



The Impact of Urban Street Characteristics on Walking Attractiveness and Humanization: A Study of The Streets of Kut City Center

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Abstract

Recently, many cities have faced significant challenges that directly impact the quality of life of their residents due to rapid urban growth. One of the most pressing issues is the encroachment on public spaces due to vehicle traffic, resulting in a decline in pedestrian-friendly environments. The concept of "humanizing cities" is central to contemporary urban design, focusing on improving the quality of urban life by redesigning public spaces to meet the needs of individuals and enhance comfort, safety, and social interaction. The importance of this study lies in addressing the challenges Iraqi cities face in creating pedestrian-friendly urban environments, particularly in medium-sized cities like Kut, which have witnessed rapid urban development in recent decades. The study adopted a descriptive-analytical methodology, combining field observations and user surveys to assess street characteristics, including sidewalk width, availability of green spaces, and safety levels. A statistical analysis using a five-point Likert scale was conducted to demonstrate the relationship between street design and pedestrian satisfaction. This study, therefore, identifies the most significant street features that enhance humanization and evaluates how each street in the Kut city center applies these principles. It also compared city center streets based on these attributes. The results indicated that pedestrian satisfaction is closely related to key physical features, such as sidewalk width, green spaces, and safety measures. Streets with these attributes scored higher in comfort and walkability, while those lacking them experienced lower pedestrian participation. That highlights the importance of prioritizing human-centered design to create inclusive, safe, and vibrant urban spaces.

Keywords: Humanize City, City Center Street, Humanization Streets, Physical Street Features.

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I. INTRODUCTION

In many developing cities, urban design has focused on meeting the demands of automobile traffic at the expense of pedestrians and their use of public space [1]. This trend has transformed streets from places of life and interaction between people into roads dominated by cars and noisy traffic [2], negatively impacting pedestrian mobility, reducing opportunities for social interaction, and degrading the quality of daily life for urban residents [3].

Humanizing cities is a practical and intellectual response to this reality. It aims to redesign urban spaces to be more responsive to human needs rather than solely to cars [4]. This concept includes creating safe, walkable streets that encourage social interaction, not only through aesthetic improvements, but also through efforts to enhance the psychological, physical, and social health of the city's population as a whole [5]. In this sense, humanizing cities redefines urban spaces as vital platforms that

foster a sense of belonging and connection among community members [6]. Despite growing awareness of the importance of this concept, the reality of many cities, such as Al-Kut, demonstrates a continued misalignment of street design with pedestrian aspirations and needs [7]. Cars largely dominate these streets, making them uncomfortable and unsafe for pedestrians.

This calls for an in-depth study of the extent to which the physical characteristics of streets align with pedestrian user assessments. The research problem here revolves around the ability to develop an urban design that balances physical reality with pedestrian needs to provide a more humane environment. This study hypothesizes a direct, statistically significant relationship between the physical characteristics of the main streets in Al-Kut and the levels of safety and comfort experienced by pedestrians. By analyzing the relationship between the tangible urban environment and urban human features, the study aims to clarify how spatial design affects pedestrian well-being. The research seeks to identify areas that need improvement to

enhance the pedestrian experience. It then provides practical recommendations aimed at making these streets more attractive and comfortable, and enhancing opportunities for social interaction and human activity within the urban environment.

II. LITERATURE REVIEW

Many recent studies have addressed humane street design as an innovative approach that places people at the center of the urban planning and design process, moving beyond the traditional approach that often focuses on the needs of vehicles while neglecting the needs of pedestrians [8]. Forsyth and M. Southworth Notes that humane design seeks to bridge the gap between street users by paying attention to the balance between the visual and functional aspects of the street, while ensuring a safe and comfortable environment for pedestrians, cyclists, and all road users alike [9]. Matthew Carmona and Tim Heath highlighted the importance of planting trees in a coordinated manner on both sides of roads, in addition to the use of flower beds and plants, due to their positive impact on improving air quality and enhancing the mood of pedestrians [10].

A. Physical features of urban street design

Urban streets are crucial in influencing the daily experiences of city residents, impacting their mobility and overall quality of life[11]. The design and physical features of these streets are crucial for assessing pedestrian safety, comfort, and overall satisfaction. Analyzing key elements such as sidewalk width, paving materials, and street lighting is crucial to understanding how urban areas can be improved to improve accessibility, increase walkability, and promote a more human-centered urban environment. Most previous studies, such as the study and the study, focused on the physical characteristics of streets that influence street design. These factors include:

- **Sidewalk width:** Is a key factor affecting pedestrian movement. The wider the sidewalk, the smoother and safer pedestrian movement, reducing congestion and improving comfort. According to Daghestani and Abdul-Jabbar (2024), wide sidewalks provide more space for pedestrians and help improve traffic flow, reducing congestion and increasing safety in densely populated areas [12].
- **Paving materials:** The materials used in street paving play a significant role in providing a safe and comfortable environment for pedestrians. Strong, non-slip materials significantly improve the pedestrian experience and reduce potential hazards while traveling. Studies have shown that the use of durable, abrasion-resistant paving materials enhances the urban experience both functionally and aesthetically [13].
- **Street lighting:** Good lighting is essential for increasing safety and comfort, especially at night. Proper lighting helps improve visibility and reduce accidents, making streets safer and more welcoming [14]. Gehl (2010) also explains that good lighting enhances pedestrians' sense of safety, encouraging them to walk at night and participate in urban activities[15].
- **Shade and Tree Canopy:** Trees and vegetation provide essential shade, increasing pedestrian comfort, especially in hot climates. Additionally, green spaces contribute to

improved air quality and noise reduction, which improves pedestrians' psychological health. Salmond et al. (2016) suggest that incorporating trees and green spaces into street design not only improves comfort but also enhances the aesthetics of the urban environment [16].

