International Journal of Home Science 2016; 2(2): 240-245

International Journal of Home Science

ISSN: 2395-7476
IJHS 2016; 2(2): 240-245

www.homesciencejournal.com
Received: 09-03-2016
Accepted: 12-04-2016

Dr. Razia Parvez
Associate professor/PI
Department of Family Resources Management, Ethelind School of Home Science, Shiats, Allahabad (U.P.), India

Dr. A K A Lawrance
Professor Co-PI
SHIATS, Allahabad (U.P.), India

Swarn Lata J RF
Department of Family Resources Management, Ethelind School of Home Science, Shiats, Allahabad (U.P.), India

Correspondence
Dr. Razia Parvez
Associate professor/PI
Department of Family Resources Management, Ethelind School of Home Science, Shiats, Allahabad (U.P.), India

Problems of Women Laborers Engaged In Paddy Transplanting Activity in Allahabad

Dr. Razia Parvez P.I, Dr. A.K.A Lawranc Co-P.I, Swarn Lata JRF

Abstract
Paddy Transplanting is very mind-numbing work mostly done by women workers during Kharif season and by 2020 there would be 50 percent women against 42 percent at present (S. Pradhan and S.K. Mohanty 2014). Physical transplanting consume a lot of energy and time full of exhaustion, but the poor socio-economic of the women does not allow them to adopt power operated transplanting machine. The objective of the study was to find out the physical problems of women laborers while engaged in paddy transplanting activity. Total fifty one women were selected for the study. They were aged between 20-60 years. A set of Interview schedule was designed and a body map used to identify the incidences of pain among women in paddy transplanting activity. The findings show that the cent percent farm women experienced fatigue due to continuously repeated standing and bending postures during transplanting activity. The 54.9 percent women reported light pain due to scratches and 45.1 percent farm women reported moderate pain in thumb, wrist joint and slight scratches during paddy transplanting. All the farm women's' skin got wrinkled and became white during paddy transplanting as their hands were in the water throughout the day. The women also reported the severe pain in nights. The energy expenditure of farm women was increased 1.51 kg/min during paddy transplanting activity. Total majority 61 percent women laborers were transplanting the paddy at 70° - 75° angle bending posture and 39 percent women laborers were transplanting the paddy at 65° - 70° angle bending posture. Physiological Cost of Work/bpm of Women Labourers in Chaka Block was 10.8 (lowest); in Kaudhihar Block were 11 whereas in Bhadurpur block it was 11.7 which were highest. Energy expenditure was increased 1.51 kg/min during paddy transplanting activity. Therefore it is concluded that the paddy transplanting is proved as the most drudgery prone activity by the sample women of Allahabad city. Therefore it is recommended that women laborers should take rest in between working hours to reduce fatigue. It also concluded that there is a need to study the physiological parameters of the subjects by adopting different work rest cycle.

Keywords: Environmental Parameter, Fatigue, CCR, CCW, Heart Rate, PCW, TCCW, Paddy Transplanting, Pain, Posture Angle.

1. Introduction
Manual rice transplanting is a task demanding high labour and directly associated with human drudgery. High labour demand during peak transplanting period adversely affects the timeliness of this operation, thereby reducing crop yield. The purpose of this study was to assess the physical problems of women labourers during manual paddy transplanting activity. Paddy Transplanting is very mind-numbing work mostly done by women workers during Kharif season and by 2020 there would be 50 percent women against 42 percent at present (S. Pradhan and S.K. Mohanty 2014). Physical transplanting consume a lot of energy, time and full of exhaustion, but the poor socio-economic of the women does not allow them to adopt power operated transplanter. The objective of the study was to find out physical problems of women laborers while engaged in paddy transplanting activity.

