

# Aging Behaviour of Narayanapet Sarees Used for Daily Wear - A Review

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## Abstract

Narayanapet sarees are known for their everyday usage, lightweight, and traditional significance. However, the quality of these sarees may eventually deteriorate with repeated washings and constant wear. The primary focus of this review paper is the evaluation of Narayanapet sarees under daily wear. It encompasses a range of factors that influencing fabric composition, wearing structure, dye quality and care techniques. This paper also examine common issues like color fading, reduction in fabric strength and change in textile that occur with prolonged use. In addition, it highlight how daily wear condition can speed up the aging process, improve the overall durability of the sarees and possible way to improve the life of these sarees. Understanding these aspects important to maintain the quality of traditional textile and support their long - term use.

## Keywords

Narayanapet sarees, Aging behaviour, Daily Wear, Fabric Durability, Textile Care, Sustainability.

## 1. Introduction

Handloom textile of India are an important part of India culture and sustainable practices. Narayanapet sarees are produced by traditional weaving techniques. Narayanapet sarees has the most unique and exclusive process of weaving where the loom has the capacity of producing 8 sarees at a time. This saree is consist of 3 parts, 1.Body , 2.Pallu and 3.The Boarder which consist of cotton, silk or both mix. The pure cotton saree has 6.20 meters length with attached blouse, 5.5 meters without the blouse. Its width is generally about 46 inches. In case of silk saree, and mix of cotton and silk saree the length is 6 meters, body of the saree is 5.4 meters, and the pallu is about 0.6 meters (Narayanapet sarees).

Traditionally this sarees comes in three ways, one is pure silk saree having both warp and weft of silk, the another one is cotton weft threads locked into warp silk and the another one is cotton pure cotton saree. The patti (stripes) boarder and a broad pallu known as top- tinni pallu are influenced by the style evolved in Maharashtra. The length of the saree boarder is to the entire length of the saree is 3 to 5.5 inches. It is measured from outer end of the saree to the inner length of the saree. The boarder is placed at the both side of the saree through the entire length of the saree.

The unique feature of this sarees is having checks at the body, The pallu and boarder have zari work, The temple design at the boarder which is present in all the silk saree is the another feature. The presence of temple design is not compulsory for the cotton sarees. The presence of arrow heads in the pallu in silk saree, which is not present in the cotton saree is another unique feature. This sarees are worn by women's of all age group in all the seasons for different kind of occasions due to the comfort and durability of the sarees (Handloom sarees from India, Narayanapet saree).

However textile aging caused by repeated mechanical stress, laundering, repeated washing, exposure to sunlight and atmospheric conditions led to progressive aging, appearance and effecting fabric strength.

This textile aging refers to the chemical and structural changes occurred over time which include colour fading, surface damage and fabric weakening. These understanding helps in preserving the traditional sarees.

## 2. Historical Overview of Narayanapet sarees

Narayanapet sarees are made in Telangana. The Narayanapet saree origin is traced back around 1630 AD. The Narayanapet region was ruled under the Maratha King, Chatrapati Shivaji Maharaj during this period. It is believed that during Chatrapati Shivaji Maharaj southern campaigns, The king travelled to Narayanapet region, he camped there for a while and he continued his journey. While he continued his journey some of the weavers stayed behind the Narayanapet, while the rest moved on. This artisans are settled down in the town and began the business of weaving. This sarees reflects interaction of two culture- Maharashtra and Telangana (Saree weaving Narayanapet. 2025; Telangana Tourism. 2023, Narayanapet Cotton Saree).

This traditional weaving method produces mechanical properties of the fabric and influences aging differences from machine- made textiles (Rao, A and Greeshma, S. 2023). Handloom Narayanapet saree is begin dyeing of silk/ cotton yarns. The dyeing is the process where the yarns are dipped into the boiled coloured water at the high temperature. This process ensures to spread and observe the colour properly to the yarns while unaffected the quality of the yarns during used. The process of colouring is the crucial step in the saree making process. The yarns are dried under the shade not under the sunlight. The dyed and dried yarn is then loaded into the loom for the (Government of Telangana. 2026; A Rich weaving tradition. 2017).

## 3. Factors affecting the life of Narayanapet saree

### 3.1 Manufacturing process

The production process of narayanapet saree is unique. The production process consist of the following steps:

**3.1.1 Materials used:** Cotton, Silk and Gold zari are used as the raw materials in thebNarayanapet sarees. Here the yarns are woven with cotton or silk yarns. In case of both mix yarns the warp is pure silk yarns and the weft is pure cotton yarn with zari work. The thread count of cotton yarn is 80s which is combed cotton yarn with finest quality (Kekkar, K. 2017; Narayanapet sarees).

**3.1.2 Raw material procurement:** The cotton is obtained from the locally nearby spinning mills in Vijayawada and nearby localities. The silk yarn was brought from Bangalore. The twisted silk yarn of thickness 28/20 is used. The gold zari was obtained from the Surat which is more famous for zari making in India.