- **Pedestrian Traffic Signals:** Clear pedestrian traffic signals are an essential part of ensuring pedestrian safety, especially in areas with heavy traffic. These signals help regulate pedestrian flow and enhance pedestrian safety while crossing streets [17].
- **Cycling Infrastructure:** With the increased reliance on sustainable transportation, cycling infrastructure has become an essential part of street design. Providing dedicated cycle lanes reduces interference between pedestrians and cyclists, enhancing safety for all street users [18].
- **Speed Control:** Speed control measures such as speed limits, traffic barriers, and traffic calming barriers are essential to ensuring pedestrian safety. These measures help reduce traffic accidents and increase street safety in high-traffic areas. According to Elhamy and Helmy (2024), traffic calming strategies significantly improve pedestrian safety and provide a safer environment [19].
- **Accessibility for People with Disabilities:** Streets should be designed to meet the needs of all individuals, including those with disabilities. Facilities such as ramps, designated parking spaces, and barrier-free walkways should be provided to ensure safe and comfortable access for all [20].

B. Principles of humane street design

In 2014, Ewing, Clementi, Neckerman, Purcell-Hill, Quinn, and Randle wrote a book titled "Measuring Urban Design Metrics for Livability." They discussed the physical and intangible evidence of successful urban street design. The authors assert that cities are more livable when they provide physical and intangible factors, such as safety, pedestrian accessibility, and the opportunity to meet new people [21]. These features are critical to determining the effectiveness of city streets and their construction. This is evident in several key features, such as:

- **Human scale:** Design should be based on human proportions so that people can move around and be active more easily [22].
- **Safety:** A fundamental principle, it means using appropriate materials, methods, and lighting to slow down vehicles [23].
- **Comfort:** By providing the public services, amenities, and landscapes they need.
- **Openness:** Improving public health and making open spaces more welcoming to all users[24].
- **Substantiality:** Creating streets with a variety of activities so that cars and people can interact in participatory ways.
- **Design:** Creating unique and useful spaces that allow people to move around the city more easily [25].

- **Walkability:** The need to create safe and easily visible paths so people can walk.
- **Livability:** A city is a better place to live due to the presence of many parks and other public spaces [26].
- **Social Interactions:** Design that makes it easier for people to meet new people, facilitates cultural activities, and helps members of the same community connect with one another.
- **Inclusiveness:** Design that meets the needs of all segments of society and can be used for a variety of purposes [27] .

Previous studies show that incorporating human-centered components into urban street design is closely linked to enhancing walkability, improving public health, increasing social interaction and cohesion, and encouraging public transportation initiatives and sustainable mobility in urban environments [28]. Simply making things look pretty is not enough to make cities, especially roads, more accessible to people. The main goal is to make cities beautiful, safe, and long-lasting, and meet the needs of the people who live in them, especially in small cities like Al Kut. This study aims to examine the influence of road physical characteristics on pedestrian perceptions of urban environments within the context of humanizing cities. This approach provides a scientific basis for urban design initiatives that seek to promote sustainability and inclusiveness in cities.

In addition to the physical features mentioned above, the main indicators of the humanity of cities depend on a set of urban design features that reflect the quality of life in the urban environment, as shown in the Table I, which shows both the physical features and indicators of the human urban design.

TABLE I. PHYSICAL FEATURES AND PRINCIPLES OF HUMANE URBAN STREET DESIGN.

Physical features of urban street design	Principles of humane street design
Sidewalk Width	Human scale
Paving Materials	Safety
Street Lighting	Comfort
Shade and Tree Canopy	Openness
Pedestrian Traffic Signals	Substantiality
Cycling Infrastructure	Design
Speed Control	Walkability
Accessibility for People with Disabilities	Livability
	Social Interactions
	Inclusiveness

^a- Source: Author based on previous studies.

III. MATERIALS AND METHODOLOGY

A. Research Framework

To provide a comprehensive and complete understanding of the topic, this study will employ a comprehensive methodology that combines qualitative and quantitative approaches. The research framework is organized around three main axes: the first examines the physical characteristics of streets; the second analyzes pedestrian views and experiences; and the third compares the results of the physical analysis of streets with pedestrian assessments and measures their compatibility. Based on urban design and walkability guidelines, physical characteristics are analyzed in relation to several factors that influence the pedestrian experience, including sidewalk width, green spaces, lighting efficiency, and accessibility to pedestrian crossings.

In parallel, data are collected from pedestrian surveys on five streets using a random sample of pedestrians and shopkeepers to explore pedestrian comfort and satisfaction with the urban environment in general and the streets in the city center in particular. Figure 1 illustrates the main structure of the manuscript.

B. Study Area

This research concentrates on the five primary avenues in the city center of Kut, Iraq, which are essential for comprehending pedestrian mobility patterns and the movement of individuals within the city[29]. Kut is situated roughly 170 km southeast of Baghdad and serves as the administrative center of Wasit Governorate, acting as a connection between the capital and the southern governorates of Nasiriyah, Basra, and Amara (Figure 2). This unique location gives the city a unique nature of interconnected relationships and functions, but the rapid growth the city has witnessed has increased the difficulties associated with the coexistence of pedestrians and vehicles.

