

A Study of Functional Expectations and Additional Features of Sportswear by Sport Personalities in Thane District

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Abstract- This research investigates the functional expectations and additional features of sportswear as perceived by sport personalities in Thane District, Maharashtra. Sportswear has undergone a remarkable transformation over the years, evolving from basic athletic apparel to technologically advanced gear that enhances athletic performance, comfort, and confidence. Athletes today seek sportswear that not only fulfills core functional requirements such as durability, breathability, moisture-wicking, flexibility, lightweight design, and temperature regulation but also offers advanced features like UV protection, antimicrobial and antiviral properties, odour control, and soil resistance. To understand these evolving needs, primary data was collected from 160 sport personalities actively engaged in various sports disciplines, including gym workouts, running, cricket, and walking. Using structured questionnaires, respondents' preferences were analyzed for both performance-driven and additional aesthetic or technological features of sportswear. The findings reveal that while traditional functional attributes remain critical for performance, there is a growing awareness and demand for advanced, health-focused features that align with modern athletic lifestyles. These insights are highly relevant for sportswear designers and manufacturers aiming to meet localized and specialized consumer expectations.

Keywords: Sportswear, Functional Expectations, Additional Features

I. INTRODUCTION

In recent years, sportswear has evolved from mere athletic gear to a crucial component that enhances the performance and comfort of sportspersons. The rise of technologically advanced fabrics, ergonomic designs, and customization options has transformed sportswear into an integral part of sports culture. Athletes today demand apparel that not only supports

their physical activities but also aligns with their aesthetic preferences and psychological needs. The growing focus on sports and fitness in India has further fuelled innovations in the sportswear industry, making it essential to understand the functional and additional expectations of sport personalities.

Functional expectations refer to the core performance attributes that sportspersons require in their apparel, such as breathability, moisture-wicking, flexibility, durability, and temperature regulation. These features directly impact an athlete's efficiency, endurance, and safety during training or competition. For instance, garments that prevent overheating or support muscle compression can reduce fatigue and injuries. Understanding these expectations helps manufacturers design sportswear that meets the specific requirements of different sports disciplines.

Beyond functionality, additional features like aesthetic appeal, smart technology integration (e.g., wearable sensors), eco-friendly materials, and ease of maintenance are increasingly influencing the choices of sport personalities. In a competitive environment, athletes often consider how their sportswear complements their identity, boosts confidence, and reflects professionalism. Therefore, analyzing these additional features provides a holistic view of consumer preferences in the sportswear segment.

Thane District, with its diverse population and growing sports culture, serves as an interesting area for this study. The district hosts a range of sport personalities engaged in athletics, cricket, football, badminton, and other disciplines at district, state, and national levels. Their experiences and expectations provide valuable insights into the needs of professional and semi-professional athletes in semi-

urban and urban contexts. This localized study will shed light on whether global sportswear trends resonate with regional athletes.

This research holds significance for sportswear designers, manufacturers, and retailers seeking to cater to the niche market of professional athletes. By identifying key functional requirements and desirable additional features, the findings can guide product development, customization, and marketing strategies. Moreover, the study contributes to academic knowledge on consumer behavior in the sportswear industry, specifically focusing on sport personalities in Indian districts.

The primary objective of this study is to analyze the functional expectations and additional features preferred by sport personalities in Thane District. It aims to identify variations based on sports categories, gender, age, and level of participation. The scope includes evaluating the interplay of performance-related and aesthetic factors influencing sportswear selection. The study ultimately intends to recommend ways to bridge the gap between athletes' expectations and the offerings of sportswear brands.

