



Users' Satisfaction in City Waterfront: The Case of Jeddah Corniche

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Abstract

Recreational waterfront developments can be only superficially pleasant as they lack substantial design qualities needed for their user's comfort. Enhancing the user's comfort and satisfaction will encourage people to spend more time outdoors, with the potential to improve their physical health, enrich their social cohesion, and enhance the overall quality of life. The objective of this study is to investigate the extent to which the physical characteristics of open spaces can contribute to the user's satisfaction with space. The study evaluates the user's perception of satisfaction in the recent development of Jeddah North Corniche and provides solutions to enhance this issue. The methodologies applied in this study are structured questioner survey, which focuses on understanding the current user's preference and their level of satisfaction regarding the present condition. This increase the emphasis on representative citizen participation, who are usually not consulted in planning issues. The findings of this research involve the development of urban management principles for the adoption of sustainable waterfronts with the consideration of culture. The outcome should contribute to the Saudi 2030 vision by: Enhancing livability of Saudi Cities through improving the landscape and facilities of Jeddah urban waterfronts, and to encourage citizens to exercise at least once per week through enhancing the microclimate condition of waterfronts open spaces.

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Keywords

Urban design; Waterfront Development; Public Spaces; Jeddah corniche; users' satisfaction

1. Introduction

Human has been settling near water since ancient times. Through the history, many areas of the waterfront served as an essential resource to support their life (Faggi et al., 2011). As societies near water have grown and culture was developed, seafronts became a functional and aesthetic element in the design process (Hubbard and Hubbard, 1971; Wright, 1928). Today, waterfronts spaces became an essential contribution to citizens' quality of life (Dong, 2004).

Waterfronts public spaces became the vital component of prosperous coastal cities. They assert the sense of community, civic identity and culture. They lead to an urban environment that is healthy, safe, livable and sustainable. Many waterfront cities implant measure to stimulate economic growth, social development, and improve environmental conditions as well as to enhance competitiveness by taking advantage of their unique cultural and historical resources (Weijia, 2011).

Waterfront is known as the centre of the economic activities since the early days. It has improved the interface

between the city and ports since it promotes business in the market of leisure, tourism, culture-, and urban-oriented business activities (Woo, S., Omran, A., Lee, C., & Hanafi, 2016). Furthermore, it contributes to the formation of the city image. Many cities are known for their waterfront landscape characteristics. Some of these are traditional such as London, Venice, and Paris while others are contemporary such as Vancouver, Boston, and Sydney (Weijia, 2011).

Without a clear strategy, adequate public spaces of the waterfront are challenging to accomplish and sustain. In term of urban design, many factors usually considered in the design process of waterfronts such as identity, social impacts, and accessibility, but design principles related to human comfort are less regarded. It is critical for Urban designers to understand this concept and its relationship to outdoor activities and social behaviors.

Designers and users may have different notions of waterfront qualities. Designers may formulate objectives and concepts of waterfront qualities without adequate understanding the user's needs and preference in term of comfort which encompass aspects deeper than merely visual features. Therefore, the objective of this study is to analyze the user's perception and satisfaction with waterfront physical attributes to create more human-oriented waterfronts.

Human comfort in this context includes non-physical factors such as climate, acoustic, lighting, and visual comfort while physical factors include edges, floors cape, Urban furniture, and uses and activities (Zaina, et.al, 2015). The link between urban physical setting and human comfort has been evaluated by scholars, planners, and urban designers.

2. Objectives and Methodology

The main objective of this study is to investigate the main impact of urban waterfront design on the user's satisfaction, taking New Jeddah waterfront as a case study. The research also assesses the user's perception and satisfaction of comfort in the current waterfront public space. The research concludes urban design principles to enhance the user's comfort with the consideration of climate and culture. The study attempts to answers the following questions: 1) To what extent do the current waterfronts public spaces reposed to user's needs and comfort? 2) What are the possible passive strategies that could be incorporated to enhance human comfort in these spaces?