Five streets were selected for the study: Al-Hurriya, Al-Muhafaza, Al-Shishan, Al-Wasiti, and Al-Kornish Street, as shown in Figure 3. The city's lifeblood, these roadways serve as main thoroughfares for both people and automobiles [30]. The effect of urban planning on pedestrian well-being in these areas can be analyzed since the streets have widely varying degrees of infrastructure [31]. The location of the city center is a key factor in achieving a balance between population and neighborhood distribution, which impacts the efficiency of the urban structure [32]. Over the past decades, the city center has witnessed a significant increase in vehicle numbers, which has negatively impacted the pedestrian environment, increased traffic congestion, and impaired people's ability to walk easily and safely . These streets reflect the challenges facing the city, as they are the areas most exposed to traffic control and a lack of pedestrian-friendly facilities, making them an important subject for detailed analysis and study

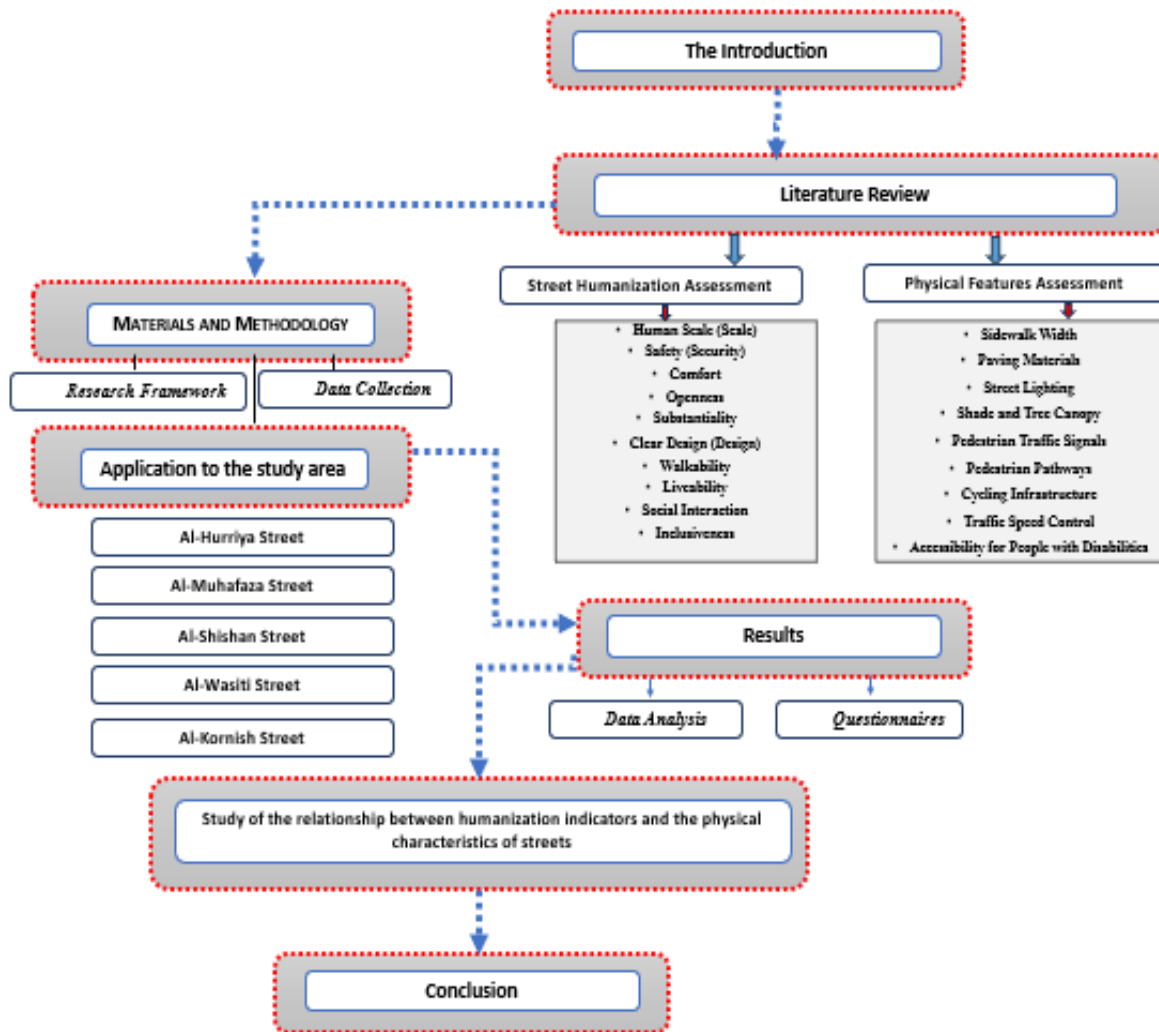


Fig. 1. The Manuscript Structure (Source: Authors).

