Indian Journal of Holistic Nursing
Volume 13, Issue 3 - 2022, Pg. No. 8-17
Peer Reviewed & Open Access Journal

Research Article

Assessment of the Practices and Health Related Toxic Symptoms of Pesticides use among Farm Workers in Nowpora Kalan of Baramulla, Kashmir

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DOI: https://doi.org/10.24321/2348.2133.202210

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How to cite this article:
Aga O, Kour P, Akhther K, Sofi PA, Khan YB, Shah MA, Banoo S, Gul A, Zeenat I, Ayoub A, Ahmad I. Assessment of the Practices and Health Related Toxic Symptoms of Pesticides use among Farm Workers in Nowpora Kalan of Baramulla, Kashmir. Ind J Holist Nurs. 2022;13(3):8-17.

Date of Submission: 2022-07-11
Date of Acceptance: 2022-08-20

A B S T R A C T

Background: Pesticide as defined by FAO (1986) comprise any substance or mixture of substance intended for preventing, destroying, or controlling any pest, including vectors of human or animal disease, unwanted species of plants or animals causing harm during, or otherwise interfering with, the production processing, storage, transport, or marketing of food, agricultural commodities (including commodities such as raw cereals, sugar beet, and cottonseed) wood products, or animal feedstuff, or which may be administered to animals for the control of insects, arachnids, or other pests on or their bodies.

Objectives: To assess the practices of pesticides use among farm workers. To assess the health related toxic symptoms of pesticides use among farm workers. To find out the association between practices and health related toxic symptoms of pesticide use among farm workers. To find out the association of practices of pesticide use among farm workers with selected socio-demographic variables.

Methodology: A quantitative research approach with descriptive research design was used. 100 Farm workers working in Nowpora Kalan of Baramulla Kashmir were selected by Convenience sampling.

Results: The level of practices of pesticides use among farm workers, the result reveals that 12% of farm workers had good practice, 79% had average practice and 9% of farm workers had poor practice regarding practices of pesticides use with an average mean and SD of 24.12±6.08.

Conclusion: The findings of the study shows that 12% of farm workers had good practice, 79% had average practice and 9% of farm workers had poor practice regarding practices of pesticides use.

Keywords: Practices, Toxic Symptoms, Pesticides, Farm Workers

Introduction

Pesticides represent widely used chemical substances in agriculture to increase production and quality through controlling pests and pest-related diseases. The widespread use of pesticides is a significant source of air, water and soil pollution. Pesticides are also very important risk factors on human life not only effects on health as a result of misuse or accident, but also leave a lasting harmful chemicals into the environment.[2]

People may be exposed to pesticides by producing, transporting, preparing for application, applying or entering pesticide applied area. Using pesticides-effected material or product is also a main source of exposition.[3]

Acute pesticide poisoning is an important cause of worldwide morbidity and mortality. It has been estimated that there are 3 million severe causes of acute pesticide poisoning each year with approximately 2, 20,000 deaths. 95% of fatal pesticide poisoning occurs in developed countries. Serious cases of pesticide poisoning are more likely to occur in adults than in children. Incidence of poisoning is very high in India and is the fourth most common cause of mortality in India and more than 50,000 people die of poisoning every year.[4]

The use of chemicals in modern agriculture has significantly increased productivity and also significantly increased the concentration of pesticides in food and in our environment, with associated negative effects on human health. The pesticides have significant chronic health effects including cancer, neurological effects, diabetes, respiratory diseases, fetal diseases, and genetic disorders. These health effects are different depending on the degree, and the type of exposure. Typically, the effects are different for farmers who are directly exposed to pesticides, compared to those for farmers' relatives or people living in rural areas who are less directly exposed. There are also effects on consumers through pesticide residues in food.[5]

In view of the adverse health effects from the unsafe pesticide use, the latency of the effects, the reported lack of awareness of the adverse health effects of pesticides by some farmers, and the erroneous belief of invincibility by others, it becomes imperative that the potential hazards of unsafe pesticide use should be clearly communicated to the farm workers. Fortunately, many farmers have expressed the need for information and training programs on pesticide safety, and therefore are likely to be responsive to such programs.[6]

WHO estimated that approximately 20,000 workers die from exposure every year, the majority in developing countries. The number of intoxications with organophosphates is estimated at some 3000,000 per year and the number of deaths and casualties are 3, 00,000 per year.[7]