To achieve the outlined objectives, a quantitative research method is applied where it best fit the research approach. It gathers comprehensive knowledge of contextual data through engaging the participants in surveys and interviews that are conducted in natural settings. This part focuses on understanding the current quality of user's experience, preference, and their level of satisfaction regarding the present condition. It also provides data needed that is not available from other resources, such as the behaviour, character, opinion, and knowledge of the public. This approach increases the emphasis on representative citizen participation, who are usually not consulted in planning issues (Steiner, F. R., & Butle, 2007). This approach encourages the creation of community partnership in development projects in KSA.

3. Terms and Definitions

Waterfront is defined as lands fronting of any form of water, including lakes, oceans, rivers or streams of all sizes (Dong, 2004). The Management Act of 1972 defines the term "urban waterfront and port as all developed area that is highly populated and is being used for different purposes such as urban residential, commercial, recreational or shipping. They can be specified at the point where land and water meet within 200 – 300 m from the waterline, within 1-2 km of the land site, and within 20 min walking distance.

Waterfront public space is defined as the publicly accessible outdoor areas designed for human activity, enjoyment, and interaction (Francis, 1987; Gehl, 1987). They are a sequence of spaces and physical setting that facilitate or support the formal and informal activities (Pfeiffer, T., 1980). For this research, the term NJW refers to the public spaces of the New Jeddah Waterfront.

Comfort is defined as a condition of mind reflect a satisfaction with the surrounded environment. According to

Carr et (1992), comfort is a prerequisite of successful public spaces and an indicator of the length and time people use the place.

4. Literature Review

At the beginning of the 1990s, waterfront planning and development was recognized as a field of interest. It became a central topic for many organizations, publications, and conferences. "Waterfront Development" became an area of specialization for members of The American Planning Association (Breen & Rigby, 1994). In 1984, The Architecture Organization published a special issue of waterfronts. In 1991, Landscape architecture dedicated its issue to "new urban waterfront planning" as a field of specialization. Since 1982, waterfront world has published its regular magazine and has held about 18 conferences and workshops on this theme. In the last decade, many waterfront conferences have been held around the world and the literature of this field has been growing significantly in past ten years. Specialty courses on the urban waterfront are held by many universities such as Harvard Graduate School of Design and New York University Graduate School of Public Service (Breen & Rigby, 1994). Today, Urban Waterfront development became an interesting focus in professional and academic research from various fields.

Academically, many scholars have contributed to the field by publishing insights and research. Many publications resulted from international conferences. For example, the book titled *Revitalizing the Waterfront: International Dimensions of Dockland Redevelopment* (1988) illustrates a collection of seminars discussing theoretical frameworks of waterfront development and the changing relationship between port and cities in terms of physical, socio-economic and ecological factors. Furthermore, many studies have analyzed features of urban waterfront development. For instance, the book titled *Urban Waterside Regeneration: Problems and Prospects* analyses the implication of waterfront regeneration in the urban setting focusing on physical context as well as environmental issues (White et al., 1992).

Furthermore, waterfront development became a focus of many international organizations since the 1980s. For example, The Waterfront Center (WFC) founded in 1981 in Washington, DC by Ann Breen and Dick Rigby as a result of their research on waterfronts since 1975. They have published important work including the books titled *Waterfronts: Cities Reclaim Their Edge* (1993), and *The New Waterfront: A Worldwide Urban Success Story* (1996). They focus on analyzing key elements of waterfront developments in a global context highlighting the causes of significant transformations. They discuss waterfront in seven major themes: commercial, historical, recreational, residential, and working waterfronts.

Nowadays, many research centers focus on improving the quality of life by revitalizing waterfronts. One of many is "Brooklyn Waterfront Research Center" (BWRC) which focus on raising awareness about critical issues facing Brooklyn's waterfront following research, teaching and public programming approaches. "Waterfront Research Center" in Seattle, WA is another example, they focus on solving Elliot Bay critical issues.

Waterfront development and redevelopment became a global phenomenon with many areas of interest. Many scholars contribute to this knowledge by providing factors, principles, and guidelines. Academic and practice conference is held around the world is an evidence of this revolutionary trend.