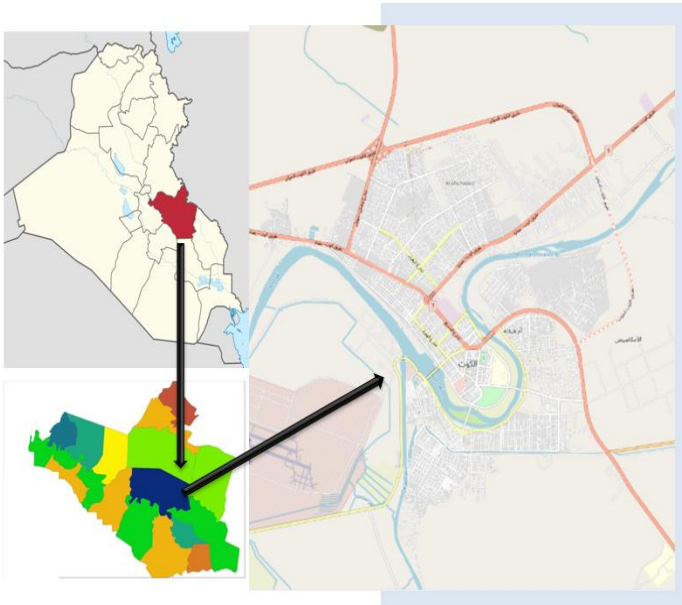


Fig. 2. A Map clarify Location of Al-Kut City, (Source: Google Maps).

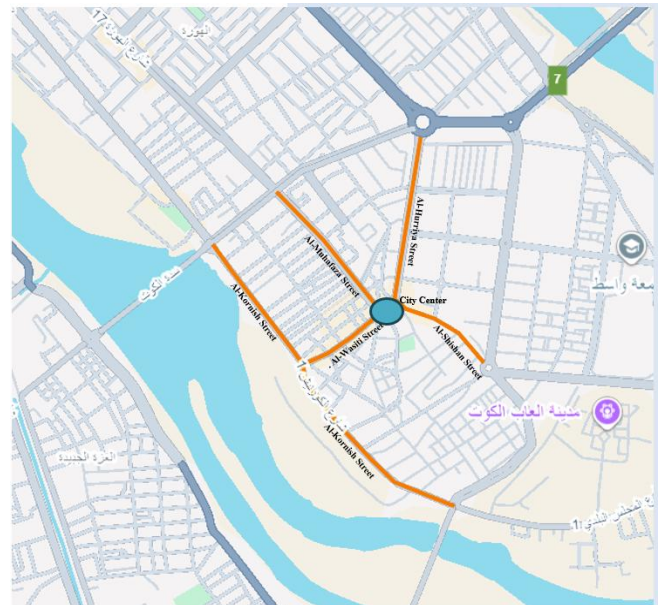


Fig. 3. Al-Kut City Center Streets (Source: Google Maps).

The five streets in the city center of Kut are discussed as follows :

1) Al-Hurriya Street

is regarded as one of the city's principal thoroughfares. It extends from the Tammuz Roundabout to Al-Amel Square. It is home to a broad range of commercial businesses, including markets, hotels, and stores, in addition to important services like banks and hospitals. Photos captured at several spots throughout the trip are displayed in Figure 4, which may be found below.



Fig. 4. Snapshots of Al-Hurriya Street (Source: Authors).

2) Al-Muhafaza Street

This Street connects the administrative and commercial sectors and is home to several public areas and government buildings. Congestion on it during the day is a sign of how vital it is to the city's transit system. Figure 5 shows this using a photo taken at various points along the path.

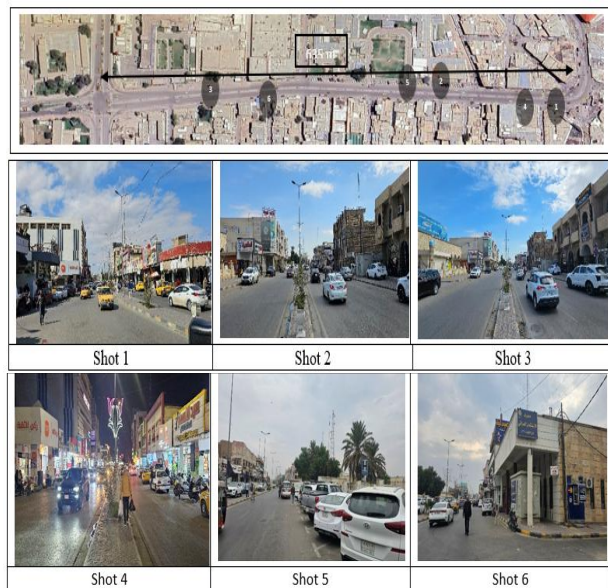


Fig. 5. Snapshots of Al-Muhafaza Street (Source: Authors).

3) Al-Shishan Street

This street is characterized by its mixed-use personality, housing, and commercial areas. Its primary characteristic is the concentration of public amenities and services, and the high volume of foot traffic. Its uses differ among local streets in the markets. Figure 6 displays images taken at various locations along the road.



Fig. 6. Snapshots of Al-Shishan Street (Source: Authors).

4) Al-Wasiti Street

This street is considered one of the city's most vital neighborhoods, as it includes numerous markets and restaurants that attract visitors and residents alike, creating vibrant social spaces that enhance community interaction. Below is Figure 7, which shows snapshots of various locations along the street.

