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Effects of Cutting Interlining Direction on the Quality of Saudi Thobe Manufacturing

تأثير اتجاه قص أقمشة الحشو على جودة تصنيع الثوب السعودي.

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Abstract: It is considered that the men's Thobe industry is one of the industries that gained considerable attention as increasing the speed of technological development in the industrial machines for the production of textile kinds of fabrics suitable for the Saudi Thobe industry supplies production and the owner of this development a significant increase in the level of quality, Which has now become the main requirement in garment manufacturing operations in general, Saudi Thobe collar plays a major role in the appearance and quality of the Thobe, It affects the aesthetic and functional form of the Saudi Thobe and is affected by the repetition of washing cycles and therefore the fabrics are the fillers of the basic components of the clothing which gives the collar distinctive appearance

Prompting the producers of interlining to develop their products according to modern textile materials, and as a result there is a large number of materials and raw materials available in the markets.

The research aims to study the effect of the difference in the direction of cutting the interlining on the quality of the Saudi Thobe production, also effect of the number of washing cycles on the appearance of the Thobe collar.

The difference in the direction of cutting the collar Interlining has an effect on the quality of the production of the Saudi thobe collar before washing, after 10 washing cycles and 20 washing cycles

The most important search results find that the cutting angle No. (2) is the highest in the average Percentages with a washing cycle repetition followed by the first and then third cutting angle, and the most important recommendations of the research were the interest of specialists in research and studies on the quality of Saudi thobe manufacturing processes.

المخلص: تعتبر صناعة الثوب الرجالي من الصناعات التي نالت اهتماماً كبيراً، حيث تزايدت سرعة التطور التكنولوجي في آلات الصناعة النسيجية لإنتاج أنواع من الأقمشة تناسب صناعة الثوب السعودي ومستلزمات إنتاجه وصاحب هذا التطور ارتفاع كبير في مستوى الجودة والتي أصبحت الآن هي المطلب الرئيسي في عمليات تصنيع الملابس بشكل عام، وتلعب ياقة الثوب السعودي دوراً رئيسياً وهاماً في مظهر وجودة الثوب، وتؤثر في الشكل الجمالي والوظيفي للثوب السعودي وتتأثر بتكرار مرات الغسيل وعلى ذلك تعتبر أقمشة الحشو من المكونات الأساسية للملبس وهي التي تعطي الباقة مظهرها المميز مما دفع منتجي خامات التقوية (الحشو) لتطوير منتجاتهم وتحسينها لتتماشى مع الأنواع الحديثة والمتعددة من الخامات النسيجية المختلفة ونتيجة لذلك يوجد عدد كبير من مواد وخامات التقوية المتاحة في الأسواق.

ويهدف البحث إلى دراسة تأثير اختلاف اتجاه قص أقمشة الحشو على جودة إنتاج الثوب السعودي، وأيضاً وجود تأثير عدد مرات الغسيل على مظهرية ياقة الثوب ويفترض البحث وجود تأثير في اختلاف اتجاه قص أقمشة الحشو على جودة إنتاج الثوب السعودي قبل الغسيل وبعد 10 مرات غسيل و20 مرة غسيل، وكانت أهم نتائج البحث حققت زاوية القص رقم 2 أفضل مستوى في متوسط التقييم مع تكرار مرات الغسيل يليها زاوية القص رقم 1 وفي الأخير زاوية القص رقم 3، وكانت أهم توصيات البحث اهتمام المختصين بالبحوث والدراسات حول جودة عمليات تصنيع الثوب السعودي.

INTRODUCTION

The garment and textile industry is considered one of the oldest industries known to man, which was associated with his presence on the surface of the earth and accompanied man in successive historical eras. Conditions and weather factors in addition to the clothing's link to social customs and traditions that distinguish peoples and among those clothes that characterize men in the Arab Gulf region in general and the Saudi society in particular the garment

The men's Thobe industry in the Kingdom of Saudi Arabia requires a high level of quality, as men's Thobe is considered one of the Kingdom's national costumes, and ranks first among men's and youth clothing. The Thobe can be worn on most occasions and in various summer and winter weathers, and with the modern development in machines, threads and designs, it has become convenient for every aspect of daily life from work to rest and occasions. So it is necessary to identify the standards that affect the quality of the garment industry, in order for the Kingdom to become a leader in the Thobe industry and meet the needs of the local market and export to Arab markets.