II. REVIEW OF LITERATURE

1. Bajpai et.al (2021), In the research titled "Interpreting the functional properties of sportswear" The study concluded that sportswear must integrate physiological, ergonomic, biochemical, and psychological attributes to meet the diverse functional needs of sportspersons. It emphasized the importance of technical textiles in enhancing athletic performance by providing comfort, moisture management, flexibility, and muscle support. The authors highlighted that user-specific requirements are critical for designing performance-driven apparel, and ignoring these may lead to reduced athlete satisfaction and efficiency.
2. Clauben et.al (2021), In the research titled "Experts' views on sports clothing quality: A qualitative study" This research concluded that sportswear quality is multidimensional and extends beyond mere functionality. It identified objective factors such as durability and breathability, subjective aspects like comfort and aesthetic appeal, and extrinsic elements including brand value and reputation. The study emphasized that athletes' purchasing decisions are influenced equally by performance-enhancing features and emotional or psychological satisfaction, underlining the need for a holistic approach in sportswear design.
3. Cheng et.al (2022), In the research titled "Intelligent research on wearing comfort of tight sportswear during exercise using long short-term memory neural networks" The study found that comfort in sportswear is not static but dynamic and varies with time and activity levels. Using AI-based models, the authors concluded that factors such as moisture retention, fabric pressure, and thermal regulation significantly influence athletes' real-time perception of comfort. They advocated for designing sportswear that adapts to changing physiological conditions during exercise, ensuring consistent support and preventing discomfort or injury.
4. Sports Medicine–Open. (2022), In the research titled "The role of sports clothing in thermoregulation, comfort, and performance during exercise in the heat: A narrative review" The narrative review concluded that effective thermoregulation and moisture management are critical to maintaining athlete comfort and performance in warm conditions. It revealed that fabrics which manage sweat evaporation and reduce stickiness can enhance endurance and reduce heat stress. The authors suggested that combining innovative fabric technologies with user-centered sensory evaluation would result in superior sportswear capable of supporting athletes in demanding environments.
5. Tang et.al (2025), In the research titled "AI-driven smart sportswear for real-time fitness monitoring using textile strain sensors" This study concluded that integrating AI-driven textile sensors into sportswear allows for real-time monitoring of biomechanics and fitness levels. The findings showed that smart sportswear could accurately detect exercise quality and provide instant feedback, thereby enhancing athletic training and preventing injuries. The authors highlighted that future sportswear must incorporate intelligent systems to meet the evolving expectations of high-performance athletes.
6. Hobbs-Murphy et.al (2024), In the research titled "A case study of developing a Paralympic shooting jacket for disabled athletes using the FEA model" The study on Paralympic shooting

jackets concluded that functional, expressive, and aesthetic factors are equally important in adaptive sportswear design. By involving athletes in the design process and using advanced tools like 3D body scanning, the researchers created apparel that offered superior fit, support, and mobility for disabled athletes. The authors emphasized that personalized, inclusive sportswear significantly contributes to athlete confidence and overall performance.

III. RESEARCH GAP

Although prior research has explored various aspects of sportswear, such as functional properties (Bajpai et al., 2021), multidimensional quality attributes (Clauben et al., 2021), and dynamic comfort using AI models (Cheng et al., 2022), most studies have focused on general athlete populations or advanced technological innovations in global contexts. Limited attention has been given to understanding the localized preferences and expectations of sport personalities in specific regions like Thane District, especially in terms of how functional attributes and additional features align with their climatic, cultural, and sporting needs. Furthermore, there is a lack of empirical studies that consider both performance-driven requirements and psychological aspects such

as confidence and brand perception among semi-professional and grassroots-level athletes. This gap highlights the need for a focused investigation into how sportswear can be customized to meet the diverse and region-specific functional expectations and additional feature demands of sport personalities in Indian districts.

IV. RESEARCH METHODOLOGY

The study adopted a descriptive research design, focusing on sports personalities in Thane District to examine their functional expectations and preferences for additional features in sportswear. A structured questionnaire was used as the primary data collection tool, targeting 300 respondents engaged in activities such as gym, running, cricket, and walking. Respondents were selected through a purposive sampling approach to ensure representation of active sports users. Reliability of the instrument was tested using Cronbach's Alpha (0.769), confirming the scale's validity. The collected data was analyzed using frequency distribution, mean ranking, and Friedman Chi-square test to identify significant differences in expectations and to rank the importance of both functional and advanced features of sportswear