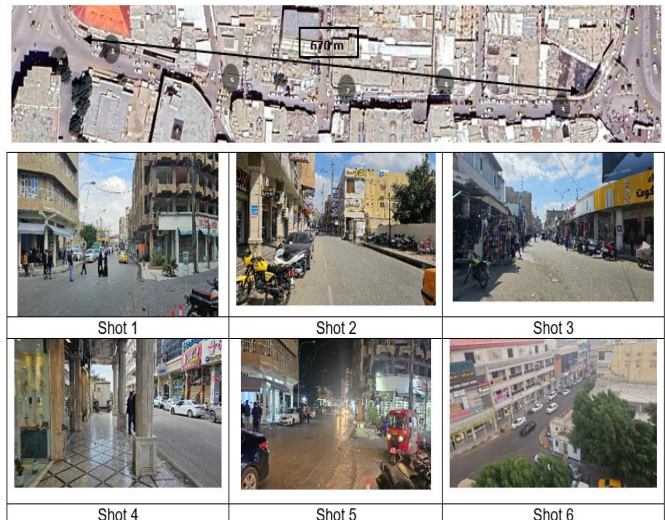


Fig. 7. Snapshots of Al-Wasiti Street (Source: Authors).

5) Al-Kornish Street

This street overlooks the Tigris River and extends along its length, making it a major recreational street. However, the current design faces challenges related to pedestrian walkways and the availability of public spaces adequate for the number of users, thus limiting its potential as a recreational outlet for the city's residents. Figure 8 below shows various shots along the street.



Fig. 8. Snapshots of Al-Kornish Street (Source: Authors).

Each of these streets has a direct impact on the urban environment in Kut, which increases its complexity and highlights the need for a comprehensive assessment of the area's pedestrian capacity and adherence to sustainable urban design principles.

C. Data Collection

The study relies on a multifaceted approach, combining direct field measurements and pedestrian surveys to assess pedestrian impacts based on humanistic urban planning principles and user experience at scale.

- **Direct Surveys:** Precise assessments and measurements of key street characteristics, such as sidewalk width, street lighting, trees and shading, traffic signals, pedestrian walkways, bicycle infrastructure, speed control, and accessibility for people with disabilities, were used to assess the physical conditions that impact pedestrian comfort and mobility..
- **Questionnaires:** Structured questionnaires using a five-point Likert scale were used to assess pedestrian perceptions of urban street design and its human friendliness. The questionnaire was distributed to 100 pedestrians on the five streets connected to the city center. This provides a comprehensive analysis of the extent to which physical street characteristics align with user experiences.

Accordingly, a ten-point assessment was used to evaluate the physical characteristics of urban streets based on a direct field

survey. This scale allows for a precise assessment of street characteristics and clearly distinguishes between different quality levels. A five-point Likert scale was used in the survey to measure pedestrian and user perceptions of the streets, with the midpoint indicating neutrality, lower values representing less favorable opinions, and higher values indicating more favorable evaluations. This assessment ensures a comprehensive analysis of the objective and subjective factors influencing pedestrian experiences on streets connected to the city center.

IV. RESULTS

A. Data Analysis

A thorough statistical analysis was performed on the gathered data to determine the correlation between passenger satisfaction ratings and the physical attributes of the roadway. Important aspects of urban planning were the following: green shade, street lighting, pedestrian walkways, traffic lights, bicycle infrastructure, speed limiters, green space, and accessibility for individuals with disabilities. Criteria for infrastructure quality, pedestrian comfort, and safety were used to evaluate each indication. For the sake of clarity and comparison, a ten-point Likert scale was employed. Table II provides a synopsis of the five streets' indicators' evaluations.

TABLE II. COMPARATIVE EVALUATION OF PHYSICAL URBAN DESIGN INDICATORS ACROSS KEY STREETS IN AL-KUT CITY CENTER.

Indicator	Criterion Used	Al-Hurriya	Al-Muhafaza	Al-Shishan	Al-Wasiti	Al-Kornish
Sidewalk Width	≥ 3.5 m	3 m	3.5 m	2 m	3 m	5 m
Paving Materials	Non-slip materials	uncomfortable	uncomfortable	dilapidated	dilapidated	slippery
Street Lighting	≥ 20 lumen/s/m ²	10-15	10-15	< 10	15-20	20-30
Shade and Tree Canopy	$\geq 40\%$	7%	7%	2%	2%	20%
Pedestrian Traffic Signals	≥ 15 seconds	Insufficient	Insufficient	Insufficient	Insufficient	Insufficient
Pedestrian Pathways	≥ 2.5 m width	3 m (Unprotected)	Not suitable	Not suitable	3 m (Partially safe)	5 m (Safe but uncomfortable)
Cycling Infrastructure	≥ 1.5 m width	Not available	Not available	Not available	Not available	Not available
Traffic Speed Control	Speed bumps ≤ 30 km/h	Limited	Limited	Limited	Limited	Limited
Accessibility for Disabilities	Ramps, smooth paths	Not available	Not available	Not available	Not available	Partial

^b. (Source: Authors' own data.)

Table II provides an overview of the physical characteristics of the five analyzed streets in Kut City Center, evaluating each street based on specific criteria related to pedestrian comfort, safety, availability of basic infrastructure, and other indicators. Table III includes all measured physical characteristics and their evaluations for the five streets in Kut City Center using a ten-point assessment for greater accuracy and reliability.

TABLE III. COMPARATIVE EVALUATION OF PHYSICAL STREET CHARACTERISTICS ACROSS SELECTED STREETS IN AL-KUT CITY CENTER.