The atmosphere of valley of Kashmir is ideal for fresh and dry fruit production. Millions of tons of pesticides, insecticides and fungicides (chemicals like chlorpyriphos, mancozeb, captan, dimethoate, phosalone, etc.) are being used by the orchard farmers to spray the plants, fruits and the leaves every year. Jammu & Kashmir tops in the intensity of pesticides application with an average level of 2.337 kg/ha, followed by Punjab (1.377kg/ha) and Haryana (1.151 kg/ha) (2013). For the year 2016 around 146.59 mt per year of pesticides were used in J&K. The evidence from the literature shows that agriculture workers are largest occupational group at risk of adverse health effects, facing pesticide hazards in terms of storage, preparation and usage of pesticide and inadequate use of Personal Protective Equipment (PPE) as a result various adverse effects affects the health of the farm workers.[8]

Methodology

A quantitative research approach with descriptive research design was selected to carry out this study. Permission was obtained from the concerned authorities of Mader-e-Meharban Institute of Nursing Sciences and Research (MMINSR), SKIMS, Soura, Srinagar to conduct the final study. Ethical clearance was obtained from Institutional Ethics Committee (IEC), SKIMS. Permission was also accorded from the Sarpanch of Nowpora Kalan, Baramulla Kashmir to conduct the study on Conveniently selected 100 Farm workers of the selected area. Permission was also obtained by taking informed consent individually from each Farm workers, prior to his inclusion as sample in the study. Privacy, confidentiality, and anonymity were being guarded. After seeking permission to conduct the study, data was collected from 100 farm workers of Nowpora Kalan,Baramulla Kashmir from 10th May to 27th May 2022. Assessment of demographic data of study subjects was done through 9-itemed questionnaire related to Age, educational status, type of family, income of family, area of residence, Experience of farming, Experience of pesticide use, use of pesticides in a day, source of information. Assessment of practice of pesticide use was done through 24-itemed self-structured practice questionnaire (if Practice was Always, Sometimes, Never each response was given a score of '2' '1' and of '0' respectively) and assessment of Toxic symptoms was done through 23-itemed checklist (each Yes and No response was given a score of '1' and of '0' respectively). The Practice score & Toxic symptoms score was categorized using the same criterion as in Kaniz Fatima (2019)[61] study & Mustapha F.A,Vimla Y.Devi (2017)[62] study.

If the score was >67% (33-48), it was considered Good practice, if the score was Between 34%-66%(17-32), it was considered Average practice, and if the score was ≤ 33%(0-16), it was considered Poor practice.

ISSN: 2348-2133
DOI: https://doi.org/10.24321/10.24321/2348.2133.202210

To determine the content validity, the tool (self-structured practice questionnaire and checklist) along with the objectives of the study, scoring key, content validity certificate, and evaluation criteria were submitted to 10 research experts and clinicians specialized in the concerned field. Suggestions and recommendations given by the experts were accepted and necessary corrections were done to modify the tool.

The reliability of the self-structured practice questionnaire was determined by 'Test-retest method' and the reliability of checklist was determined by 'Inter-rater method'. Karl Pearson's correlation reliability coefficient computed for self-structured practice questionnaire was "r = 0.92" and for checklist, it was "r = 0.82". Both the self-structured practice questionnaire and checklist were found to be consistent.

Inclusion Criteria

Farm workers who were:

- Who are willing to participate in the study
- Who use pesticides regularly in farming
- Who can understand Urdu or Kashmiri language

Exclusion Criteria

Farm workers who were:

- Who are not willing to participate in the study
- Who donot use pesticides regularly in farming
- Who cannot understand Urdu or Kashmiri language

Results

The Statistical Package for Social Sciences (SPSS) software programme was used for data analysis. Frequency distributions were obtained and descriptive statistics were calculated.