V. DATA ANALYSIS

Demographic Factor

Sr No.	Particular	Category	Frequency	Percent
1	Gender	Male	218	72.7
		Female	82	27.3
2	Age	Up to 25 Years	135	45.0
		26 to 35 Years	77	25.7
		36 to 45 Years	47	15.7
		46 to 60 Years	32	10.7
		Above 60 Years	9	3.0
3	Type of sport/activity	Cricket	42	14.0
		Gym	97	32.3
		Running	73	24.3
		Walking	67	22.3
		Other	21	7.0
4	Frequency of sportswear usage	Daily	235	78.3
		3-5 times per week	36	12.0
		1-2 times per week	23	7.7
		Occasionally	6	2.0

The demographic and usage data highlights some clear patterns among respondents. A majority of

participants were male (72.7%), while females accounted for 27.3%. In terms of age, the largest

group fell under 25 years (45%), followed by those aged 26–35 years (25.7%), and smaller proportions in older categories, indicating a young and active respondent base. When it comes to the type of sport or physical activity, gym (32.3%) and running (24.3%) were the most preferred, followed by walking (22.3%) and cricket (14%), while 7% engaged in other activities. The frequency of sportswear usage further underscores this active lifestyle, as a large majority (78.3%) reported daily use, with smaller groups using it 3–5 times per week (12%), 1–2 times per week (7.7%), or only occasionally (2%). Together, these findings suggest that the sample is predominantly young, male, and fitness-oriented, with high daily usage of sportswear

driven mainly by gym, running, and walking activities.

Reliability Test

Reliability testing assesses the consistency and dependability of a system, product, or process to perform its intended functions under specific conditions over a defined period. It involves subjecting the entity under examination to various scenarios and stress levels to identify potential failures or deviations from expected behavior. The goal is to ensure that the system can consistently deliver accurate results or perform its tasks without unexpected interruptions or errors, thus instilling confidence in its reliability and suitability for its intended purpose.

Sr. No.	Variable Name	No. of statements	Cronbach's Alpha Value	Results
1.	Functional expectation	9	0.769	Accepted. The scale is valid and reliable.

The above table indicates that Cronbach Alpha values for the variables considered for the study are greater than 0.700. Therefore, the test of reliability is satisfied. The conclusion is Likert Scale used in the questionnaire is reliable and accepted.

Objective and Hypothesis

Objective 1 To Study the functional expectation of the Sportswear by Sport Personalities in Thane District.

Responses of functional expectation of the Sportswear by Sport Personalities in Thane District is shown below

Sr. No.	Feature	Poor	Fair	Moderate	High	Excellent
22.1	Durability	42	65	20	102	71
22.2	Breathability	124	35	29	87	25
22.3	Moisture-wicking	83	60	20	99	38
22.4	Flexibility/ Stretchability	97	62	12	111	18
22.5	Lightweight Design	47	56	9	135	53
22.6	Temperature Regulation	106	50	6	102	36
22.7	Style/Design	37	131	103	25	4
22.8	Brand Reputation	49	73	11	99	68
22.9	Reasonable Price	22	86	42	83	67

22.1 Durability: Out of 300 respondents, expectations regarding durability leaned strongly towards the positive side, with 102 individuals expressing high expectations and 71 expecting excellent durability. While 65 respondents felt durability should be fair and 20 were moderate in their expectations, only 42 rated it poorly. This indicates that durability is a key concern, with the majority associating sportswear with long-lasting performance.

22.2 Breathability: Breathability received mixed opinions, with a large number of respondents (124) rating their expectation as poor, suggesting

dissatisfaction or low confidence in this aspect. At the same time, 87 people held high expectations, while 35 and 29 respondents indicated fair and moderate levels, respectively. Only 25 rated their expectations as excellent, showing that breathability remains an area where improvements are most needed compared to other features.

22.3 Moisture-wicking: Expectations for moisture-wicking capabilities were generally high, with 99 respondents seeking a high level and 38 looking for excellent performance. However, a considerable number (83) reported poor expectations, reflecting

gaps in current product performance. Moderate and fair expectations stood at 20 and 60, respectively, revealing that while many customers appreciate sweat-absorbing qualities, there is room for enhancement to meet higher consumer demands.