Where the Thobe is an official men's dress for all the Saudi people, but the general shape of the dress appears in the form of a long shirt, which is a complete garment that starts from the neck to the soles of the feet and covers almost the entire body or the sleeves and connects to the wrists of the hands.

It is considered the men's Thobe industry of industries that gained considerable attention as increasing the speed of technological development in the industrial machines for the production of textile kinds of fabrics suitable for the Saudi Thobe industry supplies production and the owner of this development a significant increase in the level of quality.

Thobe collar plays a major role in the appearance and quality of the dress, and therefore the fabrics are the fillers of the basic components of the clothing which gives the collar distinctive appearance

Prompting the producers of interlining to develop their products according to modern textile materials, and as a result there are a large number of materials and raw materials available in the markets.

STATEMENT OF THE PROBLEM

The problem of the research is to determine the best direction for cutting the Saudi thobe collar Interlining that can achieve the best appearance of the Saudi thobe with repeated washing cycles.

OBJECTIVES OF THE RESEARCH

- Knowing the types of interlining used in the manufacture of the Saudi thobe
- Determining the best direction for cutting the Saudi thobe collar interlining.
- Study the effect of the number of washing cycles on the appearance of the Saudi thobe collar.

RESEARCH HYPOTHESES

The difference in the direction of cutting the collar interlining has an effect on the quality of the production of the Saudi thobe collar before washing, after 10 washing cycles, and after 20 washing cycles.

RESEARCH METHODOLOGY

The research follows the semi-experimental approach in terms of its suitability to study the research's objectives, through preparing the collars of the garment using the three-way cutting of the interlining fabrics as well as measuring the appearance and quality of collars before and after washing.

RESEARCH TOOLS

Questionnaire to evaluate the appearance and quality of collars before and after washing according to AATCC 88B.

LITERATURE REVIEW

Men's Thobe parts

The men's Thobe consists of the following parts:

- Collar
- Chest Pocket
- Sleeves

- Side Pocket
- Body Front
- Body Back
- Albaniq (البنيقة)
- Khushtaq (خشتق)
- Yoke line
- Placket

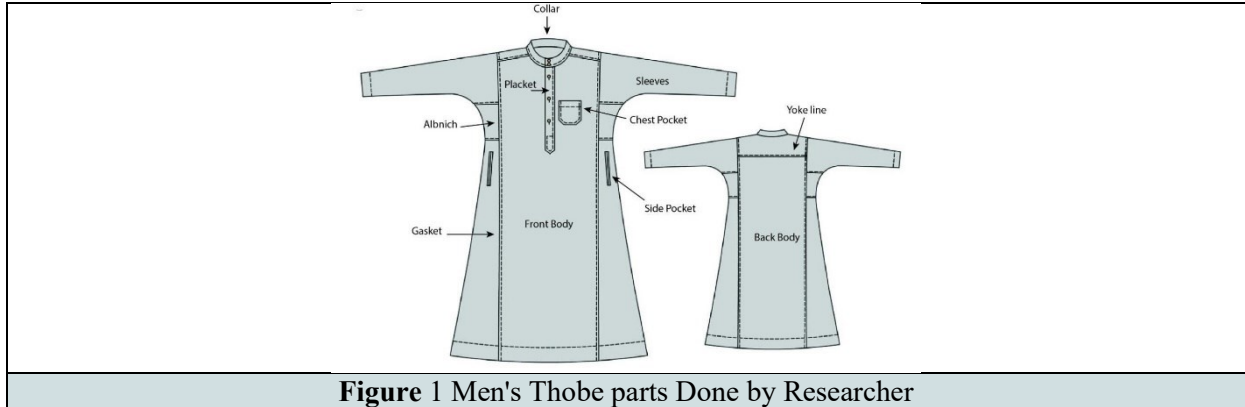


Figure 1 Men's Thobe parts Done by Researcher

Collars

A collar encircles the neck opening, and may be developed close to or away from the neckline. They may be wide, narrow, flat, or high and with or without an attached stand.

The collar is also what is worn or fastened around the neck in particular, and its materials and shapes vary in different times, and both men and women wear it to complement or end the neck opening in the costume.