Section I: Analysis of Socio-Demographic Data of Study Subjects

Table 1 Shows that 35% were in 31- 40 yrs of age, 21% were in 41-50 yrs of age and 44% were in above 50 yrs of age. 36% of farm workers were illiterate, 44% had primary education, 14% had higher secondary education and 6% of farm workers had completed graduation,65% were living in nuclear family and 35% of farm workers living in joint family,24% were having income of 10000-15000 Rupees,16% were having income of 15001-20000 Rupees,27% were having income of 20001-25000,33% were having income above 25000 Rupees,80% are residing in rural area and 20% are residing in urban area,38% are farming for 7-10 yrs, 27% are farming for 4-6 yrs, 18% are farming for 1-3 yrs, and 17% are farming for above 10 yrs, 43% are using pesticides for 7-10 yrs, 30% are using pesticides for 4-6 yrs, 17% are using pesticides for 1-3 yrs and 10% are using pesticides for above 10 yrs, 48% use twice a day 45% of farm workers use pesticides use once a day and 7% of farm workers use pesticides use thrice a day,39% had information from pesticides salesman, 32% had got information from agricultural officer, 15% got information from neighbors and friends, 14% got information from printed media.

Section II: Assess the Practices of Pesticide use among Farm Workers

Table 2 shows that The preparation and storage practices of pesticides use among farm workers. According to preparation, 44% always ensure whether the pesticide is Recommended/Banned,39% sometimes ensure whether the pesticide is Recommended/Banned and 17% never ensure whether the pesticide is Recommended/Banned. 42% always ensure label claim (Recommended for use in that crop), 39% sometimes ensure label claim(Recommended for use in that crop), 19% never ensure label claim (Recommended for use in that crop). 18% always wear mask when mixing pesticide, 57% sometimes wear mask when mixing pesticide and 25% never wear mask when mixing pesticide. 28% always wear gloves when mixing pesticide, 52% sometimes wear gloves when mixing pesticide and 20% never wear gloves when mixing pesticide. 32% always mix various pesticides to increase effectiveness/ eradication of weed and pests, 43% sometimes mix various pesticides to increase effectiveness/eradication of weed and pests and 25% never mix various pesticides to increase effectiveness/ eradication of weed and pests. 28% always use recommended concentration of pesticide, 25% sometimes use recommended concentration of pesticide, 47% never use recommended concentration of pesticide. 24% always mix pesticides outdoor and in well ventilated area,49% sometimes mix pesticides outdoor and in well ventilated area and 27% never mix pesticides outdoor and in well ventilated area. According to storage of pesticide use among farm workers, 33% always store pesticides in any area of house, 38% sometimes store pesticides in any area of house and 29% never store pesticides in any area of house. 21% always store the pesticide in well-ventilated area, 41% sometimes store the pesticide in well-ventilated area and 38% never store the pesticide in well-ventilated area. 14% always lock the place where pesticides are stored, 59% sometimes lock the place where pesticides are stored and 27% never lock the place where pesticides are stored. 17% always store dry pesticides separately from liquid pesticides, 44% sometimes store dry pesticides separately from liquid pesticides and 39% never store dry pesticides separately from liquid pesticides. 29% always Dispose unwanted pesticides properly rather than storing them, 47% sometimes Dispose unwanted pesticides properly rather than storing them. And 24% never Dispose unwanted pesticides properly rather than storing them. 37% always read the label for specific storage instructions/precautions of pesticides, 38% sometimes read the label for specific

ISSN: 2348-2133
DOI: https://doi.org/10.24321/10.24321/2348.2133.202210

storage instructions/precautions of pesticides and 25% never read the label for specific storage instructions/ precautions of pesticides.

Table 3 shows that the practices of usage during and after spraying pesticides by farm workers. According to usage of pesticide during spray, 28% always wear gloves while spraying, 64% sometimes wear gloves while spraying and 8% never wear gloves while spraying. 20% always wear face mask while spraying, 52% sometimes wear face mask while spraying and 28% never wear face mask while spraying. 43% always wear protective eye cover while spraying, 40% sometimes wear protective eye cover while spraying and 17% never wear protective eye cover while spraying. 28% always wear protective long sleeved shirt and long pant while spraying, 37% sometimes wear protective long sleeved shirt and long pant while spraying and 38% never wear protective long sleeved shirt and long pant while spraying. 22% always wear chemical resistant footwear plus socks while spraying, 38% sometimes wear chemical resistant footwear plus socks while spraying and 40% never wear chemical resistant footwear plus socks while spraying. 36% Always spray pesticides during bad weather, 50% sometimes spray pesticides during bad weather,14% never spray pesticides during bad weather. According to usage after spraying, 27% always do not remove cloths immediately, which were worn while spraying, 29% sometimes do not remove cloths immediately, which were worn while spraying, 44% never do not remove cloths immediately, which were worn while spraying. 24% always wash cloths immediately, which were worn while spraying, 45% sometimes wash cloths immediately, which were worn while spraying and 31% never wash cloths immediately, which were worn while spraying. 9% always wash hand and face with soap after spraying, 60% sometimes wash hand and face with soap after spraying and 31% never wash hand and face with soap after spraying . 30% always, take shower immediately after spraying, 37% sometimes take shower immediately after spraying and 33% never take shower immediately after spraying.34% always dispose off unused pesticides if any, 53% sometimes dispose off unused pesticides if any, 13% never dispose off unused pesticides if any.