Rice *(Oryza sativa)* is one of the most important cereal crops in the world as it is the most important staple food. In India, about three fourth of the population are dependent on rice. The area under rice cultivation is about 44.79 million ha, the largest in the world. (Singh 2009) [7]. There are basically two types of rice transplanting, that is, manual transplanting and machine transplanting. Manual transplanting is tedious, tiresome and labor consuming, because a person has to stand in puddle field and bend for hours for putting seedling into the soil by hand. In Tarai region, transplanting is accomplished mainly by manual method. Manual transplanting is one of the labor intensive operation comprising of nursery raising, uprooting of the seedling and transplanting them in the main field, with total labor requirement of about

280-350 man- hours/ ha. Some of the posture which was taken by them was very harmful. But they were compelled to adopt those postures during work for a long time. During transplanting the workers adopt strongly bent posture in the muddy field for a long time. In all the tasks of rice cultivation are repetitive in nature. Repetitive may be related to MSD. The workers change their posture very frequently and suffered from musculoskeletal disorder during performing their jobs (Kar and Dhara 2007).

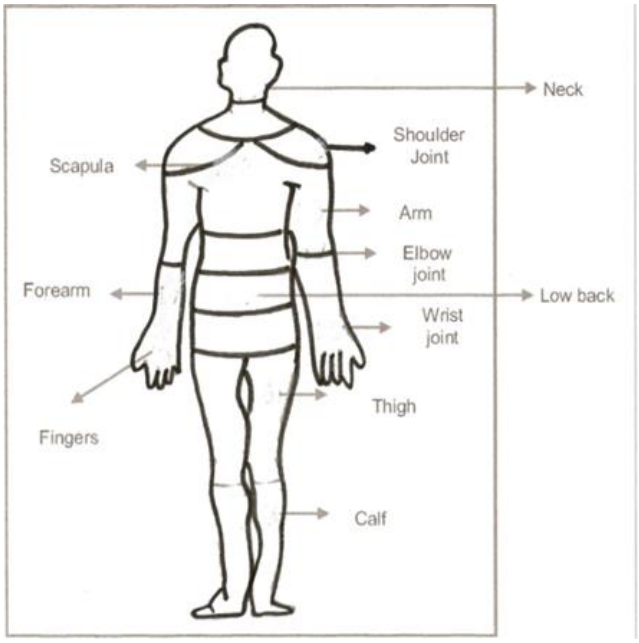
High labor demand during peak transplanting period adversely affects the timeliness of this operation, thereby reducing crop yield. These disorders have caused a considerable human suffering and are also economically very costly, because of reduced working capacity and lessoned production. High incidence rate for WMSDs of the upper extremities have been reported for workers in office work, manufacturing and agriculture which includes numerous material handling occupation in various factories (Faucet *et al.* 2002) [1].

2. Materials and Methods

The present study entitled, "Problems of Women Laborers While Engaged in Paddy Transplanting Activity in Allahabad" was undertaken to study economic status of women labourers. The physical problem of women labourers was assessed by Ergonomical Evaluation during paddy transplanting in Agro-Climatic zone of Allahabad District of Uttar Pradesh, in the month of June to July. Three main Blocks, namely Chaka (Trans Yamuna), Bahadurpur (Trans Ganga) and Kaudhihar Blocks (Kanpur Road) were selected. The villages "Baswar", "Dadri", "Maduka" and "Murlicot", were selected from Chaka Block, "Buduruddin", "Lodva" and "Yarnva" from Bahadurpur block and "Ahiran ka Pura", "Lalbihar" and "Umari" from Kaudhihar Block were selected Fifty one women respondents in the age group of 20-60 were selected from three blocks namely Chaka, Bahadurpur and Kaudihar Blocks. The paddy transplanting operation was done for 9:00 am. to 1:00 pm. And 1:30 pm. to 5 pm. Farm women labourers performed the paddy transplanting activity with manual transplanting in bending posture. The farm women labourers continuously transplanting operation for 50 minutes and did took 10 minutes break. For the Ergonomical assessment the physical and physiological parameters of women labourers Heart Rate, Blood Pressure, Age, Weight, Energy Expenditure, TCCW, PCW, and RPE were taken into consideration. The environmental parameters were assessed at 32 to 38°C temperature and 80-90 percent humidity. Before going to field HR rest, blood pressure was measured. After 50 minutes of continuous operation HR work, Energy expenditure TCCW, PCW and Rate of Perceived Exertion were measured. An interview schedule was used for the data collection as an interview involves face to face contact between the subjects and interviewer. Frequency percentage was used for data interpretation. Body map was used for recording the intensity of pain in different body parts. The inventory of pain was measured by five point scale which was marked with the help of colored pen by the respondents.