5. Human Comfort in Waterfront Public Spaces:

Public spaces of the waterfronts are characterized by the presence of people who have chosen to use them. Users activities in open spaces are divided into necessary activities which occur regardless of the space quality and optional activities which only occur by choice. If these spaces to become peopled, they must fulfil peoples' needs and preference in an attractive and safe environment. In other words, people need to feel physiologically and physically comfortable to stay. According to Carr et (1992), comfort is a prerequisite of successful public spaces and an indicator of the length and time people use the place. It has two main components: Physical and

nonphysical.

The physical factors parameters include elements giving every space its character. The nature of every space is embedded in its components that include edges, floorscape, urban furniture, uses and activities, and vehicular circulation (Madanipour, 1996). In his study, Mahmoudi (2012) collected a questionnaire survey to obtain people's view of the identified attributes. The overall identified physical factors include the following: seating, paving, shelter and canopy, signs, lighting, planting, proportions of space, fountain and sculpture, harmony between architectural styles of different buildings, accessibility, parking space, facilities for disabled people, traffic management, and maintenance and cleaning. His framework identifies physical problems using both qualitative and quantitative techniques, used as a sophisticated measure to examine the livability and physical quality of the space. Furthermore, Layne (2009) discussed the effect of landscape setting of an open public space, and environmental variable can prevent issues and support interactions between diverse eras. Overall, having a good physical environment is viewed as a central point of a usable open space in urban areas.

Parameters that influence the physical characteristics of an urban open space are edges, floorscape, and urban furniture. Edges are the linear components that define the space which include screen walls, building facades, shrubs, trees, and change in floor level, and shorelines (Lynch, 1960). The floorscape consists of the ground surface that covers hard pavement as well as landscape. Floor cover must fulfil the function, comfort, and suitability to the user. Urban furniture is any three-dimensional elements that enhance the space. Some elements are only for decoration while others have a practical function. The urban furniture includes seating, street lighting and water features.

The non-physical factors parameters Outdoor comfort include thermal, visual, and acoustic aspects. (Wissam, 2012). Urban planners usually stress the importance of physical characteristics in open spaces, the role of non-physical factors includes environmental, social, and functional elements. The evaluation of human comfort has attracted growing interest associated with heat stress and climate changes of outdoor areas. These elements need to be considered to enhance the activities and use of the space. An integrated approach aspects related to thermal, acoustic and visual comfort, combined with landscape and functionality, must be considered to obtain comfort of users (Federico Rossi, 2015).

Thermal Comfort can be enhanced by physical design and management strategies. It is greatly influenced by the microclimate, which is often neglected in urban design. Designers have little influence on features affecting the macro scale such as surrounding topographical features including hills and valleys. However, they have an essential influence in modifying the microclimate to make spaces more comfortable and effective (Carmona, 2010). To enhance the thermal condition, the parameters (air temperature, mean radiant temperature, airspeed, metabolic rate, clothing insulation, relative humidity) can be controlled or modified using urban intervention methods such as cool materials, shading, water elements, green covers, and wind movement.

6. Case study: Jeddah Corniche

Jeddah is a Saudi Arabian port city on the Red Sea, is a modern commercial hub and gateway for pilgrimages to the Islamic holy cities Mecca and Medina. It is the economic and tourism capital of the country. It is the second largest city after Riyadh; Its population estimated around 3.4 million (Jeddah Municipality, 2016).

The foundation of the city of Jeddah is dated back to around 3000 years when groups of fishermen used to settle in it after their fishing trips. After that, the tribe of 'Quda'ah' came to Jeddah 2500 years ago and settled in it and was known by it.

The historical transformation of Jeddah was in the era of the third Muslim Caliph Othman Bin Affan (May Allah be Pleased with Him) in 647 AD when he ordered the city to be transformed into a port to welcome pilgrims (Hajjis) coming by sea for the Holy Pilgrimage in Makkah. To this day, Jeddah is the central passage for both sea and air pilgrims as well as those travelling by road (Mostafa, Lobna A., 2017).

Jeddah has grown during the last decades of the 20th Century, which made the city a centre for money and business

in the Kingdom of Saudi Arabia and a significant and essential port for exporting non-oil related goods as well as importing domestic needs (Jeddah Municipality, 2016).