Table 4 shows that the level of practices of pesticides use among farm workers, the result reveals that 12% of farm workers had good practice, 79% had average practice and 9% of farm workers had poor practice regarding practices of pesticides use with an average mean and SD of 24.12±6.08

Section III: Assess the Health Related Toxic Symptoms of Pesticide use among Farm Workers

Table 5 shows that the health related toxic symptoms among farm workers, the symptoms related to skin and extremities reported by farm workers shows that, 65% reported skin rash, 52% reported itching burning sensation and 28% reported numbness of hands. The symptoms related to respiratory are 27% reported running nose, 13% reported irritation of throat, 12% reported dyspnea and 6% reported cough. The systemic symptoms reported by farm workers are 37% reported vomiting, 13% reported excessive salivation,8% reported Abdominal pain,7% reported excessive sweating,6% reported headache. The symptoms related to eye are 15% reported eye irritation, 13% reported blurred vision, 11% reported burning sensation, 9% reported redness in eyes and 5% reported lacrimation. The symptoms related to central nervous system are, 9% reported irritability,7% reported anxiety & 5% reported trembling of Hands .

Section IV: Association Between Practices and Health Related Toxic Symptoms of Pesticide use among Farm Workers

Table 5 shows that the association between practices and health related toxic symptoms of pesticide use among farm workers was found significant. Because the calculated chi-square values were less than the table value at the 0.05 level of significance.

Section V: Association Between Practices of Pesticide use among Farm Workers with Selected Socio-Demographic Variables

Table 6 shows that the association between level of practices of pesticide use among farm workers and demographic variables which was tested by using chi-square test. The result reveals that demographic variables such as Age, educational status, type of family, income of family, area of residence, Experience of working in farming, Experience of using pesticides in your farm, use of pesticides in a day, source of information was not found any significant association with level of practices of pesticide use among farm workers. Because the calculated chi-square values were less than the table value at the 0.05 level of significance.

Table 1.Frequency and Percentage Distribution of Demographic Variables

N=100

S. No.	Demographic Variable	Freq.(f)	Pct (%)
1.	**Age (in Years)**		
	31-40 yrs	35	35
	41-50 yrs	21	21
	≥51 yrs	44	44
2.	**Educational Status**		
	Illiterate	36	36
	Up to Priary	44	44
	Higher Secondary	14	14
	Graduation and Above	6	6

ISSN: 2348-2133
DOI: https://doi.org/10.24321/10.24321/2348.2133.202210

3.	**Type of Family**		
	Nuclear	65	65
	Joint	35	35
4.	**Income**		
	10000-15000	24	24
	15001-20000	16	16
	20001-25000	27	27
	>25001	33	33
5.	**Area of Residence**		
	Urban	20	20
	Rural	80	80
6.	**Experience in Farming**		
	1-3 yrs	18	18
	4-6 yrs	27	27
	7-10 yrs	38	38
	Above 10 yrs	17	17
7.	**Experience in Pesticide use**		
	1-3 yrs	17	17
	4-6 yrs	30	30
	7-10 yrs	43	43
	Above 10 yrs	10	10
8.	**Use Pesticides in a Day**		
	Once	45	45
	Twice	48	48
	Thrice	7	7
9.	**Source of Information**		
	Printed Media	14	14
	Agricultural Officer	32	32
	Pesticide Salesman	39	39
	Neighbors/ Friends	15	15

