

Fear Avoidance of Work Beliefs Amongst Workers Reporting Work-Related Musculoskeletal Disorders in Kenya

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Abstract: Work-related musculoskeletal disorders (WRMSDs) are a devastating concern to the working population globally. WRMSD can result in disability, especially in cases where diagnosis and treatment are delayed. The primary objective of this study was to determine the proportions of flower farm workers exhibiting Fear Avoidance of work beliefs among workers reporting work-related musculoskeletal disorders at a farm in Kenya. The secondary objective was to determine the relationship between Fear Avoidance Beliefs over the previous 12 months and socio-demographic characteristics. A cross-sectional descriptive study was conducted. A sample of 270 participants was drawn from 897 farm workers, of which 184 presented with WRMSD as assessed using the Nordic Musculoskeletal Questionnaire. Quantitative data were collected using the Fear Avoidance Beliefs Questionnaire. Inferential statistics were analyzed using the Pearson's chi-squared test (X^2) test and based on an alpha level of $p < 0.05$. Descriptive statistics were presented using frequencies and percentages. Respondents who reported Decreased Risk of persistent Problems were 67 (36.4%), Increased Risk of Reporting No Improvement were 50 (27.2%), Decreased Risk for Not Returning To work were 34 (18.5%) while those who reported Increased Risk of Not Returning to Work were 33 (17.9%). There was no correlation between exhibiting Fear Avoidance and socio-demographic characteristics. Flower farm workers in Kenya were found to exhibit Fear avoidance of work beliefs.

Keywords: Work-Related Musculoskeletal Disorders, Fear-Avoidance of Work, Farm Workers

1. Introduction

Kenya's economy heavily relies on agricultural activities, and it is the third largest flower export globally [1]. To hit this high production levels, the farm workers have to work for many hours at an overall increased pace thus ignoring other important considerations such as ergonomics. Poor ergonomics may lead to non-fatal disorders such as work-related musculoskeletal disorders (WRMSDs) [2]. An agricultural safety report [3] reported that agricultural activities rank among the highest occupational hazards globally and that, farmers are at very high risk for both fatal and nonfatal injuries.

WRMSDs may be sudden or be caused over time, and affects the muscles, ligaments, bones and tendons [4]. The main symptoms include pain, numbness, stiffness, mobility and impaired function [5]. The overall WRMSDs may also

result to Fear Avoidance (FA) of work [6]. The FA of work model describes how fear results in avoidance of work behavior in a population suffering from long-term musculoskeletal discomfort [7, 8]. For instance, the thought or anticipation to re-injure oneself will lead to avoidance of work or physical activity, thus low levels of activity and even disability in the long-run. This is because the projected danger of pain will habitually lead to continual caution and monitoring of pain perceptions. In turn, this can precipitate even very low-intensity pain sensations to become intolerable to oneself [9].

When one experiences a catastrophizing thought about joint pain, it is more likely that the pain will worsen for a longer period. Respondents reporting 'increased risk of not returning to work' group is most likely to have a poor

therapeutic outcome. On the contrary, the group categorized as 'decreased risk of persistent problems' was more likely to respond positively to therapeutic interventions and report back to work. Due to the pain and body aches experienced by persons experiencing WMSDs, these persons' overall standard of health, comfort, and happiness are compromised. A decrease in quality-of-life results in complications such as reduced productivity and Fear Avoidance. The concept of Fear Avoidance leads to a maladaptive perception of pain. Thus, more extended periods of hospitalization, increased medical bills, job-absenteeism, and even disability [10, 11].

In a study [10] on FA beliefs associated with perceived psychological and social factors at work among patients with neck and back pain, the findings were that work-related factors such as social and perceived psychosocial by far outweighed pain, and that this factors positively correlated to fear avoidance of work in patients with WMSDs. In a study [12] to determine Fear Avoidance's role among female computer workers with shoulder and neck pain findings showed that Fear Avoidance behavior patterns directly influenced the levels of disability.