The design of the collar is one of the most important details of the design lines of the men's thobe, as a well-made collar surrounds the neck without any wrinkles or taut parts and maintains its appearance with repeated cleaning operations.

Stand collars are started from the neckline and go up without laying on the shoulders (Ivanova, 2020).

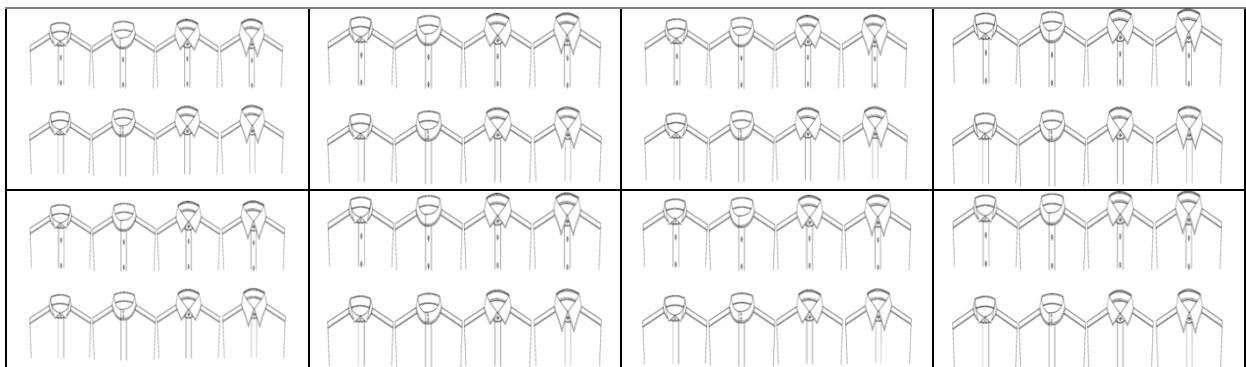
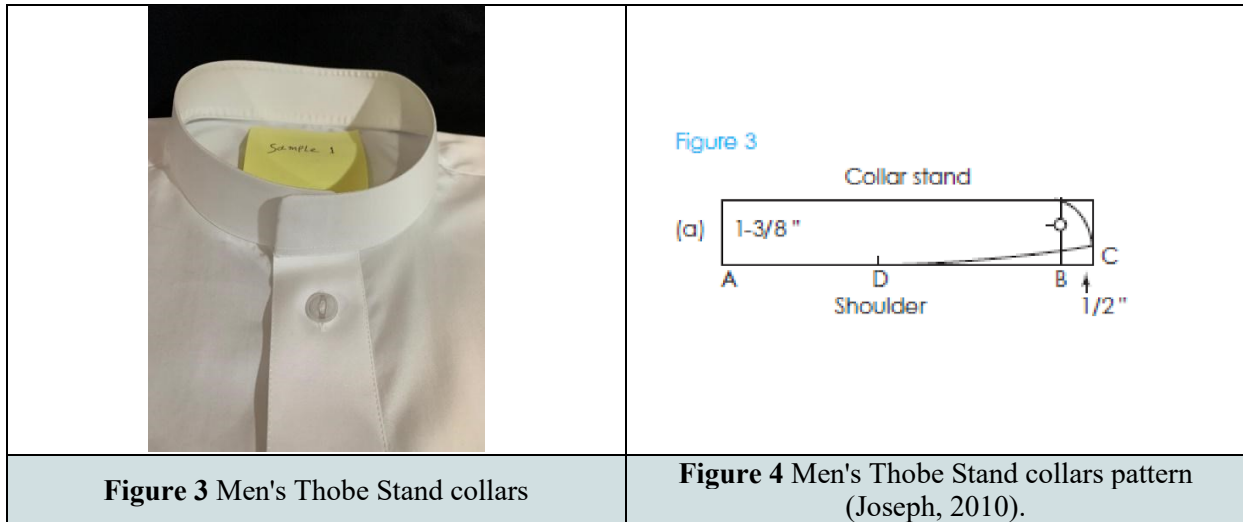


Figure 2 Thobe collar Done by Researcher



Fabrics used in the manufacture of Saudi thobe:

The dress is considered one of the basic pieces of clothing for men's clothing in the Arabian Gulf, which varies in its design lines, colors, and materials, so choosing the fabrics from which the garment is made and the reinforcing materials that give a good appearance are among the most important factors that are taken into consideration when manufacturing the Saudi dress.