Table 2.Preparation and Storage Practices of Pesticides use among Farm Workers

N=100

S. No.	Items	Always 2	Some times 1	Ne-ver 0
	Preparation			
1.	Ensure whether the Pesticide is Recommended/ Banned	44	39	17
2.	Ensure label Claim (Recommended for use in that Crop)	42	39	19
3.	Wear Mask When Mixing Pesticide	18	57	25
4.	Wear Gloves When Mixing Pesticide	28	52	20
5.	Mix Various Pesticides to Increase Effectiveness/ Eradication of Weed and Pest	32	43	25
6.	Use Recommended Concentration of Pesticide	28	25	47
7.	Mix Pesticides Outdoor and in Well Ventilated Area	24	49	27
	Storage			
8.	Store Pesticides in any Area of House	33	38	29
9.	Store the Pesticide in Well-Ventilated Area	21	41	38
10.	Lock the Place Where Pesticides are Stored	14	59	27
11.	Store Dry Pesticides Separately From Liquid Pesticides	17	44	39
12.	Dispose Unwanted Pesticides Properly Rather than Storing them	29	47	24
13.	Read the Label for Specific Storage Instructions/ Precautions of Pesticides	37	38	25

Table 3.Practices of Usage During and After Spraying Pesticides by Farm Workers

N=100

S. No.	Items	Alw-ays 2	Some times 1	Never 0
	Usage During Spray			
1.	Wear Gloves While Spraying	28	64	8
2.	Wear Face Mask While Spraying	20	52	28
3.	Wear Protective Eye Cover While Spraying	43	40	17
4.	Wear Protective Long Sleeved Shirt and Long pant while Spraying	28	37	35

ISSN: 2348-2133
DOI: https://doi.org/10.24321/10.24321/2348.2133.202210

5.	Wear Chemical Resistant Footwear Plus Socks While Spraying	22	38	40
6.	Spray Pesticide During bad Weather	36	50	14
	Usage After Spraying			
7.	Remove Cloths Immediately, Which were Worn while Spraying	27	29	44
8.	Wash Cloths Immediately, which were Worn while Spraying	24	45	31
9.	Wash Hand and Face with Soap & Water After Spraying	9	60	31
10.	Take Shower Immediately After Spraying	30	37	33
11.	Dispose off unused Pesticide if any	34	53	13

Table 4.Frequency & Percentage Distribution of Level of Practice of Pesticides use among Farm Workers

N=100

Level of Practice	f	%	Mean	SD
Good Practice (33-48)	12	12	24.12	6.08
Average Practice (17-32)	79	79		
Poor Practice (0-16)	9	9		

Table 5.Association Between Practices and Health Related Toxic Symptoms of Pesticide use among Farm Workers

N=100

Level of Practice	Yes	No	df	Chi-Value	P-value
Good Practice (33-48)	5	4	2	6.52	0.039**
Average Practice (17-32)	68	12			
Poor Practice (0-16)	7	4			
*p<0.05 level of Significance **Significant					

Table 6.Frequency & Percentage Distribution of Health Related Toxic Symptoms of Pesticide use among Farm Workers

N=100

S.No.	Toxic Symtoms	Yes (f/%)
1.	**Skin and Extremities**	
	Skin Rash	65
	Itching Burning	52
	Numbness of Hands	28
2.	**Respiratory Symptoms**	
	Cough	6
	Running Nose	27
	Sneezing	0
	Dyspnea	12
	Irritation of Throat	13
3.	**Systemic Symptoms**	
	Excessive Sweating	7
	Headache	6
	Vomiting	37
	Excessive Salivation	13
	Abdominal Pain	8
4.	**Eye Symptoms**	
	Lacrimation	5
	Irritation	15
	Blurred Vision	13
	Burning	11
	Redness in eyes	9
5.	**Central Nervous System Symptoms**	
	Trembling of Hands	5
	Irritability	9
	Anxiety	7
	Memory Problems	0
6.	Any other (specify……	0

(Total no. of Yes=80 & Total no. of No=20)

Discussion

The results from the study reveals that 35% were in 31- 40 yrs of age, 21% were in 41-50 yrs of age and 44% were in above 50 yrs of age. According to educational status of farm workers, 36% of farm workers were illiterate, 44% had primary education, 14% had higher secondary education and 6% of farm workers had completed graduation. The