In another study [13] that compared musculoskeletal pain with Fear Avoidance behavior across multiple bodily locations, it found out that the Fear Avoidance pattern was similar in all patients suffering WMSDs. The similarity of Fear Avoidance was regardless of the body region affected. Although, another study found out that all working population somehow experienced a Fear Avoidance behavior pattern resulting from chronic musculoskeletal pain, it was clarified that the prognosis might differ in respect of the bodily part affected [13].

Therefore, the objective of this study was to determine the proportions of flower farm workers exhibiting Fear Avoidance of work beliefs among workers reporting work-related musculoskeletal disorders over the previous 12 months and socio-demographic characteristics.

2. Methods

2.1. Study Design

The study utilized a descriptive cross-sectional design.

2.2. Population

The farm has employed a total of 897 farm workers who perform are divided two designations of sprayers and general workers. To determine the sample size of 270, Cochran's formula $n = Z^2 pq / d^2$ [14] was used. Systematic sampling technique was used to select the farm.

2.3. Data Collection Tool

The Nordic Musculoskeletal Questionnaire (NMQ) is cross-culturally adapted questionnaire which was used to screen WRMSDs [15]. All of the 270 respondents completed the questionnaire with responses as to whether they had experienced musculoskeletal pain in any part of the body

over the previous 12 months. Those who reported musculoskeletal pain (n=184) were subjected to fill the Fear Avoidance Belief Questionnaire (FABQ).

The FABQ was used to collect data in this study for those who had reported presence of pain in the previous 12 months (184 respondents). The tool assessed the consequent avoidance of work due to the fear of pain using the seven items scored from a Likert scale of 0-6, ranging from 'completely agree' end to 'completely disagree' end. Scores closer to 42 indicate poor prognosis, and shows a high chance of chronicity [11]. It evaluated and categorized participants into various groups concerning Fear Avoidance beliefs [9].

2.4. Data Analysis and Management

Data from both the NMQ and the FABQ and was keyed into the Microsoft Excel spreadsheet database. SPSS version 25 was used for statistical analysis. Inferential statistics of associations between WRMSD risk levels and the variables were then analyzed using the Pearson Chi-square (χ^2) test and based on an alpha level of $p < 0.05$. Descriptive statistics were described by percentages and frequencies.

3. Results

3.1. Prevalence of Musculoskeletal Disorders

The majority of the 270 respondents, namely 184 (68.1%), reported having experienced discomfort in either one or more of their body areas over the previous one year while 86 (31.9%) did not experience any WRMSDs.

3.2. Proportions of Respondents Exhibiting Fear Avoidance Beliefs

Most of the respondents (n=67, 36.4%) among the 184 respondents who reported WMSD, reported lower levels of Fear Avoidance beliefs of work than the rest of the respondents. This is as shown in Table 1.

Table 1. Proportions of Respondents Exhibiting Fear Avoidance Beliefs (n=184).

Fear Avoidance Beliefs About Work	Frequency	Percent (%)
Decreased Risk of persistent Problems	67	36.4
Increased Risk of Reporting no Improvement	50	27.2
Decreased Risk for Not Returning to work	34	18.5
Increased Risk of Not Returning to Work	33	17.9
Total	184	100

3.3. Relationship Between Fear Avoidance Beliefs and Socio-Demographic Characteristics

The study further tested the relationship between Fear Avoidance beliefs and the socio-demographics characteristics. There was no correlation between exhibiting Fear Avoidance and socio-demographic characteristics, as shown in Table 2.

Table 2. Relationship between Fear Avoidance Beliefs and Socio-demographic Characteristics (n=184).