Score	Inventory of Pain
5	Very Severe (Red)
4	Severe (Green)
3	Moderate (Yellow)
2	Mild (Blue)
1	Very Mild (Orange)

Body Map



Tool used for Data Collection

1. Step Stool
2. Thermometer
3. Harte Rate Monitor
4. Hygrometer
5. Flexi Cure
6. Lux Meter
7. Gonio Miter
8. Pedo Meter
9. Stop Watch
10. Skin Fold
11. Grip Dynamometer
12. Weighing Balance
13. Anthropometer

Assessment of Physiological Parameters

Following formulas were used to calculate the total cardiac cost of work (TCCW) and physiological cost of work (PCW).

Total Cardiac Cost of Work = Cardiac Cost of Work + Cardiac Cost of Recovery

TCCW=CCW+CCR

CCW= AHR × Duration of activity;

AHR = Avg. working HR- Avg. resting HR

CCR = (Avg. recovery HR- Avg. resting HR) × Duration

Physiological Cost of Work = Duration of work/ TCCW

Energy Expenditure (Kj/min) = 0.159× HR (beats/min)-8.72

3. Results and Discussion

The results of the present study in accordance with the objectives have been derived by the use of required methodology. Following are the main heads under which the study has been discussed.

Table 1: Distribution of farm women laborers according to their intensity of in particular part of the body experienced while performing the farm activity

Intensity of Pain	Women Laborers					
	Chaka Block (Trans Yamuna)		Bahadurpur (Trans Ganga)		Kaudhihar (Kanpur Road)	
	N= 18		N=17		N=16	
	Intensity of pain					
	Moderate Pain	Severe Pain	Moderate Pain	Severe Pain	Moderate pain	SeverePain
Neck	8	10	15	2	13	3
Shoulder	9	9	9	8	9	7
Upper back	8	10	8	9	8	8
Elbows	8	10	10	7	10	6
Low back	13	5	10	7	10	6
Wrist/ Hand	7	11	11	6	10	6
Hips/ Thighs	8	10	8	9	8	8
Knees	11	7	9	8	8	8
Ankles-feet	9	9	14	3	14	2

The table 1 depicts the incidences of pain experienced by women labourers during transplanting activity. In Transe Yamuna Area, the majority ie 13 out of 18 women experienced moderate pain in lower back whereas 11 women experienced severe pain in wrist and hand. In Trans Ganga area the majority of women 15 out of 18, experienced moderate pain in neck whereas 9 women experienced severe pain in Upper Back, Hips and Thighs. In Kanpur Road area the majority of women experienced moderate pain ie. 14 out of 18, women in Ankles-fe15 out of 18, et whereas 8 women experienced severe pain out of 18, women in Upper Back, Hips, Thighs and Knees respectively.

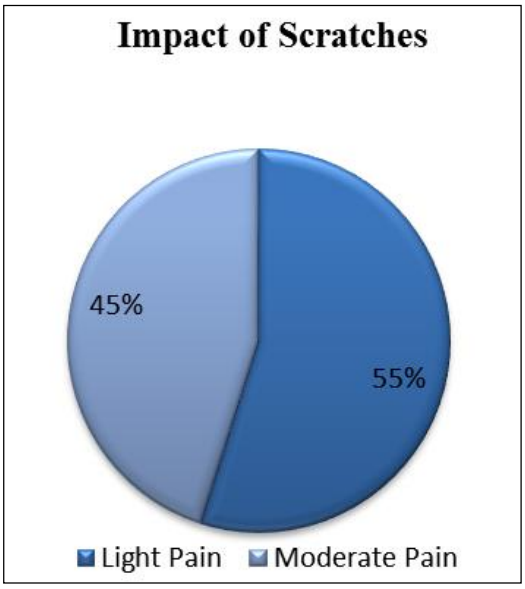
Table 2: Distribution of women laborers injured during farm operations