ISSN: 2348-2133
DOI: https://doi.org/10.24321/10.24321/2348.2133.202210

data on type of family of farm workers depicts that 65% were living in nuclear family and 35% of farm workers living in joint family. According to Family income status of farm workers the result shows that, 24% were having income of 10000-15000 Rupees,16% were having income of 15001-20000 Rupees, 27% were having income of 20001-25000,33% were having income above 25000 Rupees. In reference to area of residence of farm workers, 80% are residing in rural area and 20% are residing in urban area. The data on Experience of farming among farm workers reveals that 38% are farming for 7-10 yrs, 27% are farming for 4-6 yrs, 18% are farming for 1-3 yrs, and 17% are farming for above 10 yrs. In reference to Experience of pesticides usage of farm workers, the result shows that 43% are using pesticides for 7-10 yrs, 30% are using pesticides for 4-6 yrs, 17% are using pesticides for 1-3 yrs and 10% are using pesticides for above 10 yrs. The data on usage of pesticides by a farm workers in a day, 48% use twice a day 45% of farm workers use pesticides use once a day and 7% of farm workers use pesticides use thrice a day. In reference to source of information on use of pesticides among farm workers, 39% had information from pesticides salesman, 32% had got information from agricultural officer, 15% got information from neighbors and friends, 14% got information from printed media.

Objective 1: To Assess the Practices of Pesticide use among Farm Workers

The results from the study reveal that the level of practices of pesticides use among farm workers, 12% of farm workers had good practice, 79% had average practice and 9% of farm workers had poor practice regarding practices of pesticides use with an average mean and SD of 24.12±6.08. The preparation and storage practices of pesticides use among farm workers.

According to preparation, 44% always ensure whether the pesticide is Recommended/ Banned, 39% sometimes ensure whether the pesticide is Recommended/Banned and 17% never ensure whether the pesticide is Recommended/ Banned. 42% always ensure label claim (Recommended for use in that crop), 39% sometimes ensure label claim (Recommended for use in that crop), 19% never ensure label claim (Recommended for use in that crop). 18% always wear mask when mixing pesticide, 57% sometimes wear mask when mixing pesticide and 25% never wear mask when mixing pesticide. 28% always wear gloves when mixing pesticide, 52% sometimes wear gloves when mixing pesticide and 20% never wear gloves when mixing pesticide. 32% always mix various pesticides to increase effectiveness/ eradication of weed and pests,43% sometimes mix various pesticides to increase effectiveness/eradication of weed and pests and 25% never mix various pesticides to increase effectiveness/eradication of weed and pests. 28% always use recommended concentration of pesticide, 25% sometimes use recommended concentration of pesticide, 47% never use recommended concentration of pesticide. 24% always mix pesticides outdoor and in well ventilated area, 49% sometimes mix pesticides outdoor and in well ventilated area and 27% never mix pesticides outdoor and in well ventilated area. According to storage of pesticide use among farm workers, 33% always store pesticides in any area of house, 38% sometimes store pesticides in any area of house and 29% never store pesticides in any area of house. 21% always store the pesticide in well-ventilated area, 41% sometimes store the pesticide in well-ventilated area and 38% never store the pesticide in well-ventilated area. 14% always lock the place where pesticides are stored, 59% sometimes lock the place where pesticides are stored and 27% never lock the place where pesticides are stored. 17% always store dry pesticides separately from liquid pesticides, 44% sometimes store dry pesticides separately from liquid pesticides and 39% never store dry pesticides separately from liquid pesticides. 29% always Dispose unwanted pesticides properly rather than storing them., 47% sometimes Dispose unwanted pesticides properly rather than storing them. And 24% never Dispose unwanted pesticides properly rather than storing them. 37% always read the label for specific storage instructions/precautions of pesticides, 38% sometimes read the label for specific storage instructions/precautions of pesticides and 25% never read the label for specific storage instructions/ precautions of pesticides. The practices of usage during and after spraying pesticides by farm workers. According to usage of pesticide during spray, 28% always wear gloves while spraying, 64% sometimes wear gloves while spraying and 8% never wear gloves while spraying. 20% always wear face mask while spraying, 52% sometimes wear face mask while spraying and 28% never wear face mask while spraying. 43% always wear protective eye cover while spraying, 40% sometimes wear protective eye cover while spraying and 17% never wear protective eye cover while spraying. 28% always wear protective long sleeved shirt and long pant while spraying, 37% sometimes wear protective long sleeved shirt and long pant while spraying and 38% never wear protective long sleeved shirt and long pant while spraying. 22% always wear chemical resistant footwear plus socks while spraying, 38% sometimes wear chemical resistant footwear plus socks while spraying and 40% never wear chemical resistant footwear plus socks while spraying. 36% Always spray pesticides during bad weather, 50% sometimes spray pesticides during bad weather, 14% never spray pesticides during bad weather. According to usage after spraying, 27% always do not remove cloths immediately, which were worn while spraying, 29% sometimes do not remove cloths immediately, which were worn while spraying, 44% never do not remove cloths immediately, which were worn while spraying. 24%