SDC	Decreased Risk of Persistent Problems (n=67)	Increased Risk of Reporting No Improvement (n=50)	Decreased Risk for Not Returning to Work (n=34)	Increased Risk of Not Returning To Work (n=33)	Total	Test		
						Chi-squared Value	DF	p-value
Gender								
Male	32 (37.2%)	26 (30.2%)	19 (22.1%)	9 (10.5%)	86	8.652	4	0.07
Female	35 (35.7%)	24 (24.5%)	15 (15.3%)	24 (24.5%)	98			
Age (Years)								
<30	4 (36.4%)	5 (45.5%)	2 (18.1%)	0 (0%)	11	19.67	12	0.74
30 - 39	27 (43.6%)	15 (24.2%)	11 (17.7%)	9 (14.5%)	62			
40 – 49	34 (34.7%)	28 (28.6%)	16 (16.3%)	20 (20.4%)	98			
≥50	2 (15.4%)	2 (15.4%)	5 (38.4%)	4 (30.8%)	13			
Weight (Kgs)								
≤ 60	18 (29.0%)	20 (32.3%)	10 (16.1%)	14 (22.6%)	62	8.98	12	0.705
61 – 80	47 (41.2%)	27 (23.7%)	22 (19.3%)	18 (15.8%)	114			
81 – 100	2 (28.6%)	2 (28.6%)	2 (28.6%)	1 (14.2%)	7			
>100	0 (0%)	1 (100%)	0 (0%)	0 (0%)	1			
Job Designation								
General Worker	64 36.0%)	49 (27.5%)	34 (19.1%)	31 (17.4%)	178	7.320	4	0.120
Sprayer	3 (50.0%)	1 (16.7%)	0 (0%)	2 (33.3%)	6			
Length of Time in Worked (Years)								
≤ 5	11 (35.5%)	10 (32.3%)	6 (19.3%)	4 (12.9%)	31	26.937	20	0.137
6 – 10	32 (41.0%)	22 (28.2%)	13 (16.7%)	11 (14.1%)	78			
11 – 15	18 (34.0%)	15 (28.3%)	9 (17.0%)	11 (20.8)	53			
16 – 20	4 (28.6%)	1 (7.1%)	5 (35.7%)	4 (28.6%)	14			
21 – 25	1 (16.7%)	2 (33.3%)	0 (0%)	3 (50.0%)	6			
≥ 26	1 (50.0%)	0 (0%)	1 (50.0%)	0 (0%)	2			

*DF = Degrees of Freedom

4. Discussion

This study's objective was to determine the proportions of flower farm workers exhibiting Fear Avoidance of work beliefs among flower farm workers reporting work-related musculoskeletal disorders over the previous 12 months and socio-demographic characteristics. This was determined from the sample of participants (n=184) who had reported the presence of WMSDs only.

FA of work beliefs was classified as 'decreased risk of persistent problems', 'increased risk of reporting no improvement', 'decreased risk for not returning to work', and 'increased risk of not returning to work' at 36.4%, 27.2%, 18.5%, and 17.9% respectively. This classification was as discussed by the Clinical Protocol at The College of Chiropractic at the University of Western States, as cited by Liebenson C [16]. A low Fear Avoidance beliefs score indicated 'decreased risk of persistent problems' while a high Fear Avoidance beliefs score indicated 'increased risk of not returning to work', high score indicated that it is work that caused their severe levels of chronic pain.

In the current study, a higher majority (n=67) reported 'Decreased Risk of Persistent Problems'. Despite farm work being laborious, physically and psychologically demanding, the farm workers had no choice but to psychologically toughen so as they are not distracted by the fear of pain. This can be arguably be as a result of the bigger fear of job losses, unpaid sick leaves and being perceived as being unfit for the work. The lowest number of farm workers reported

'increased risk of not returning to work' (17.9%). Even though they were the least in number, this was a huge number of respondents to report catastrophization of pain in a farm. Pain catastrophization was probably due to development of chronicity among those who may have worked for longer. This cohort of workers warrants further research in order to establish their pain-processing mechanism over the period of time spent in the farm.

The farm workers designated as sprayers, as compared to the general workers, reported a high number (33.3%) of 'increased risk of not returning to work'. This was probably due to the factors that are attached to various designations at a workplace such as the conditioning that pesticides and herbicides consist of chemicals that are a threat to their overall skin and cardio-respiratory health. Presence of discrepancies of Fear Avoidance scores between or among job designations has been reported in previous studies [4, 17, 18, 19, 20].