Injuries	Women Laborers							
	Chaka Block (Trans Yamuna)		Bahadurpur (Trans Ganga)		Kaudhihar (Kanpur Road)		Total N= 51	
	N= 18		N=17		N=16			
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Not injured	11	21.6	14	27.5	8	15.7	33	64.7
Injured during Transplanting	4	7.8	-	-	-	-	4	7.8
Injured during Harvesting	3	5.9	3	5.9	8	15.7	14	27.5

The presented in table 2 revels that in Chaka Block, the majority 21.6 percent women laborers were not injured during transplanting activity. Whereas 7.8 percent women laborers were injured in paddy transplanting whereas 5.9 percent women laborers were injured during paddy harvesting. In Bahadurpur Block, the majority 27.5 percent women laborers were not injured during paddy transplanting activity. But 5.9 percent women laborers were injured during harvesting. In Kaudhihar Block, the 15.7 percent women laborers were not injured during paddy transplanting activity whereas 15.7percent women laborers were injured during paddy harvesting.

Not even a single women injured in other farm operations like weeding, cleaning and irrigation.

Impact of Scratches



Graph 1: Distributions of women laborers according to impact of scratches on feet and hand

The data presented in graph 1 revels that in Chaka Block majority 15.7 percent women laborers reported light pain due to scratches, 19.6 percent women laborers reported moderate pain due scratches. In Bahadurpur Block 19.6 percent women laborers repoted light pain and 13.7 percent women laborers reported moderate pain due to scratches. In Kaudihar Block 19.6 percent women laborers reported light pain, 11.8 percent women laborers reported moderate pain due to scratches during paddy transplanting.

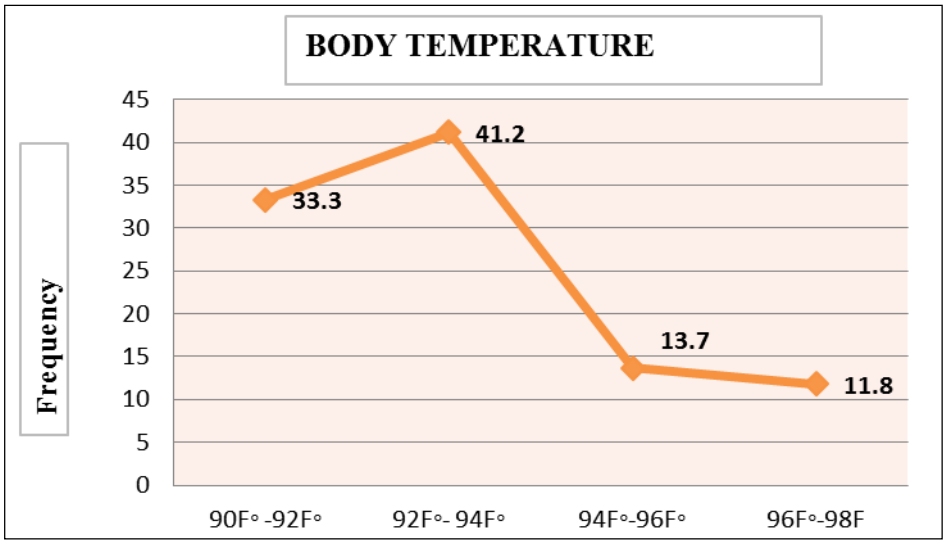
Skin Problems

Table 3: Distribution of women laborers according to skin disease in farming

Skin Problems	Women Laborers							
	Chaka Block (Trans Yamuna) N= 18		Bahadurpur (Trans Ganga) N=17		Kaudhihar (Kanpur Road) N=16		Total N= 51	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Skin Discoloration(Whiteness with Wrinkles)	18	35.5	17	33.3	16	31.4	51	100

The data presented in table 3 shows that cent-percent women laborers' skin got wrinkled and became white during paddy transplanting as their hands and legs were in the water throughout the day.

