

## A Study on Block Printing Workers of Rajasthan

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### ABSTRACT

*The impact of the textile industry on the environment and the consumption of raw materials and natural resources are becoming prime concerns. Due to the German ban on synthetic dyes because of their carcinogenic, pollutant and non-biodegradable nature; the attention has shifted to the use of natural dyes. India, since ancient times is known for its unique arts and crafts. One of the earliest techniques used to colour fabric was printing with a block printing. One of the most popular form of hand printing is - block printing. Printing is the process of applying colour to fabric in definite patterns or designs. It is also known as localized application of dye or pigment in thickened form to a substrate to create an attractive design with well defined boundaries. The objective of present study is to find out about the dyes, binders, thickeners used by block printers and physical problems faced by them. For this purpose twenty respondents were purposively selected and structured interview schedule was used for data collection. The results reveals that majority of the respondents were using the synthetic dyes and thickeners and facing the health problems related to skin followed by breathing and back ache.*

**Key words:** Textile printing, Fabric, Handcrafts, Coloured design

### INTRODUCTION

Textile printing of colored design on the fabric is an ancient art. Textile printing is one of the oldest handcrafts. The intrinsic beauty of textile is enhanced by surface ornamentation with multi colored effect. This ornamentation in fabric can be achieved by various methods of which dyeing & printing are the most popular and are more extensively used. Textile printing is the production of attractive design with well defined boundaries made of the artistic arrangement of a motif in one or more

colour. Printing of textile is simplest and often and also the cheapest method of producing multi coloured design. The design is produced by local application of dye hence; it is independent of style making fabric. The most common approach of applying colour pattern in direct printing style dye is applied to the fabric in paste form with the help of block. Block printing on fabric is a wonderful way to improve the look of fabric and to make any sort of pattern that suits our needs.

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Block printing was originated in 1907. Block printing is a manual method of applying color locally, fundamentally it is stenciling. It is a most widely practiced method of hand printing. Block printing process done after weaving. The block printing process has multiple steps, starting with the process of creating the block. The objective of present study was to study process, thickeners and dyes used for block printing and to find out the physical problems faced by the printers.

### MATERIAL AND METHODS

The present study was conducted in Jaipur. Thirty Craftsmen were purposively selected for the present study. These were working with block printing from last ten to fifteen years. A structured questionnaire and interview method was used to generate information on self-reported problems faced by him. Critical examination of work place was also done to know about the work environment. Data were analyzed using frequency and percentage.

### Personal profile of the block printing workers:

The data in table shows that slightly more than half of the respondents (56.7%) were in age group of 31-40 years, as far as caste, 43.33 per cent of them were from general category. Regarding family structure majority of them were from nuclear family (66,67%). Further, 80 per cent of respondents had medium family size, 20 per cent of respondents had small family and none of the respondents had large family. Sixty per cent were educated up to higher Secondary, 60 per cent respondents monthly income ranged between Rs. 5000-10,000 per month and 30 per cent earned more than Rs 10,000-20000 per month. Sixty per cent of the respondents were doing block printing as their family occupation and 30 per cent respondents were also doing service along with block printing. Regarding the approximate time spent for doing block printing it was found that 60 % respondents spent 8-10 hour in a day and 40 per cent respondents work 7-8 hour per day with block.

**Table 1: Personal profile of the respondents**

**N=30**

S. No.	Aspects	Categories	No of Respondents	
			Frequency	Percentage
1	Age (in years)	31-40	17	56.7
		41 -50	13	43.33
2	Caste	SC/ST	08	26.67
		Backward OBC)	09	30
		General	13	43.33
3.	Family Type	Nuclear	20	66.67
		Joint	10	33.33
	Family Size	Small (up to 4 members)	06	20
		Medium (5-8 members)	24	80
4.	Education	up to Primary	-	-
		up to Middle	-	-
		up to metric	12	40
		Higher secondary	18	60
5.	Monthly Income (Rs.)	up to 5000	03	10
		5000-10000	18	60
		10000-20000	09	30
6.	Family occupation	Printing	18	60
		Farming	03	10
		Services	09	30
7	Duration (hrs/day)	8-10hours	18	60
		6-8 hours	12	40

**Specific Information:**

**Dyes used** Table 2 shows that 70 per cent respondents used chemical color and rest 30 per cent respondents used natural as well as synthetic color for block printing. Reasons for less use of natural dye for block printing were laborious process of preparation, difficulty in obtaining same shade and time consuming

process. Due to easy availability increased number of fast and luminous chemical dyes. While some of the colours that are not possible to produce by natural means, were produced through the synthetic dyes. Reasons reported for the use of synthetic dyes are due to convenience of use and diversity of colours.

**Table 2: Dye used by the respondents N=30**

Dyes used	Frequency	Percentage
Synthetic (chemical)	21	70
Natural + Synthetic	09	30

Various classes of dyes are used in block printing. The choice of the dye depends on the kind of the fabric used. Reactive and vat dye is used for cellulosic.

**Type of thickening agents used for the printing at your unit** Thickening agent is

necessary for the printing paste because it makes thick to the printing paste, so that when applied on fabric it does not spread. When printing completed thickening agent is removed for better appearance.

**Table 3: Type of thickening agents used by the respondents N=30**

Thickening Agent	Frequency	Percentage
Gum Acacia	-	-
Guar Gum	04	10
Rice Starch	2	-
Synthetic Binders (Poly Vinyl Alcohol)	30	100

Table clearly shows that hundred percent respondents used Synthetic binders, 12 per cent respondents used Guar gum for the printing and none of the respondents used Gum acacia and rice starch as thickening agents. Reasons for using synthetic binders is

easy availability and could be reused next day but natural thickening agents needs to be prepared daily and cannot be reused on another day.