ISSN: 2348-2133
DOI: https://doi.org/10.24321/10.24321/2348.2133.202210

always wash cloths immediately, which were worn while spraying, 45% sometimes wash cloths immediately, which were worn while spraying and 31% never wash cloths immediately, which were worn while spraying. 9% always wash hand and face with soap after spraying, 60% sometimes wash hand and face with soap after spraying and 31% never wash hand and face with soap after spraying. 30% always, take shower immediately after spraying, 37% sometimes take shower immediately after spraying and 33% never take shower immediately after spraying.34% always dispose off unused pesticides if any, 53% sometimes dispose off unused pesticides if any, 13% never dispose off unused pesticides if any. The study results are supported by Mekonnen Y, Agonafir T. 2017[65] conducted a study to assess the practices of pesticide usage among farmers in ethiopia. The findings of the study revealed that 68% had poor practice and 32% had good practices on use of pesticides among farmers.The study results are supported by Mustapha, Dawood.Awadh, Mohammed , Vimala, Binson 2017[11] conducted a study on Pesticide Practices among Farm Workers in Kuwait, among respondents who reported using PPE, less that 5% wore all the recommended six key PPE items (coveralls, protective boots, glasses/goggles, gloves, respirator, and hat). The PPE most often used were protective gloves (61%), hats (42%), and glasses/goggles (48%). A significant number of respondents reported not wearing respirators (70%), coveralls (68%), or protective boots (54%) at all. The majority of the farmers (59%) stored their pesticides in locked chemical stores designated only for pesticides. Respondents also stored their pesticides in open sheds just for pesticides (34%) and in the open field (30%). A worrying 15% of the farmers reported storing pesticides in an animal house, in a refrigerator with other items (8%), or within their living area (20%).82% of respondents reported that they apply the left over solution on other crops, disposed the solution in the field (35%), in the sewer (4%) or deliver the solution to the municipality hazardous waste collection sites for disposal (23%). Only 18% of respondents reported mixing only the amount of pesticides that is needed for the application at hand. The study results are also supported by Kaniz Fatima 2020[12] conducted a study to assess the practices and health related toxic symptoms of pesticides use among farm workers at selected village of amritsar, punjab. the result revealed that 13% of farm workers had good practice, 68% had average practice and 19% of farm workers had poor practice regarding practices of pesticides use. The results from the study reveal that the health related toxic symptoms among farm workers, the symptoms related to skin and extremities reported by farm workers shows that, 65% reported skin rash, 52% reported itching burning sensation and 28% reported numbness of hands. The symptoms related to respiratory are 27% reported running nose, 13% reported irritation of throat, 12% reported dyspnea and 6% reported cough. The systemic symptoms reported by farm workers are 37% reported vomiting, 13% reported excessive salivation, 8% reported Abdominal pain, 7% reported excessive sweating, 6% reported headache. The symptoms related to eye are 15% reported eye irritation, 13% reported blurred vision, 11% reported burning sensation, 9% reported redness in eyes and 5% reported lacrimation. The symptoms related to central nervous system are, 9% reported irritability, 7% reported anxiety & 5% reported trembling of Hands. The study results are supported by Rajesh 2018[13] conducted a descriptive study to assess the Adverse Health Effects Among Chronic Pesticide-Exposed Farm Workers in Sagar District of Madhya Pradesh, India. The study results showed that significant number of farmers experience health symptoms viz tingling (32.3%), muscle pain (51.6%), headache (56.5%), skin disease (19%), blurred vision (35.5%), tremor (23%), stress (24.2%), depression (15.3%), anxiety (44.7%), altered taste (21.4%), altered smell (31.4%), sleep disorder (39.5%), dizziness (66.1%), memory problems (29.4%), trouble in walking (8%), and cardiac problems (16.9%).