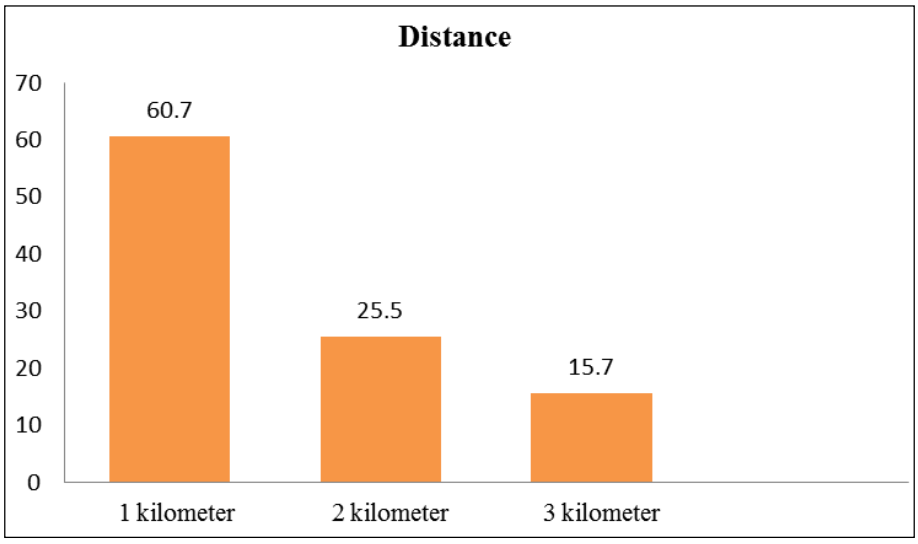
Body Temperature



Graph 2: Distributions of women laborers according to their body temperature

The data presented in 2 graph revels that the majority of respondent 41.2 percent women laborers body temperature recorded was between 92F°- 94F° whereas 33.3 2 percent women laborers body temperature recorded was between 90F° -92F° and very minimum 11.8, percent 13.7 women laborers body temperature recorded was between 96F°-98F and 94F°-96F° respectively.

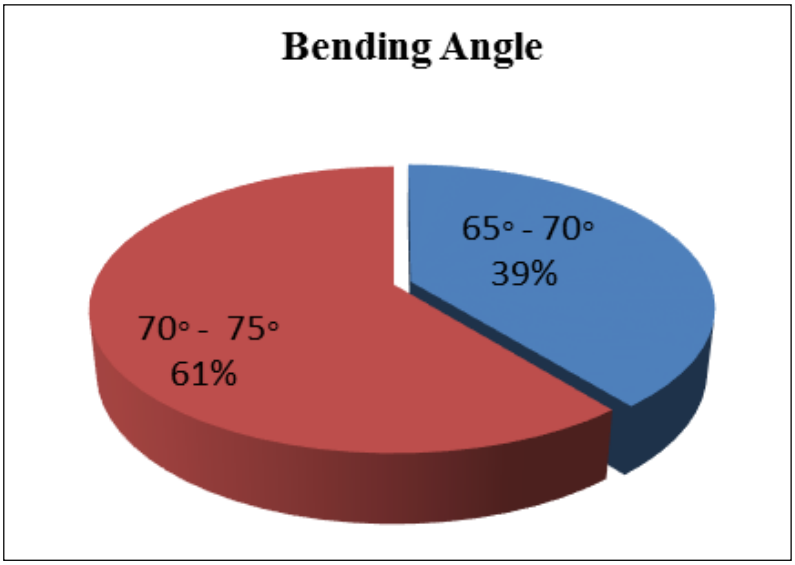
Traveling Distance



Graph 3: Distributions of women laborers according to their distance from their home to field

The data presented in graph 3 revels that the majority the respondent 60.7 percent women laborers travelled from 1 kilometer distance from their home to field whereas 25.5 percent women laborers were travelled 2 kilometer distance of their home to field. A very less percentage ie. 15.7 travelled 3 2 kilometer distance of their home to field.