6.1. Area and Population:

The site boundary of Jeddah city is about 1765 km². The total municipality area is 5460 km². Its population is approximately 3.4 million, with a growth rate of 3.5% per annum. Jeddah is the second largest city in Saudi Arabia and represents almost 14% of the total population of the kingdom estimated at 25.37 million [2009] (Jeddah Municipality, 2016).

6.2. Geographical Location:

Jeddah is located on the west side of the Kingdom (latitude 29.21 north & longitude 39.7 east), On the middle eastern side of the red sea shore. On the east are the plains of Tihama, which are considered the low heights of the Hijaz region. On the west along the beach, there are parallel chains of coral reefs (Jeddah Municipality, 2016).

6.3. Climate:

Jeddah is affected by the climate of the geographic location. This represents a high temperature and humidity during the summer. Humidity reaches its highest levels in summer due to the high temperature of seawater and humidity is lower in winter due to the impact of the average air mass associated with high pressure.

The prevailing winds over Jeddah are North West winds due to the city’s coastal location on the shore of the Red Sea. These winds are usually light-to-moderate winds for much of the year. However, sometimes Southern winds blow through winter, spring and fall accompanied by a rise in temperature. These winds get active sometimes, and their speed may cause great sandstorms. Thunderstorms and rain convoy them.

The most common type of rainfall accompanied by thunderstorms, which usually fall during the winter season, spring, and fall because of the pas due to low pressure from the west to the east and their meeting with the zone of Sudan’s low-pressure heat in the region (Jeddah Municipality, 2016).

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High °C	28	29	31	35	37	38	39	38	37	36	33	30
High °F	82	84	88	95	99	100	102	100	99	97	91	86
Low °C	18	17	19	22	24	24	25	26	25	23	22	20
Low °F	64	63	66	72	75	75	77	79	77	73	72	68

Figure 1. Climate Data of Jeddah Source: Jeddah Regional Climate Center, 2017

7. New Jeddah Corniche:

Jeddah Waterfront is Known as Jeddah Corniche. It is about 110 km coastal recreational area of the city of Jeddah. It extended from North to South along the Red Sea for about 100 km. The Corniche is divided into southern, middle, and north corniche. It contains playground, restaurants, hotels, motels, and beach cabin. The most popular features on the corniche are Al Rahma Mosque located at north Corniche, Jeddah fountain located at the middle Corniche, and the open museum sculptures located in middle Corniche. The Corniche name was driving from the originally French and Italian term for coastal roads (Jeddah Chamber of Commerce).

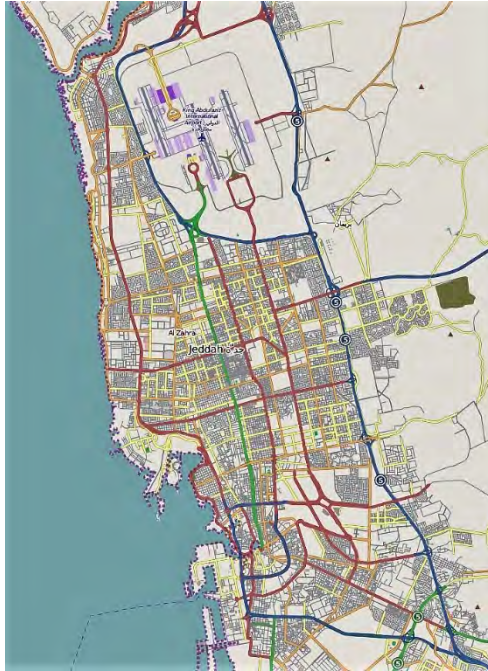


Figure 2. Jeddah and Corniche Map Source: Jeddah Municipality

7.1. New Jeddah Waterfront:

This development phase is the largest development stage for the Jeddah Seafront; with an area of 730,000 m², a capacity of 120 thousand people, and a length of 4,500 km. Some services and elements have been added for the first time at Jeddah’s façade, equipped with services suitable for all categories and ages. Areas include marine walk, bicycle route, sports club, finishing area, open-air gym, playgrounds, water games, chess game, and cafes (Jeddah Chamber of Commerce). There are also facilities available for different hobbies such as hunting are, beach games, and swimming beach. Services available are suitable for all members of the community including people disabilities, blindness, and deaf. Green spaces suitable for a picnic is about 275 Southlands m², and parking areas of 9.40 km can accommodate 3000 cars.