The fabrics used in the manufacture of the thobe are divided into:

1. Cotton fabrics
2. Polyester fabrics
3. Blended fabrics

Interlining fabrics:

Interlining is a layer of fabric inserted between the shell fabric and the lining of a garment to give clothing a suitable appearance and stability. It has a long history and exists in diverse forms based on its substrate and application. The most well-known and widely used interlinings are fusible interlinings (Zhang and Kan, 2018).

using interlining to support, reinforce and control areas of garments and to retain actual shape of the garment component, to make the particular component beautiful, strong and attractive, to give a better hand feel and better performance.

Types of Interlining

Interlining materials developed in terms of their types and characteristics, and difference in thickness and weight depending on their source, method of manufacture, or the method used for fixing them. The Parks Carol and Podolk, as against the Cecelia differed in the way stiffening materials were classified as follows:

Production method

- Woven interlining
- Non-woven interlining

- Knit interlining (Parks, 1996).

Installation method

- Fusible interlining
- Non-fusible interlining

Factors that control the quality of paste interlining:

Fusible interlining attached with the garment component by fusing resin applying heat and pressure for a certain time; the resin provides the desired bond.

Advantages of Fusible Interlining

1. Influence of the Temperature.
2. Influence of the Fusing Pressure.
3. Influence of Fusing Time.
4. Influence of Air and Moisture.
5. Influence of the Fuzziness of Textile Fabrics.
6. The Stiffness of Garment Assemblies.
7. The Importance of Cooling.

APPLIED STUDY

The applied study went through steps that help in achieving the research objectives, as follows:

SPECIFICATIONS OF THE FABRICS USED

THOBE FABRIC SPECIFICATIONS

- width 148 cm
- fabric material 100% cotton
- plain weave 1/1
- weight / square meter 130 g/m²

INTERLINING FABRICS SPECIFICATION

- Width 111 cm
- Interlining material 100% cotton
- weight / square meter is 185 g/m²

SAMPLES

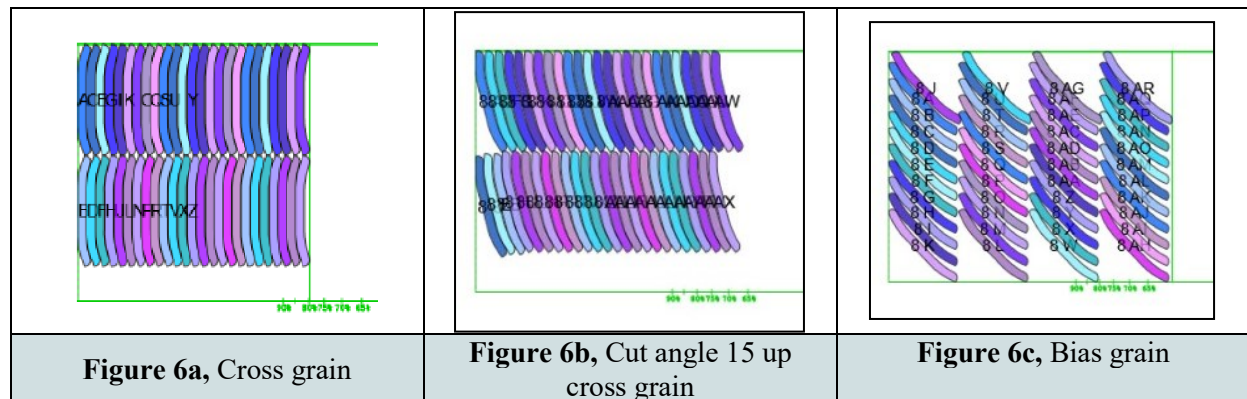
Prepare 9 samples for a Thobe Stand collars, and the woven interlining are cut with three different cutting angles, which are:

1. Cross grain

2. Cut angle 15 up cross grain
3. Bias grain

The Figures 6 "a, b, c" show the placement of the collar pattern on the interlining width 111 cm according to different cutting angles