Bending Angle



Graph 4: Distribution of women laborers according to use of bending angle while transplanting

The data presented in graph 4 revels that the majority 61 percent women laborers were transplanting the paddy at 70° - 75° angle and 39 percent women laborers were transplanting the paddy at 65° - 70° angle.

Table 4: Distribution of women labourers according to their ergonomical parameter

Ergonomical Parameter	Resting blood pressure	Avg. HR Resting	Working blood pressure	Avg. HR Working	Recovery blood pressure	Avg. HR Recovery	CCR	CCW	TCCW	Physiological Cost of Work/bpm
Chaka Block N=18	118/81	81.7	124/65	91.4	120/85	85	396	3492	3888	10.8
Bhadurpur Block N=17	117/85	85	123/63	96	118/82	87	240	3960	4200	11.7
Kaudhihar Block N=16	120/83	84	121/72	93	119/85	90	720	3240	3960	11
Normal HR level =72 beats/min **Blood Pressure** = 120/80 (systolic/diastolic), mmHg/mmHg										

The data presented in above table 4 reveals that Physiological Cost of Work/bpm of Women Labourers in Chaka Block were 10.8 (lowest); in Kaudhihar Block were 1,1 whereas in Bhadurpur block it was 11.7 which was highest.

Energy Expenditure =0.159 x HR rate/min -8.72
During rest Energy Expenditure (Kg/min) = 0.159x 81.7 - 8.72 = 4.3EE

During work Energy Expenditure (Kg/min) = 0.159x 91.4 - 8.72 = 5.81EE
EE= EE during work 5.81- EE during rest 4.3 = 1.51kg/min

Result: Energy expenditure was increased 1.51 kg/min during paddy transplanting activity.

Environmental Parameters

Environmental Parameters		
Temperature	Minimum	Maximum
	32 °C°C	38°C
Humidity	50	90
Intensity of Light (Lux)	351 Lux	410 Lux
Noise (db)	75db	

Environmental Conditions at the Time of the Performing the Farm Activities.

4. Conclusion
All the farm women's' skin got wrinkled and became white during paddy transplanting as their hands were in the water throughout the day. The women also reported the severe pain in nights. The energy expenditure of farm women was increased up to 1.51 kg/min during paddy transplanting activity. Total majority 61 percent women laborers were transplanting the paddy at 70°-75° angle and 39 percent women laborers were transplanting the paddy at 65° - 70° angle. Physiological Cost of Work/bpm of Women Labourers in Chaka Block was 10.8 (lowest); in Kaudhihar Block were 11

whereas in Bhadurpur block it was 11.7 which were highest**.** Energy expenditure was increased 1.51 kg/min during paddy transplanting activity. Therefore it is concluded that the paddy transplanting is proved as the most drudgery prone activity by the sample women of Allahabad city. Therefore it is recommended that women laborers should take rest in between working hours to reduce fatigue. It also concluded that there is a need to study the physiological parameters of the subjects by adopting different work rest cycle.

References

1. Faucett J, Garry M, Nadler D, Ettare D. A test of two training interventions to prevent work-related musculoskeletal disorders of the upper extremity. 2002; 33:337-47.
2. Grover G. Women in Agriculture Development Agrotech Publishing Academy Udaipur, 2004.
3. Gupta MP. Empowerment of women in Agriculture. Daily Excelsior, 2006.
4. Hemla. A Study of Agricultural Activities Performed by Rural Women and Problems Faced by them in Jammu District of J&K State. International Journal of Scientific and Research Publications. 2013; 3(1): ISSN 2250-3153.
5. Kar SK, Dhara PC. An evaluation of musculoskeletal disorder and socio-economic status of farmers in West Bengal, India. Nepal Medical College Journal. 2005; 9:245-249.
6. NSS the Situation Assessment Survey of Farmers, 59th Round, NSSO, New Delhi.
7. Singh SP. Physiological workload of women workers in the operation of manual rice transplanters, Gender, Technology and Development. 2009; 13(2):271-284.
8. Singh, Seema, Kurukshetra, Monthly Journal of Rural Development. 2003; 59(11):6-7.