By over a double margin, the female gender reported high cases (24.5%) of 'increased risk of not returning to work' as compared to their male counterparts. This was more likely due to the less control of self that the female gender has got. In addition, the female gender is predisposed to a lot of anticipatory and peak anxiety, psychosocial stress, family management, and gender violence cases at work. A study [21] on Gender Role and Behavioral Avoidance reported female gender to experience higher scores as compared to their male counterparts. A study [22] on "Sex differences in fear of pain: item-level analysis of the Fear of Pain Questionnaire III", reported a higher fear of pain in females

as compared to men as reported in this present study. They alluded their results to both emotional responses and psychosocial mechanisms of anxiety and fear.

Participants aged over 50 years reported the highest number (30.8%) as having 'increased risk of not returning to work'. This can be explained from the point that these participants had an advanced age in such laborious jobs that included but not limited to heavy lifting, prolonged stooped-working posture, and repetitive movements. These had caused them a relatively low self-control and psychosocial stress leading to a high Fear Avoidance score. Also, such an age group and the long duration they have worked have assumed that WMSDs is a 'normal' encounter as long as they are working. They also assume that WMSDs are unavoidable and that any WMSDs' signs and symptoms are due to the mere effects of chemicals used and hard labor and hence they are still present at work. This study's results were in tandem with a study by Zoer I *et al.* who noted that individuals around and about this age-group suffered a 'higher risk of not returning to work' which in turn, led to catastrophization of pain [23]. Although, a study by Larsson C focused on Fear Avoidance beliefs on physical activity but not work, the findings were that the levels of physical activity were considerably lower among the respondents reporting chronic discomfort, and the most probable reason was due to age-related kinesophobia [24].

5. Conclusion

This study concluded that, Fear Avoidance Beliefs of work exist, and permeates across the entire flower farm work-force although at different levels of severity.

6. Recommendation

In this study, the researcher studied the element of 'Fear Avoidance' with only those respondents who had reported to have WMSDs in the previous 12 months. This may have limited the results from the larger farm workers. Future researchers may therefore study this concept among all the farm workers' population.

Conflict of Interest

The author declares no conflict of interest.

Disclaimer

The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors.

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References

- [1] Rikken M. The global competitiveness of the Kenyan flower industry. In-Fifth Video Conference on the Global Competitiveness of the Flower Industry in Eastern Africa 2011 Dec 14.
- [2] Benos, L., et al. A Review on Ergonomics in Agriculture. Part I: Manual Operations. *Applied Sciences (Switzerland)*, 2020, doi: 10.3390/app10061905.
- [3] Singh S, Arora R. Ergonomic intervention for preventing musculoskeletal disorders among farm women. *Journal of Agricultural Sciences*. 2010 Dec 1; 1 (2): 61-71.
- [4] Wang J, Cui Y, He L, Xu X, Yuan Z, Jin X, Li Z. Work-related musculoskeletal disorders and risk factors among Chinese medical staff of obstetrics and gynecology. *International journal of environmental research and public health*. 2017 Jun; 14 (6): 562.
- [5] Shafti A, Lazpita BU, Elhage O, Wurdemann HA, Althoefer K. Analysis of comfort and ergonomics for clinical work environments. In 2016 38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC) 2016 Aug 16 (pp. 1894-1897). IEEE.
- [6] Vlaeyen JW, Linton SJ. Fear-avoidance and its consequences in chronic musculoskeletal pain: a state of the art. *Pain*. 2000 Apr 1; 85 (3): 317-32.
- [7] Leeuw M, Goossens ME, Linton SJ, Crombez G, Boersma K, Vlaeyen JW. The fear-avoidance model of musculoskeletal pain: current state of scientific evidence. *Journal of behavioral medicine*. 2007 Feb; 30 (1): 77-94.
- [8] Lethem J, Slade PD, Troup JD, Bentley G. Outline of a fear-avoidance model of exaggerated pain perception—I. *Behaviour research and therapy*. 1983 Jan 1; 21 (4): 401-8.
- [9] Gatchel RJ, Neblett R, Kishino N, Ray CT. Fear-avoidance beliefs and chronic pain. *Journal of Orthopaedic & Sports Physical Therapy*. 2016 Feb; 46 (2): 38-43.
- [10] Myhre K, Røe C, Marchand GH, Keller A, Bautz-Holter E, Leivseth G, Sandvik L, Lau B. Fear-avoidance beliefs associated with perceived psychological and social factors at work among patients with neck and back pain: a cross-sectional multicentre study. *BMC musculoskeletal disorders*. 2013 Dec; 14 (1): 1-1.
- [11] Wilson AC, Lewandowski AS, Palermo TM. Fear-avoidance beliefs and parental responses to pain in adolescents with chronic pain. *Pain Research and Management*. 2011 Oct; 16 (3): 178-82.
- [12] Huis't Veld RM, Vollenbroek-Hutten MM, Groothuis-Oudshoorn KC, Hermens HJ. The role of the fear-avoidance model in female workers with neck-shoulder pain related to computer work. *The Clinical journal of pain*. 2007 Jan 1; 23 (1): 28-34.
- [13] Simon CB, Stryker SE, George SZ. Comparison of work-related fear-avoidance beliefs across different anatomical locations with musculoskeletal pain. *Journal of Pain Research*. 2011 Sep 1: 253-62.
- [14] Cochran WG, William G. Sampling techniques. new york: John wiley& sons.