- a. Length:1.07m utilization: 80%
- b. Length:1.28m utilization: 66%
- c. Length:1.43m utilization: 52%



WASHING PROCESS

Conducting laboratory tests to measure the effect of washing operations on the appearance and quality of collars before and after washing according to the household washing specification, using Standard specification for Dimensional Stability in Washing and Drying (ISO 5077 / BS EN ISO 6330 / ISO 3759 / AATCC 135 / AATCC 150)

RESEARCH RESULTS

Through the research tools and applied study steps, a set of results was reached after presentation of the samples produced to a group of specialists and calculating the Questionnaire answers to evaluate the appearance and quality of collars before and after washing. Table 1 presents the average percentages of the seven evaluation points for the different cutting angles before washing, after 10 washing cycles, and 20 washing cycles. The items were:

A difference in the collar grain line, The occurrence of loosening in the interlining collar wrinkle, stitch puckering, stitch loosening, seam smoothness and Thobe collar appearance.

Table (1) Percentages of the Questionnaire to evaluate the appearance

	Evaluation Points	Cutting angle 1	Cutting angle 2	Cutting angle 3
Before washing	A difference in the collar grain line	98	98	80
	The occurrence of loosening in the interlining	98	98	80
	Collar wrinkle	96	98	88
	Stitch puckering	94	98	88
	Stitch loosening	92	100	88
	Seam smoothness	94	100	84
	Thobe collar appearance	100	100	86
	Average before washing	96	98.85	84.85
After 10 washing cycles	A difference in the collar grain line	90	94	86
	The occurrence of loosening in the interlining	94	94	82
	Collar wrinkle	94	92	84
	Stitch puckering	90	92	84
	Stitch loosening	90	92	84
	Seam smoothness	92	96	82
	Thobe collar appearance	94	98	84
	Average After 10 washing cycles	92	94	83.71
After 20 washing cycles	A difference in the collar grain line	88	90	82
	The occurrence of loosening in the interlining	90	92	78
	Collar wrinkle	88	90	80
	Stitch puckering	88	90	80
	Stitch loosening	88	90	80
	Seam smoothness	92	90	80
	Thobe collar appearance	94	90	80
	Average After 20 washing cycles	89.71	90.28	80

Figure 7 shows the average percentages of the evaluation items for the three degrees of cutting angles before washing and shows us that the second shear angle achieved the best result in items 1, 4, 5, 6 and 7, followed by the first shear angle in the same items and was better in item 3 and equal in item 2, and in the last cutting angle.

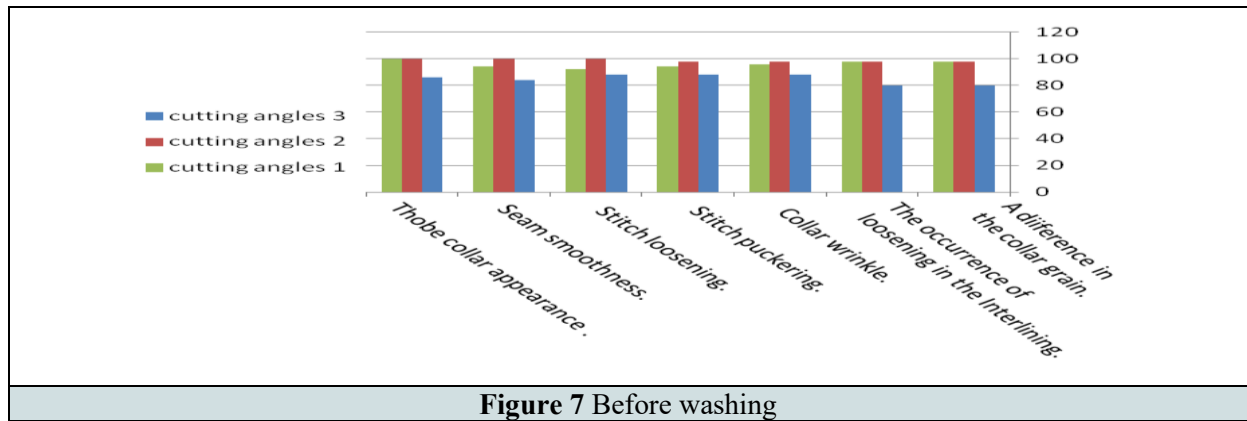


Figure 8 shows the average percentages of the evaluation items for the three shear degrees after 10 washings. It shows that the second cutting angles angle achieved the best result in items 1, 2, 3, 4 and 5, followed by the first shear angle that achieved the best result in items 6 and 7, and the third cutting angle.