**Mode of procurement thickening agents for printing-**

**Table 4: Mode of procurement of thickening agents N=30**

S.no.	Place	Frequency	Percentage
1	Local market	10	30
2	Own preparation	05	20
3	Chemical firms	18	50
4	Textile auxiliary firms	01	-

The data regarding mode of procurement of thickening agent has been depicted in table. It was found half of the respondents procured thickening agent from chemical firms, while 30 per cent respondents got these from local market and 19 per cent respondents prepared it at own shop. Printing and then the unwanted paste ingredients can be removed. For this appropriate thickening

**and Printing:** - Data collection observed that each respondent used the same procedure which has been described below-

Block printing allows a pattern to be accurately repeated on a fabric, giving clean edges to work. The blocks were prepared wooden. Delicate designs cannot be obtained from wooden block printing. Then these blocks were used for printing the different fashion

apparels. In manual block printing the fabric to be printed is laid on a long table. The design to be printed by the block and the space in the block not covered by the design is covered with an impermeable membrane so that the coloring material can only pass through that part of the design which is to be in one colour. A thick paste containing the colour (dye or pigment) prevents migration of the colour and the paste holds the colour till it is fixed after agents are used which increase the viscosity of the paste. The printing paste is pressed through the block with the help of a device having a blocks, jute fabric, try b applying the pressure downward at an angle of 40-65°. . The block is moved and the process repeated. The different colour block follow and thus the whole length of the fabric is printed. The printed fashion apparels were dried in sun light after printing, as sunlight is necessary for the development of rapid fast color by oxidation.

#### STEPS OF PRINTING

1. Preparation of the fabric
2. Preparation of the printing paste.
3. Printing the fabric.
4. Drying the printed fabric.
5. Fixation of the printed dye or pigment.
6. After washing.

#### Natural substances used for producing dyes

**Respondents** who were using natural dyes for block printing reported that it is their trade secrets and inability to give printing recipe. But whatever information collected is documented below

#### For Black Color

##### Ingredients used:

- Earthen pot -1
- Rusted nails - 250 gm.

- Jaggery (country sugar) - 1 kg.
- Water-10 lt.

##### Method:

1. Mix all ingredients in the earthen pot after that the mouth of the pot closed with cloth for 25 days.
2. After 20 days add the Guar Gum in it, stirring constantly and the quantity of the guar gum depends on as per the requirement of the paste.
3. Leave this mixture for half an hour, then used it for printing.

#### For Mahroon color:

##### Ingredients:

- Alizarin-15 gm
- Alum Powder-75 gm
- Guar Gum- as per requirement
- Warm water -600 ml
- Cold Water- 100 ml.
- Red color- 1 pinch

##### Method:

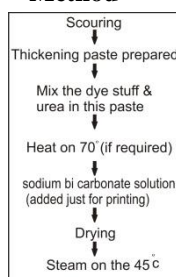
1. Take 600 ml. warm water, add alum powder in it.
2. After that make a Pouch of Alizarin and mix into 100 ml. cold water.
3. Red color mix into the alum water than mix Guar Gum in this mixture.
4. Leave this mixture for half an hour, than use it for printing.

#### Chemical/Synthetic substances used for block printing

##### Ingredients

- Procin dye- 3 gm.  
Urea- 3 gm.  
Warm water -23 ml.  
Thickening agent- 65 gm.  
Sodium bi carbonate- 6 gm.

#### Method



Flow chart showing block printing with chemical Assessment the color fastness of the printed samples

Table 5: Assessment of color fastness N=3

Technique	Frequency	Percentage
Washing	15	50
Rubbing	08	26.67
Sun light	15	50
Perspiration	-	-

Table shows that half of the respondents used to check the washing and sunlight fastness to assess the colorfastness of the printed fabric. None of the respondents checked fastness towards perspiration.

#### Health Problems faced by the respondents:

The researcher tried to identify the health problems faced by respondents. 66.67 per cent respondents revealed that problem of itching, cracks in skin and dry skin while repeatedly

working with chemical colors. 40 percent respondents faced nausea and breathing problem. Other problems were back pain (26.67%) may be due to working in same posture for long duration and eye irritation (10%). It was also observed during informal discussion that after doing block printing respondents takes the break and wash the hand with sprit or kerosene which may be one of the reason for dry skin and cracks in the skin.

**Table 6: Distribution of the respondents is by of Problems faced**

(N=30)

S.no.	Physical Problem	Respondents	
		Frequency	Percentage
1.	Eye irritation	03	10
2.	Itching	20	66.67
3.	Cracks in skin	20	66.67
4.	Dry skin	20	66.67
5.	Back pain	08	26.67
6.	Nausea	12	40
7.	Breathing problem	12	40

Information about the use of protective clothing and accessories used was also collected and it was found that none of the respondents were using the apron, hand gloves or mask for protection.

#### CONCLUSION

The results highlighted the fact that majority of block printers were using synthetic dye and thickeners. Very few were using the natural dyes and binders. Natural dyes and binders were used to fulfill the export orders only. Results further reveals that due to faulty posture while working in the printing units workers without the use of protective clothing resulted in various types of physical health hazards. The major problems faced by the workers related to skin itching, cracks in skin

and dry skin to the exposure of chemicals. Hence to need arise to generate awareness of common health hazards among block printers to take precautions and safety measures at work place.

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