22.4 Flexibility/Stretchability: Flexibility or stretchability showed a dominant preference for higher performance, with 111 respondents expecting high and 18 rating excellent. Still, a significant number of participants—97 poor and 62 fair—indicated dissatisfaction or moderate belief in this feature. With only 12 reporting moderate expectations, the data suggests that although a large portion values flexibility, current offerings may not consistently meet the desired standards of consumers.

22.5 Lightweight Design: The majority of respondents (135) had high expectations for lightweight design, making it one of the most crucial attributes. Another 53 wanted it to be excellent, while 56 and 9 reported fair and moderate expectations. Only 47 expressed poor expectations, indicating that consumers largely associate sportswear with comfort and expect it to be light, which plays a direct role in performance and convenience.

22.6 Temperature Regulation: Temperature regulation appeared as a mixed feature, with 106 respondents rating it poor and 50 fair, signaling dissatisfaction with current product performance in this area. On the positive side, 102 participants had high expectations and 36 excellent, showing demand for apparel that adapts to climate conditions. With only 6 indicating moderate expectations, the responses highlight that temperature control is important yet underdelivered.

22.7 Style/Design: Style and design reflected one of the most polarized patterns, with the majority (131) considering fair expectations and another 103 settling for moderate. Only 25 and 4 participants expressed high and excellent expectations, while 37 rated it poor. This indicates that while design is acknowledged as important, customers may not hold extremely high expectations, perhaps prioritizing comfort and function over aesthetics in sportswear.

22.8 Brand Reputation: Brand reputation attracted strong expectations, with 99 respondents ranking it high and 68 excellent, suggesting that consumers prefer trusted and reliable names in sportswear. At the same time, 73 marked fair, and only 11 chose moderate. Poor expectations stood at 49, highlighting that while reputation plays a critical role in shaping consumer trust, perceptions vary depending on brand awareness and experiences.

22.9 Reasonable Price: Price was also a strong factor, with 83 respondents expecting high and 67 expecting excellent affordability. Meanwhile, 86 considered fair expectations, and 42 moderate. Only 22 rated it poor, showing that cost remains an important concern for consumers, and a large number want good quality sportswear at a price that feels justified.

Null Hypothesis H_{01} : There are no specific functional expectation of the Sportswear by Sport Personalities in Thane District.

Alternate Hypothesis H_{11} : There are specific functional expectation of the Sportswear by Sport Personalities in Thane District.

To test the above null hypothesis Friedman test is applied results are as follows.

Test Statistics ^a	
N	300
Chi-Square	155.290
df	8
P-value	.000
a. Friedman Test	

Interpretation: The above results indicate that calculated p-value is 0.000. It is less than 0.05. Therefore, chi-square test is rejected. Hence Null hypothesis is rejected and Alternate hypothesis is accepted.

Conclusion: There are specific functional expectation of the Sportswear by Sport Personalities in Thane District.

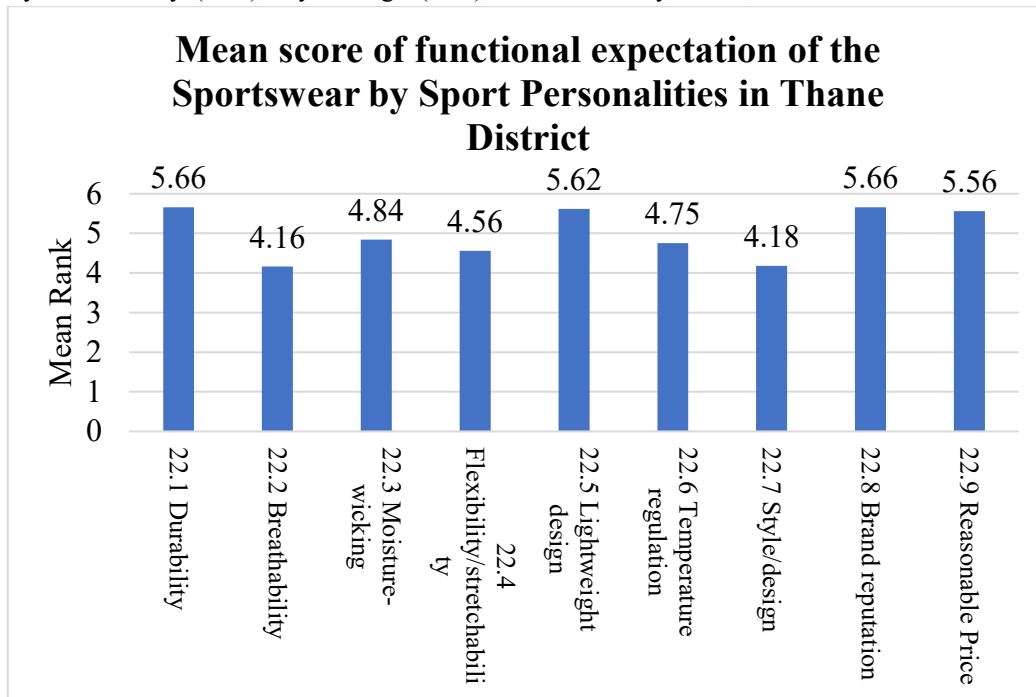
Findings: To understand the findings of hypothesis, mean score of functional expectation of the Sportswear by Sport Personalities in Thane District.