Indicator	Al-Hurriya Street	Al-Muhafaza Street	Al-Shishan Street	Al-Wasiti Street	Al-Kornish Street
Sidewalk Width	6	5	1	3	7
Paving Materials	5	6	3	6	3
Street Lighting	4	3	2	3	5
Shade and Tree Canopy	1	1	1	1	4
Pedestrian Traffic Signals	2	1	1	1	1
Pedestrian Pathways	2	2	1	2	5
Cycling Infrastructure	1	1	1	1	1
Traffic Speed Control	4	3	1	2	5
Accessibility for People with Disabilities	1	1	1	2	3
Total Score	26	22	12	21	34
Percentage (%)	28.8%	24.4%	13.3%	23.3%	37.7%

The physical characteristics of the five main streets in the city core of Kut are markedly distinct, as illustrated by the table. Kornish Street features the most extensive pavements and sufficient lighting, whereas Shishan Street is rated the lowest. Inadequate shading and pedestrian crossing lights, limited bicycle facilities, insufficient speed control, and poor pavement condition are evident on all streets. The lack of accessible facilities for those with special needs in the metropolitan areas along these roadways indicates that they fail to comply with the necessary standards for a safe and inclusive pedestrian environment. Therefore, the incorporation of inclusion criteria into urban infrastructure development plans is necessary.

B. Questionnaires

In addition to objectively assessing the physical characteristics of the streets, we sent a structured questionnaire to 100 pedestrians to assess their satisfaction with humane urban design indicators and their experiences as street users. We sought to understand the views of 100 randomly selected pedestrians from each of the five streets included in the study. We documented the humane urban design indicators using a five-point Likert scale, including humaneness, safety, comfort, openness, substance, design, walkability, social interaction, inclusiveness, and overall satisfaction with the city. Table IV below shows the

main humane urban street design indicators, along with the questions posed for each indicator.

TABLE IV. COMPARATIVE ASSESSMENT OF PHYSICAL URBAN DESIGN INDICATORS FOR THE MAIN STREETS OF KUT CITY CENTER.

Design Indicator	Associated Questions	Brief Definition
Human Scale (Scale)	Q1: Is sidewalk space sufficient for comfort and safety?	Measures the adequacy of pedestrian space to enhance comfort and safe mobility.
Safety (Security)	Q3: Do you feel safe and comfortable walking at night? Q4: Is street lighting sufficient? Q12: Are vehicle speed reduction measures effective?	Ensures a secure environment through adequate lighting and effective traffic safety measures.
Comfort	Q1: Is sidewalk space sufficient for comfort and safety? Q6: Are there adequate seats/resting areas?	Provision of amenities such as seating and rest areas to improve pedestrian comfort.
Openness	Q15: Are there social gathering places enhancing community use?	Creation of open public spaces that foster social interaction and a welcoming atmosphere.
Substantiality	Q7: Will dedicated bike lanes improve traffic flow and safety? Q11: Are streets safe and comfortable for cyclists?	Integration of multiple uses, such as bike lanes, to promote safe mobility and vibrant interaction.
Clear Design (Design)	Q2: Are sidewalks designed to prevent slipping, especially in bad weather? Q8: Is the sidewalk height suitable and accessible for all?	Well-organized sidewalk design that facilitates ease of movement and user safety.
Walkability	Q1: Is sidewalk space sufficient for comfort and safety? Q9: Do parked cars on sidewalks hinder movement? Q10: Does motorcycle presence pose a safety threat?	The ability of streets to support safe and unobstructed pedestrian movement.
Liveability	Q5: Are there trees and green spaces making walking more enjoyable? Q13: Is the street attractive with murals or artworks?	The quality of the urban environment is enhanced by aesthetics and green spaces that improve comfort.
Social Interaction	Q15: Are there social gathering places enhancing community use?	Support for social activities by providing spaces that encourage community engagement.
Inclusiveness	Q8: Do you find the sidewalk height comfortable and accessible for your use?	Ensuring the design accommodates diverse users, including those with disabilities.

The quality of urban spaces is fundamental to assessing residents' comfort and daily experiences, transcending physical environments to focus on human and social dimensions. This, in turn, highlights the clear disparity in pedestrian perceptions of the streets of Kut City Center, highlighting the need to analyze these differences through key indicators of urban humanization. This concept is based on designing environments that prioritize the needs of residents in urban design.

Table V below shows the percentage of pedestrian responses to the survey questions, which were analyzed using SPSS and Excel. These responses reflect pedestrians' perceptions and

overall satisfaction with the streets connected to Kut City Center.

TABLE V. PEDESTRIAN SURVEY RESULTS AND T-TEST STATISTICS ACROSS KEY STREETS IN AL-KUT CITY CENTER.

Question	Al-Hurriya		Al-Muhafaza		Shishan		Al-Wasiti		Al-Kornish	
	T-Test	The percentage	T-Test	The percentage	T-Test	The percentage	T-Test	The percentage	T-Test	The percentage
Q1	22.048	51.40%	24.132	40.00%	25.722	36.60%	25.395	32.20%	18.890	43.20%
Q2	23.357	36.80%	21.320	45.20%	28.281	31.40%	23.472	32.00%	24.672	34.80%
Q3	20.617	51.20%	24.127	42.00%	28.418	37.80%	22.666	42.20%	21.601	37.80%
Q4	23.896	51.40%	29.524	38.00%	27.500	33.80%	23.183	35.40%	21.527	39.40%
Q5	23.571	55.00%	24.948	39.80%	22.716	30.60%	26.159	29.20%	22.808	34.00%
Q6	24.286	49.00%	24.356	31.80%	24.746	31.60%	23.045	33.00%	26.116	32.80%
Q7	23.967	44.60%	25.255	55.20%	28.302	35.60%	20.624	31.20%	23.778	35.20%
Q8	24.143	41.80%	24.164	34.00%	23.959	31.40%	24.314	32.80%	23.131	38.80%
Q9	20.808	39.20%	23.928	52.20%	22.197	33.80%	27.181	30.40%	20.695	45.60%
Q10	22.418	46.26%	28.086	51.80%	28.533	30.80%	26.071	31.60%	21.746	36.60%
Q11	24.422	43.20%	20.525	45.60%	23.956	33.40%	28.864	28.80%	23.281	37.60%
Q12	21.378	37.60%	20.548	48.20%	21.500	39.60%	26.336	39.60%	22.875	37.00%
Q13	22.985	41.00%	20.944	36.40%	22.419	35.40%	23.673	32.20%	21.419	41.60%
Q14	21.107	36.00%	22.168	40.80%	23.685	34.00%	23.587	31.00%	21.366	34.40%
Q15	22.885	53.00%	23.096	32.60%	27.030	32.40%	23.595	35.40%	22.436	38.00%

