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DRUDGERY REDUCTION AND ACCEPTABILITY OF DRUDGERY REDUCING TOOL IN MILKING OF DAIRY ANIMALS

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ABSTRACT

Dairy farming involved backbreaking tasks which are carried out in arduous posture. Out of all dairy activities, milking of animals is the most drudgery prone activity commonly performed activity by rural women. Present study was designed to analyzed musculoskeletal problems in women while performing milking activity and acceptability of drudgery reducing tool. A representative sample of 36 farmwomen were selected based on their age *i.e.*, 25-35 years as sample under study for observation of milking activity by using traditional method and drudgery reducing tool. The results of pre and post analysis indicated that musculoskeletal problems were significantly reduced and drudgery reducing tool *i.e.*, revolving stand and stool for milking activity was readily accepted by all farmwomen engaged in milking activity as it reduced intensity of body pain. Therefore, there is need to popularise drudgery reducing tools among rural women by Krishi Vigyan Kendras and other departments to enhance the working efficiency and drudgery reduction.

Keywords : Drudgery reduction, Milking activity, Drudgery reducing tool, Farmwomen,

Introduction

Rural women contribute share of more than 75% on animal husbandry operations like feeding, milking and marketing of produce (Murthy and Madhuri, 2013). Dairy sector is the main means of livelihood in Simalwara block of Dungarpur district which is an operational area of Krishi Vigyan Kendra, Dungarpur. However, dairy farming involved backbreaking tasks as all activities are carried out in arduous posture. The women adopt long static postures for some of the activities, which increase static muscular efforts. Improved tools for performing drudgery prone activities are beneficial because they lead to reduction of drudgery and reduce muscular stress and help the women to adopt correct posture work. Corlett *et al.* (1983) showed the effect of poor working posture in order to perform task could lead to postural stress, fatigue and pain which may in turn force the operator to stop work until the muscle recovers. While performing milking activity women adopt squatting posture and experience severe pain in lower back, legs, knees and feet. Hence, in order to reduce drudgery of farm women while milking activity a drudgery reducing tool was introduced among farm women to know acceptability and drudgery reduction while performing milking activity.

Material and Methods

The present investigation was carried out in the Dungarpur which is a tribal dominated district of Rajasthan during 2017-18. Firstly, farm women of adopted villages (Bandela, Ramsour Bada, Kanba, Bhatia and Ramsourjuna)

were imparted training on drudgery reducing tools and techniques. After that, keeping in view the need of women, thirty-six farm women respondents belonging to 25-35 years of age were selected by using random sampling. The data were solicited before and after the training on ergonomic assessment of milking activity by using traditional method and drudgery reducing implement *i.e.*, revolving milking stool and stand. Under experimental investigation, required data were collected by using the Revolving stand and stool for milking activity. Musculoskeletal problems were assessed by body map (Corlette & Bishop, 1978), Perceived exertion was measured by RPE scale (Varghese *et al.*, 1994), risk level assessment was done through Rapid Entire Body Assessment (REBA) Mc Atamney (2000), and acceptability and time were also reported while carrying out milking activity by farm women.

Results and Discussion

Musculo skeletal problems during milking

Incidence of musculoskeletal problems while performing milking was calculated on 5-point scale as very severe, severe, moderate, mild and very mild through body map suggested by Corlette and Bishop, 1978. All the respondents were reported hundred percent reductions of pain in low back, and ankle/feet and fifty per cent pain reduction in upper leg/thigh by using improved tool (table 1). All the respondents felt comfort while working with improved tool. As there was reduction in severity/ intensity of pain, which made the working comfortable.