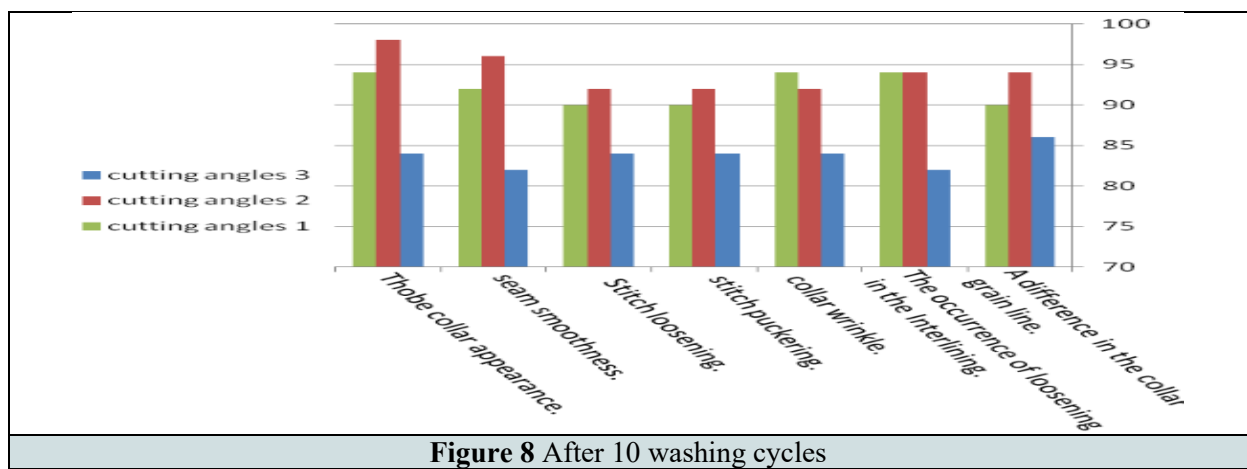


Figure 9 shows the average percentages of the evaluation items for the three cutting angles degrees after 20 washings. It shows that the second cutting angle achieved the best result in all items except for item 7. The result of the first cutting angle was better and the least was the third cutting angle.

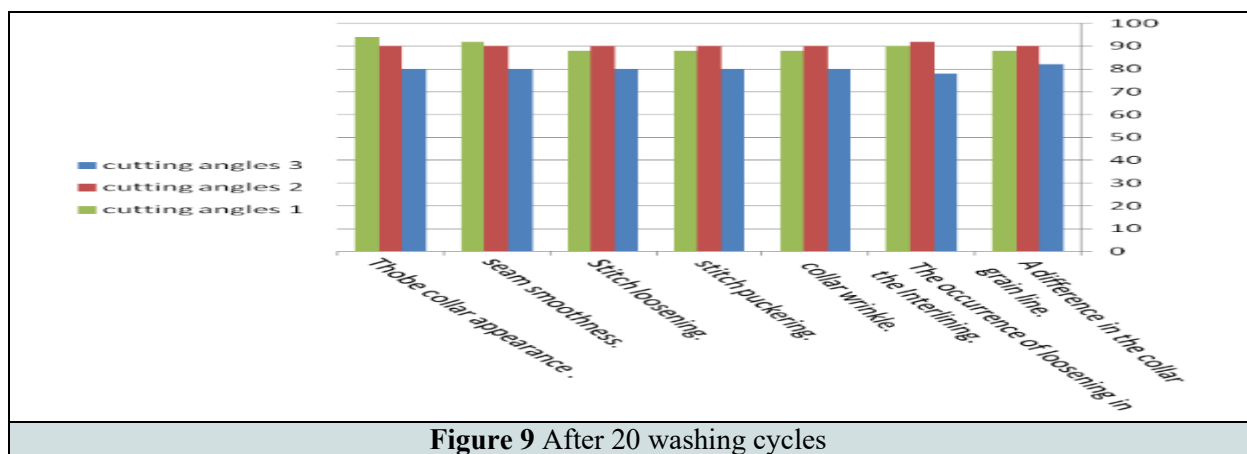


Figure 10 shows the average percentages of the three cutting angles before washing, after 10 washing cycles, and after 20 washing cycles. It shows us that the second cutting angle achieved the best results, followed by the first cutting angle, and then the third cutting angle with the lowest result.