The analysis below presents survey results for ten of these key indicators of urban humanization across the five streets of Kut City Center. Together, these findings illustrate how urban design elements interact with user needs to foster humane and sustainable urban environments.

1) Human Scale: This metric assesses the breadth of the road in relation to the convenience and mobility of pedestrians. Al-Hurriya Street received the highest rating (51.4%), which is a testament to its exceptional architectural quality. Conversely, Al-Wasiti Street was assigned the lowest rating (32.2%) due to its inadequate lane capacity. The Corniche obtained an average score of 43.2 percent

2) Safety: The concept of safety encompasses the installation of traffic signals and the enforcement of traffic regulations. The stringent security protocols implemented by Al-Muhafaza Street resulted in an exceptional score of 45.2%. The road breadth of Al-Hurriya Street was the narrowest, measuring 36.8%. The subsequent decline was observed in Al-Sheshan and Al-Wasiti, with a range of 31.4% to 34.8%.

3) Comfort: This metric underscores the amenities that pedestrians possess. Al-Hurriya Street obtained the highest score of 51.2%, while Al-Wasiti Street recorded the lowest score of 42.2%. The streets maintained a consistent equilibrium, with a range of 37.8% to 42.0%.

4) Environmental transparency: This enables the identification of environments that promote interaction. Al-Hurriya Street achieved the highest result, with 51.4%, while Al-Muhafaza Street received 38%. The remaining streets were rated between 33.8% and 39.4%.

5) Accessibility: These characteristic underscores the diversity of engagement and existence. Al-Hurriya Street received a score of 55%, while Al-Wasiti Street received a score of 29.2%. Supplementary streets were assessed at a rate that ranged from 30.6% to 39.8%.

6) Design: This criterion indicates the lucidity of the architectural *spatial* arrangement. Al-Muhafaza's performance was subpar, as demonstrated by his 31.8% score. In contrast, Al-Hurriya earned a commendable score of 49%. The

remaining streets were classified as belonging to the 31.6% to 33% range.

7) Walkable: This attribute indicates the existence of routes that are both secure and accessible. The streets with the highest percentages were Al-Muhafaza Street (55.2%) and Al-Wasiti Street (31.2%), while the other streets had comparable percentages.

8) Vitality: This criterion represents the environmental and natural aesthetic components. The Corniche received a score of 45.6%, while the Governorate highway garnered the highest rating of 52.2%. The pathways that are still in existence necessitate enhancements.

9) Community Engagement: This criterion emphasizes the importance of improving social communication. Governorate

Street occupied the highest position on the list (51.8%), with Al-Hurriya Street following closely behind at 46.26%. The percentages of Al-Shishan Street, Al-Wasiti Street, and Al-Corniche Street were lower (30.8% - 36.6% in total).

10) Inclusivity: This criterion assesses the extent to which the requirements of each user are satisfactorily addressed. This emphasizes the importance of advocating for inclusivity, as the Governorate recorded the highest percentage at 45.6%. Al-Wasiti Street subsequently accounted for 39.6%. The values on other streets varied from 33.4% to 37.6%. The following chart presents a comparative visual analysis of survey responses for each key question to further illustrate the differences in pedestrian satisfaction across the studied streets.