**3.1.3 Procedure of cotton saree:** The first process is sizing. The sizing was done by only hand. In the gumming process the cotton yarn is dipped in starch, removed and dried it in the sunlight or in the shade till 4 to 5 hours. Then the cotton yarns was dyed using the synthetic dyes. The dyeing was done around 30 to 60 min. The dyed cotton yarn was twisted to remove the excess water then it was places in a container or in open air to dry the cotton yarns till 12 hours to observe the dye better to the cotton yarn. The dried yarn is winded on the bobbins. The warping beam make ready to fix on the loom. Here the weaving process was done in the pre set loom. A dobby is used for the weaving of border where the cotton and zari is wound in the dobby. For the pallu design the zari is used in the shuttle. 45 to 60 sarees are made in one weave

depending on the measurements used in the loom. Finally the sarees was cut and packed for the marketing (Kekkar, K. 2017; Narayanapet sarees).

### 3.1.4 Production of silk saree:

The weaving of the silk saree is almost similar, but one different is the there is no sizing was done. Instead of that degumming process was done. In this process raw silk is boiled in caustic soda to remove the natural gum from the silk and make the silk soft and smooth which makes suitable for weaving. Then for the pallu the tie and dye was only done then the remaining production process is similar as the cotton sarees (Kekkar, K. 2017; Narayanapet sarees).

### 3.2 Mechanical Durability and Wear Performance

The daily worn saree creases mechanical stress such as bending, stretching, friction. The areas with pleats are repeated folding and unfolding. This creates mechanical stress. Because of repeated stress the yarn become weak over time, micro-cracks start forming inside fibers, eventually fabric may loss the strength or show damage. Abrasion caused by movement will decreases the fabric thickness (Atalie. D, et al. 2019).

### 3.3 Hand loom weaving and durability

Tightly interlocking yarns was created by handloom weaving that improves mechanical stability. This yarns are closed packed together to increase resistance to tearing and abrasion. The border yarn and body yarns are tightly interlocked during weaving which stay in place, not move easily, prevents yarn shifting during regular wear, the border maintain its shape even after repeated use.

### 3.4 Laundering Effects on Aging

Frequently washing of sarees creates aging factor. Laundering causes fabric mechanical damage and fiber swelling to microfibrils (Salokhe. S, et al. 2023).

Sunlight drying causes UV damage, whereas shade drying helps in preserving fabric strength (Saravanan, D. 2007). Detergents removes the impurities on the surface but also weaken the fibre bonds overtime.

### 3.5 Colour Aging and Dye Degradation

For the daily use sarees colour fading is one of the most aging characteristic. Reactive dyes bond chemically with the fibres but gradually after washing, sunlight exposure and preservation led to degrade (Broadbent, A. D. 2001). Ultraviolet radiation breaks dye molucules, causing fading and dullness (Christie, R M. 2015; Zollinger, H. 2003).

Research on natural dyes shows that external environmental condition strongly effect how long the colour stays bright and stable on fabric (Gulrajani, M, L. (2013). Water quality and detergent influence dye colour fastness and stability (Clark, M (2011; Shore, J. 2002).

### 3.6 Cotton Fiber Structure

Cotton fiber are made up of cellulose polymers which are arranged in two types: crystalline and amorphous regions. Crystalline regions the cellulose molecules are closely packed and well organized. It gives strength and durability. Where as in amorphous region the molecules are loosely arranged and less organized, this makes the fiber more flexible, and helps cotton absorb moisture and dyes easily (Awais. H et al. 2021). Overtime, hydrolysis breaks the long chain and oxidation occurs when oxygen and environmental factors like sunlight and air causes chemical changes in the fibre (Krifa, M. and Stewart Stevens, S. 2016).

### 3.7 Silk Border Composition

The silk fibers used in saree borders are made of protein fiber, which are made of cellulose. When the silk is exposed to the UV radiation (sunlight) the photochemical reactions occur. This reaction breakdown the protein chain inside the silk fibre. The silk become stiff, natural shine or luster of silk reduces, fibre becomes weaker over time (Gong, Y. et al. 2024).

### 3.8 Environmental Factors Affecting Ageing

Environmental factors such as temperature, humidity and pollution can causes the textile degradation. Tropical region can make the fabrics or materials age faster due to heat, temperature and UV exposure (Slater, K 2003, Biermaier ,C et al. 2021).

High Humidity provides microbial growth which weakening cellulose fibres (Wei, Y et al. 2024). Ultraviolet radiation breakdown the dye molecules, causes dullness and fading (Ramamoorthy, S K et al. 2018)

## 4. Maintenance Practices and sustainability

Proper maintenance will increase the lifespan of textile. Gentle washing reduces the mechanical stress, while drying fabrics away from direct sunlight prevent photo degradation (Saha, B et al. 2024; Gharami, S et al. 2025). strong in breathable material reduces moisture damage.

Extending the lifespan of handloom textiles helps in sustainable fashion nd reduces environmental impact Blackburn, R. 2009; Rebecca, R and Kachru,T. 2025).

## 5. Conclusion

The ageing behaviour of Narayanapet sarees undergo mainly by fibre properties weaving structure, environmental exposure, dyeing technique, dye fading and maintenance practices. Continuous washing, wear and environmental exposure lead to damage the fabric, reduce colour fading and fabric strength. improving dye fixation techniques to reduce colour fading, reinforcing high - stress areas during weaving, minimizing fibre degradation by applying protective finishes. User awareness among proper washing can expand the life span (Ministry of Textiles. 2025).

Understanding the ageing behaviour of Narayanapet sarees helps preserve traditional textiles while promoting sustainable fashion practices along with cultural heritage conservation. Further research helps in develop better preservation techniques and support traditional handloom textiles.

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