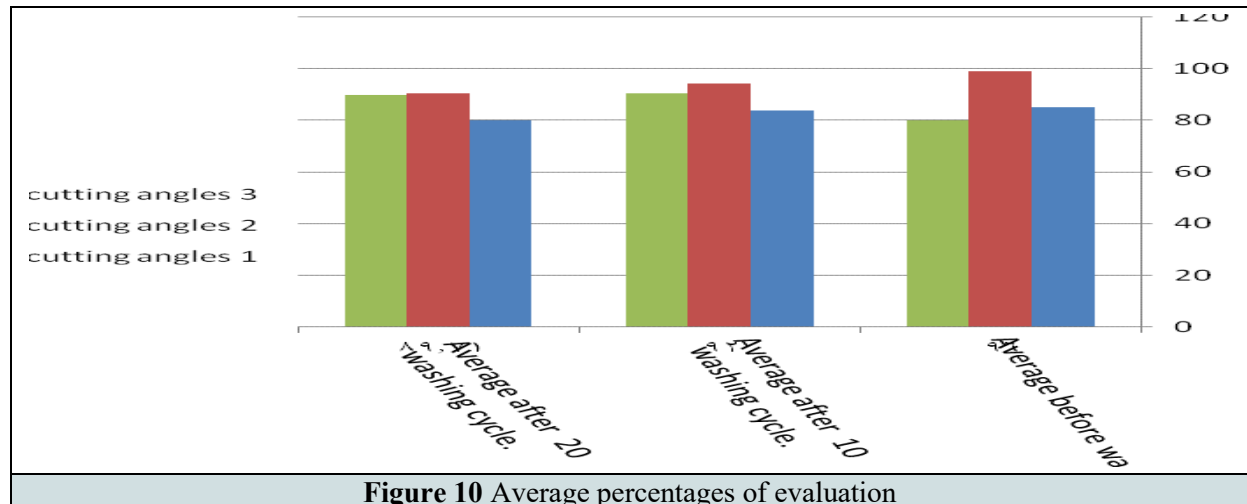


Figure 10 Average percentages of evaluation

The results of the research agreed with the study (Madi - 1998) about the necessity of choosing high-quality interfacing materials to raise the quality of the final product, and the study of (Youssef - 2007) the existence of a relationship between the type of interfacings and the quality of sewing on the shirt collar, and the study (Abu Hashima, Hassan-2008) confirmed that there are statistically significant differences between evaluation averages of thread buttonhole quality when using interfacing in both directions, warp and weft of the woven interfacing.

We conclude from this that the presence of a percentage of deviation in the interlining fabric's cutting angle to fit the Thobe collars which achieves a better level of quality due to the collar encircling the neck opening. The deviation of the angle of the interlining cutting gives the flexibility required to give a good appearance of Thobe collars.

CONCLUSION

The percentages of evaluating samples through the questionnaire items, as well as the average percentages of the three cutting angles before washing, after 10 washing cycles, and after 20 washing cycles.

It was found that the cutting angle No. (2) is the highest in the average percentages with a washing cycle repetition followed by the first and then third cutting angle, which achieved the lowest average percentages of evaluation with a washing cycle repetition. This is because the woven interlining second cutting angle is 15% from the warp direction and is the best in appearance, dimensional stability and high quality with repeated washing times.

RESEARCH RECOMMENDATIONS

The interest of specialists in research and studies on the quality of Saudi thobe manufacturing processes

Conducting studies related to modern technologies in the manufacture of the Saudi dress

Linking scientific research bodies and ready-made garment factories so that the results of specialized research can be benefited from.

ACKNOWLEDGEMENTS:

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ILLUSTRATIONS

Figure4: Men's Thobe Stand collars pattern Armstrong, Helen. (2010). **Patternmaking for fashion design.** Fifth edition. USA