- [15] Crawford JO. The Nordic musculoskeletal questionnaire. *Occupational medicine*. 2007 Jun 1; 57 (4): 300-1.
- [16] Liebenson C. Improving Activity Tolerance in Pain Patients: A Cognitive-Behavioral Approach to Reactivation. *Topics in clinical chiropractic*. 2000 Jan 1; 7 (4): 6-14.
- [17] Nunes IL, Bush PM. Work-related musculoskeletal disorders assessment and prevention. *Ergonomics-A Systems Approach*. 2012 Apr 25: 1-30.
- [18] Ekpenyong CE, Inyang UC. Associations between worker characteristics, workplace factors, and work-related musculoskeletal disorders: a cross-sectional study of male construction workers in Nigeria. *International Journal of Occupational Safety and Ergonomics*. 2014 Jan 1; 20 (3): 447-62.
- [19] Da Costa BR, Vieira ER. Risk factors for work related musculoskeletal disorders: a systematic review of recent longitudinal studies. *American journal of industrial medicine*. 2010 Mar; 53 (3): 285-323.
- [20] Ganiyu SO, Olabode JA, Stanley MM, Muhammad I. Patterns of occurrence of work-related musculoskeletal disorders and its correlation with ergonomic hazards among health care professionals. *Nigerian Journal of Experimental and Clinical Biosciences*. 2015 Jan 1; 3 (1): 18.
- [21] McLean CP, Hope DA. Subjective anxiety and behavioral avoidance: Gender, gender role, and perceived confirmability of self-report. *Journal of Anxiety Disorders*. 2010 Jun 1; 24 (5): 494-502.
- [22] Vambheim SM, Øien RA. Sex differences in fear of pain: Item-level analysis of the Fear of Pain Questionnaire III. *Journal of pain research*. 2017; 10: 825.
- [23] Zoer I, Frings-Dresen MH, Sluiter JK. Are musculoskeletal complaints, related work impairment and desirable adjustments in work age-specific? *International archives of occupational and environmental health*. 2014 Aug; 87 (6): 647-54.
- [24] Larsson C, Ekvall Hansson E, Sundquist K, Jakobsson U. Impact of pain characteristics and fear-avoidance beliefs on physical activity levels among older adults with chronic pain: a population-based, longitudinal study. *BMC geriatrics*. 2016 Dec; 16 (1): 1-8.