Ranks	
	Mean Rank
22.1 Durability	5.66
22.2 Breathability	4.16
22.3 Moisture-wicking	4.84
22.4 Flexibility/stretchability	4.56
22.5 Lightweight design	5.62
22.6 Temperature regulation	4.75
22.7 Style/design	4.18
22.8 Brand reputation	5.66
22.9 Reasonable Price	5.56

The mean rank values indicate that Durability (5.66), Brand reputation (5.66), and Lightweight design (5.62) are the most important functional expectations for sports personalities in Thane District, showing their priority for long-lasting, trusted, and comfortable sportswear. Reasonable price (5.56) also ranks highly, highlighting the balance between quality and affordability. Features like Moisture-wicking (4.84) and Temperature regulation (4.75) fall

into the mid-importance range, suggesting performance-related aspects are valued but secondary to durability and brand trust. Meanwhile, Flexibility/stretchability (4.56), Style/design (4.18),

and Breathability (4.16) occupy the lower ranks, reflecting that while they matter, athletes give relatively less weight to these features compared to durability, brand, and cost-effectiveness.



Objective 2 To Study the expectation of Additional Features of the Sportswear by Sport Personalities in Thane District.

Responses of expectation of Additional Features of the Sportswear by Sport Personalities in Thane District is shown below

Sr. No.	Feature	No	Yes
23.1	UV Protection	173	127
23.2	Odour Control	28	272
23.4	Antimicrobial	113	187
23.5	Antiviral	122	178
23.6	Soil Resistance	171	129

The analysis of advanced functional features shows that odour control is overwhelmingly the most valued aspect, with the vast majority of respondents (272) supporting it, indicating strong demand for freshness and hygiene in sportswear. Antimicrobial (187 yes) and antiviral (178 yes) features also gained considerable importance, reflecting growing awareness of health and safety. In contrast, UV protection (127 yes) and soil resistance (129 yes) were less prioritized, with more respondents dismissing them as essential. Overall, while athletes in Thane District focus strongly on comfort and hygiene-related attributes, they place comparatively less emphasis on protective or maintenance-oriented features.

Null Hypothesis H_{02} : There are no specific expectation of Additional Features of the Sportswear by Sport Personalities in Thane District.

Alternate Hypothesis H_{12} : There are specific expectation of Additional Features of the Sportswear by Sport Personalities in Thane District.

To test the above null hypothesis Friedman test is applied results are as follows.

Test Statistics ^a	
N	300
Chi-Square	199.960
df	4
P-value	.000
a. Friedman Test	

Interpretation: The above results indicate that calculated p-value is 0.000. It is less than 0.05.

Therefore, chi-square test is rejected. Hence Null hypothesis is rejected and Alternate hypothesis is accepted.