Table 1 : Incidence of musculoskeletal problems among farm women while milking (n=36).

| Body parts | Incidence of pain | | | | | | | | | |
|-----------------|--------------------|----|----|---|---|---------------|---|----|----|----|
| | Traditional Method | | | | | Improved tool | | | | |
| | 5 | 4 | 3 | 2 | 1 | 5 | 4 | 3 | 2 | 1 |
| Neck | - | 19 | 17 | - | - | - | - | - | 14 | 11 |
| Shoulder joint | - | 12 | - | - | - | - | - | 12 | - | - |
| Low back | 04 | 27 | 05 | - | - | - | - | 13 | 18 | 5 |
| Upper leg/thigh | 4 | 14 | 18 | - | - | - | - | 06 | 14 | 16 |
| Ankles/feet | - | 14 | 20 | 2 | - | - | - | - | 14 | 22 |

5= very severe, 4= severe, 3= moderate, 2= mild, 1= very mild

Perceived exertion

The data on perceived exertion was recorded for milking activity on 5 point scale *i.e.*, very light, light, moderately light, heavy and very heavy (Varghese *et al.*, 1994). It was clear from the Table 2, that higher percentage of the respondents (55.55%) rated milking activity in traditional method as heavy followed by very heavy (30.55%), moderately light (8.33%) and light (5.55%). Whereas by using drudgery reducing tool for milking, majority of respondents (61.11%) rated milking activity as light activity followed by moderately light (25%) and very light (13.88%).

Energy expenditure of farm women did not increase significantly by using Drudgery reducing tools as compared to working in traditional manner, whereas Output increased significantly.

Table 2 : Exertion Perceived by farm women while milking the animals (n=36).

| Exertion | Traditional method | Drudgery reducing tool |
|----------------------|--------------------|------------------------|
| Very light (1) | - | 05 (13.88) |
| Light (2) | 02 (5.55) | 22 (61.11) |
| Moderately light (3) | 03 (8.33) | 09 (25) |
| Heavy (4) | 20 (55.55) | - |
| Very high (5) | 11 (30.55) | - |

Figures in parentheses indicate percentage

Risk Level Assessment

The risk level while performing milking was assessed through Rapid Entire Body Assessment (REBA) developed by Hignett and Mc Atamney, (2000) in traditional and by using Drudgery Reducing Tool (DRT), it was clear from the table that maximum respondents (77.77%) had high risk in the traditional milking method whereas 22.22 per cent of the respondents had very high risk in performing the activity in traditional method. Further, it was observed that by using drudgery reducing tool of milking, the higher percentage (69.44%) had low risk which was followed by medium risk (30.55%).

Table : Risk assessment based on REBA while performing milking activity by farm women (n=36).

| Level of Risk | Traditional method (%) | Using drudgery reducing tool (%) |
|---------------------|------------------------|----------------------------------|
| Negligible risk (1) | - | - |
| Low risk (2-3) | - | 25 (69.44) |
| Medium risk (4-7) | - | 11 (30.55) |
| High risk (8-10) | 28 (77.77) | - |

| | | |
|----------------------|------------|---|
| Very high risk (11+) | 08 (22.22) | - |
|----------------------|------------|---|

Time

On an average, the time required to perform the milking activity was 3.00 min in traditional method, whereas 2.00 min was required to complete the work by using drudgery reducing tool. There was significant reduction of 20% in time requirement.

Acceptability

Drudgery reducing tool (revolving milking stool and stand) for milking activity was readily accepted by all farm women engaged in milking activity as it reduced intensity of body pain.

Similar results was found

Conclusion

Since dairy farming involved backbreaking tasks which are carried out in arduous posture by rural women. Study reveals that improved tools reduced pain in legs, knee and feet significantly due to comfortable posture, therefore, efficiency of work also enhanced. The risk level was shifted from very heavy and heavy to low and medium risk level by using drudgery reducing tool. Revolving milking stand and stool to milking has reduced the human cost of work. An improvement was observed in the awareness and knowledge status among the farm women of Ambedkar Nagar of UP (Kumari *et al* 2017). Therefore, there is need to popularise drudgery reducing tools among rural women by Krishi Vigyan Kendras and other departments to enhance the working efficiency and drudgery reduction.

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