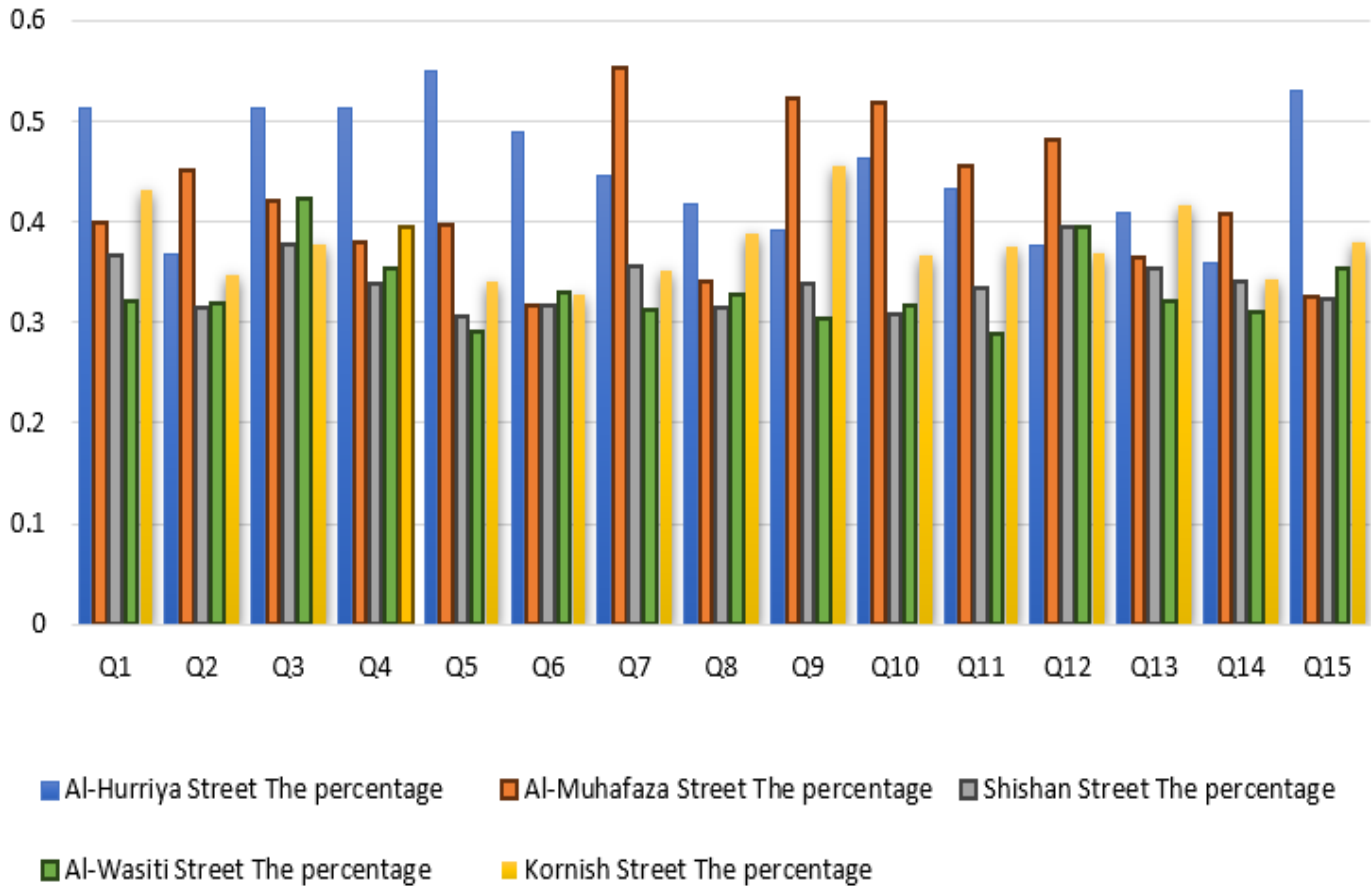


Fig. 9. Comparative Pedestrian Satisfaction Percentages Across Key Streets in Al-Kut City Center (Source: Author's elaboration based on results and analysis) .

V. THE RELATIONSHIP BETWEEN HUMANIZATION AND THE PHYSICAL CHARACTERISTICS OF STREETS

To better understand how Kut City Center suits its users, this study examines the objective facts related to its physical characteristics and personal pedestrian experiences. The results reveal clear differences between the five main streets, as well as clear design issues that impact pedestrian safety, comfort, and satisfaction. The Corniche Street, despite being a relatively distinguished street, cannot be measured as a gold standard due to several influencing factors. Although wide sidewalks allow

for more movement and contribute to reducing congestion and hazards, the opposite side suffers from significant urban planning weaknesses. One side of the street has been converted into parking lots, negatively impacting pedestrian movement and limiting the area's effectiveness in enhancing pedestrian comfort and convenience. Despite the availability of trees that provide comfortable shade and improve the walking experience, conditions on the opposite side, especially near Al Hilal Hospital and Dijlah Hospital, remain unsatisfactory due to the lack of adequate infrastructure. Customer satisfaction ratings also typically show better streets with fixed and safe pedestrian

walkways. On the other hand, none of the roads provide sufficient space for bicycle lanes or pedestrian signals. This shortcoming limits reasonable and safe transportation and reduces overall enjoyment. The lack of bicycle lanes and appropriate crossings increases pedestrian risks, limiting their options for environmentally friendly transportation. The pedestrian experience is affected by pavement quality, speed policies, accessibility for people with disabilities, and simplicity of rules. Comfort and safety are improved by reducing traffic and installing non-slip surfaces; however, there is a clear need to address this, due to the lack of facilities.

VI. CONCLUSIONS

The study results clearly and strongly link pedestrian satisfaction to the quality of street design. The Corniche Street was found to be the best in terms of sidewalk width, quality of shading, and adequate lighting, which enhances user comfort and ease of walking. On the other hand, both Chechnya and the governorate revealed major problems related to sidewalk width, lack of shading, poor lighting, and the absence of safety features, including traffic signals and bicycle lanes, which negatively impacted pedestrian experience and satisfaction.

While the availability of green spaces and shading contribute to increasing the psychological appeal and thermal comfort of urban environments, the study also revealed that widening sidewalks is directly linked to improving pedestrian freedom of movement and reducing the risk of collisions with vehicles. Furthermore, the presence of safe and segregated pedestrian paths significantly increases comfort and accessibility; and quality lighting is also crucial for enhancing pedestrians' sense of safety at night.

On the other hand, the results showed that weak vehicle speed control regulations and poor bicycle infrastructure somewhat undermine pedestrians' actual and perceived sense of safety. The lack of accessible facilities for people with special needs is another challenge that reduces design inclusivity and is linked to lower satisfaction levels among the most vulnerable user groups.

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