies in different section of agriculture or farming activities throughout the world but urgent in developing countries where agriculture is currently a major sector for GDP [4, 6].

LIMITATIONS

The study did not include the subjects who were absent for their work due to sickness or hospitalization as care taker for other family members. Most of the grown up or school going children in the rural family are invariably involved directly or indirectly in any form of agriculture related work. Similarly home makers are directly or partly involved farming activities and their absence was not included. Their sickness and absence was not considered in this study.

CONCLUSIONS

The prevalence of sickness absenteeism among agriculture workers was 18.6 percent and it was high among men. The median duration of absence was 3 days and nearly 43 percent were absent for less than 3 days. The common reasons for absence were musculoskeletal (31%), followed by fever (19.2%) and CNS related health problems (11.7%). There is an urgent need of studies on absenteeism issue in agricultural related industries from all the countries.

ACKNOWLEDGEMENT

The authors sincerely thank Dr. Avinash R, Dr. Lahari, Dr. Lohit and Dr. Velmurugan J for the assistance in collection of data for this study. The contribution Mr. M Venkatesh, Medico Social Worker

as liaison person in the rural area for completion of data collection is acknowledged.

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