The study results are supported by Sapbamrer R. Nata S. (2014)[14] conducted a study to assess the health symptoms related to pesticide exposure and agricultural tasks among farmers in Kwan Phayao Lake northern thailand. The study results showed that farmers had experienced following health related symptoms such as lower acetylcholine activity, difficulty in breathing, chest pain, dry throat, cramps, cough, numbness, diarrhoea, increased anxiety, muscle weakness, headache, dizziness, epilepsy, balance problem, fatigue, eye irritation and rashes.

The results from the study reveal that the association between practices and health related toxic symptoms of pesticide use among farm workers which was tested by using chi-square test. The result shows (chi-square test value=6.52, df=2, p=0.039) indicates statistically significant association between practices on use of pesticides and health related toxic symptoms among farm worker. The study results are also supported by Garcia parron et al. 2016[15] conducted a study to investigate the association between occupational pesticide exposure and adverse health effects among agricultural workers in Almeria coastline (Southeastern Spain). The results showed that there is significant association between increased risk of ocular and skin signs and occupational exposure to pesticides among agricultural workers. Chi-square analysis revealed a strong association between the farmer's practice and reported toxicity symptoms ($p = .0001$; $\chi (2) = 498.2$; $df = 30$). Creating awareness about safe usage of pesticide is extremely vital by special orientation programs. Besides, promoting alternative pest control strategies such as use of bio pesticides and Integrated Pest Management (IPM) could

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be productive. The study results are also supported by Kaniz Fatima 2020[16] conducted a study to assess the practices and health related toxic symptoms of pesticides use among farm workers at selected village of amritsar, punjab. The findings of the study showed that the association between practices and health related toxic symptoms of pesticide use among farm workers which was tested by using chi-square test. The result shows (chi-square test value=9.933, df=2, p=0.006) indicates statistically significant association between practices on use of pesticides and health related toxic symptoms among farm workers.

The Association between level of practices of pesticide use among farm workers and demographic variables which was tested by using chi-square test. The result reveals that demographic variables such Age (p=0.474), ,educational status (p=0.526), type of family(p=0.395), , income of family (p=0.467), area of residence (p=0.486), Experience of working in farming (p=0.33), Experience of using pesticides in your farm (p=0.375), use of pesticides in a day (p=0.692), source of information (p=0.809), was not found any significant association with level of practices of pesticide use among farm workers.

The study results are supported by Kaniz Fatima 2019[16] conducted a Study to assess the practices and health related toxic symptoms of pesticide use among 100 farm workers at selected village, amritsar. The findings of the study showed the association between level of practices of pesticide use among farm workers and demographic variables which was tested by using chi-square test. The result reveals that demographic variables such as age (p=0.647), educational status (p=0.416), type of family (p=0.511), income of family (p=0.655),area of residence (p=0.940), duration of farming (p=0.602), duration of pesticides usage (p=0.434), use of pesticides in a day (p=0.993), and source of information (p=0.951), was not found any significant association with level of practices of pesticide use among farm workers.

Conclusion

The findings of the study shows that 12% of farm workers had good practice, 79% had average practice and 9% of farm workers had poor practice regarding practices of pesticides use. The health related toxic symptoms among farm workers had reported that, 65% reported skin rash, 52% reported itching, 28% reported burning sensation. The study concludes that farm workers had average practices on preparation, storage and usage of pesticides which can be improved by creating an awareness among farm workers. The education among farm workers regarding safe practices on use of pesticides can help them to prevent health hazards of pesticide use and able to prevent the skin diseases.

Limitations

- Samples were only selected from Nowpora Kalan, Baramulla Kashmir and small number of sample limits the generalization of the study
- Use of self structured interview restricts the amount of information that could be collected from the respondents
- The study was limited to 100 samples only
- The study was limited to 6 weeks period only
- Non- standardized tool was used for this study

Recommendations

- The study can be conducted to assess the knowledge of safe practices among farm workers
- A study can be conducted to evaluate the effectiveness of the planned teaching programme on practices of pesticide use
- A study can be done to assess the knowledge and attitude regarding pesticide use among farm workers
- A comparative study carried out between practices and health related toxic symptoms of pesticide use among farm workers
- Similar study can be conducted in an other setting
- An observational study on practices of actual pesticide among farm workers should be carried out

Sources of Funding: None

Conflicts of Interest: None

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