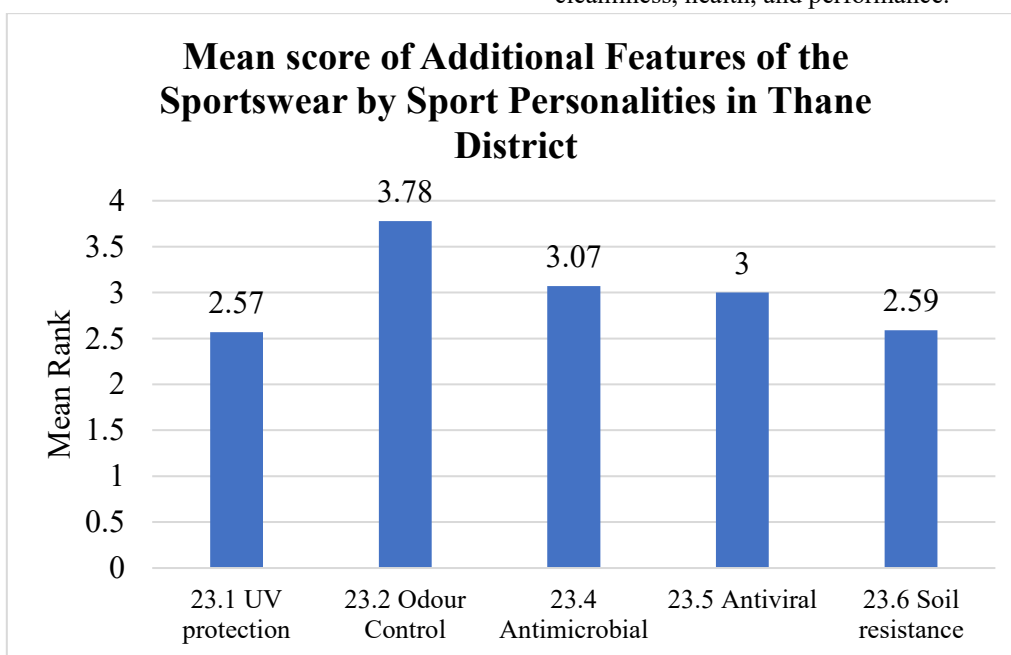
Conclusion: There are specific expectation of Additional Features of the Sportswear by Sport Personalities in Thane District.

Findings: To understand the findings of hypothesis, mean score of Additional Features of the Sportswear by Sport Personalities in Thane District.

Ranks	
	Mean Rank
23.1 UV protection	2.57
23.2 Odour Control	3.78
23.4 Antimicrobial	3.07
23.5 Antiviral	3.00

23.6 Soil resistance	2.59
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The mean rank results reveal that Odour control (3.78) is considered the most important advanced feature by sports personalities in Thane District, emphasizing their strong preference for freshness and hygiene in sportswear. This is followed by Antimicrobial (3.07) and Antiviral (3.00) properties, which also hold significant importance, reflecting growing awareness of health and safety. On the other hand, Soil resistance (2.59) and UV protection (2.57) are rated relatively lower, suggesting that while they are beneficial, athletes do not prioritize them as highly as comfort and hygiene-oriented features. Overall, the ranking highlights a clear consumer preference for features that directly enhance cleanliness, health, and performance.



VI. CONCLUSION

The study concludes that sports personalities in Thane District have clear and specific expectations from their sportswear, reflecting both traditional functional needs and modern advanced features. Among functional attributes, durability, lightweight design, brand reputation, and reasonable price emerged as the top priorities, highlighting that athletes seek reliable, comfortable, and cost-effective apparel backed by trusted brands. Performance-related aspects such as moisture-wicking and temperature regulation hold mid-level importance, while flexibility, breathability, and style/design are comparatively less emphasized. With respect to advanced features, odour control stood out as the most valued, followed by antimicrobial and antiviral

properties, showing growing awareness of hygiene and health in apparel. Meanwhile, UV protection and soil resistance were relatively less important, suggesting that athletes prioritize cleanliness and performance over maintenance-oriented attributes. The rejection of null hypotheses in both functional and additional expectations confirms that athletes' choices are not random but highly structured and preference-driven. Overall, the findings underscore the need for sportswear brands to integrate durability, comfort, hygiene, and affordability into their designs while also considering regional needs, thereby ensuring better alignment with consumer expectations and enhancing satisfaction among sports personalities in semi-urban contexts like Thane District

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