The project also includes open museum and mosque. Furthermore, the first interactive fountain in the north cornice is placed along with regular fountains. The long pedestrian bridge in the kingdom, 650m long is linking the cornice road and Prince Faisal Bin Fahad Street.

The project incorporates the use of an advanced system including sound system, control system, Wi-Fi network, and lighting poles. Other services to enhance the user’s comfort includes bathrooms, and sessions powered by the USB ports. It also incorporates a strong infrastructure including drainage systems, water network, and power grid (Jeddah Chamber of Commerce).



Figure 3. NJW Map illustrations theme parks locations and names Source: Jeddah Municipality, 2017

Table 1. The NJW Seven ThemeParks. Source: authors

Theme Name	Discretion	Services and Features
1. Nawras Square	is one of the main largest squares in term of space named by this name relative to the body of Nawras, one of he most prominent feature of Jeddah.	Seagull, Chess game, fountain, and footbridge
2. The Shell Yard	is near the road and easy to reach. It was named for its shell-inspired chicks	Jeddah model and fountain
3. Unification Square	is distinguished by the presence of a huge object that contains the word monotheism (there is no but Allah, Muhammed is the Messenger of God). It is located in the middle of the square	Fountain, monotheism, mosque, building games, and emergency games.
4. The Sand Square	Is the sand, beach, and swimming area. Hence the name of the theme	Fountain, swimming, and water games
5. Pearl Square	It contains pearl inspired artistic cuisine	Transportation games, space games, fountain, marina, and open museum
6. The fishermen square	The main attraction of this area is the fishing scaffold pier with its magnificent gate, the largest gathering point for fishermen on the Corniche. It was named accordingly	Safari games, sport club, swimming beach, scaffolding for hunting
7. Gulf Square	Is the longest interactive fountain in the North Corniche. It was name because of its outer shape of the bay	Beach games and dancing fountains



Figure 4. Different Views of NJW Source: Jeddah Municipality, 2017

8. Research Survey

This survey took place in December 2017. The media for the survey was electronic participants. The survey was created through KwiksServy.com and distributed electronically. The total number of participants is 102.

The survey is consisting of 11 questions surveying the following goals:

- The first Questions: are participants profile questions to investigate preliminary data such as gender, age, educational background, nationality, and social status.
- Q no.6: is a multiple choice to measure the frequency of using NJW
- Q no.7: is a multiple choice to identify the preferable time for NJW outing
- Q no.8: is a multiple choice to measure types of community outgoing in NJW
- Q no.9: is a multiple choice to measure people preference of different areas with the NJW
- Q no.10: is a rating for level of satisfaction with current conditions and elements of NJW. This part includes 9 rating subductions
- Q no.11: is a suggestion section to investigate people’s needs and preference to enhance their comfort during their visit.

Table 2. Survey Questions and Analytical Results

Question	Result
1. What is Your Gender?	Figure 5
2. What is Your Age Range?	Figure 6
3. What is Your Academic Background?	Figure 7
4. What is Your Nationality?	Figure 8
5. What is Your Social Status?	Figure 9
6. How frequently do you visit the new Jeddah Waterfront?	Figure 10
7. What is Your Prefer Time to Visit?	Figure 11
8. Most of your visit to Jeddah Waterfront is with	Figure 12
9. Where do you Prefer to Sit?	Figure 13
10. How much are satisfied with the following: 1 is the lowest 5 is the highest	Figure 14
11. Any suggestion to improve the quality of the New Jeddah Cor-niche?	Figure 15Figure 16



	Female النساء	Male الذكور
All Data	46 (46%)	54 (54%)

Figure 5.



	15-20	21-30	31-40	41-50	50
All Data	38 (37%)	19 (19%)	13 (13%)	23 (23%)	9 (9%)

Figure 6.



	High school المرحلة الثانوية	Bachelor Degree درجة البكالوريوس	Master Degree درجة الماجستير	PHD degree درجة الدكتوراه
All Data	33 (32%)	54 (53%)	11 (11%)	4 (4%)

Figure 7.



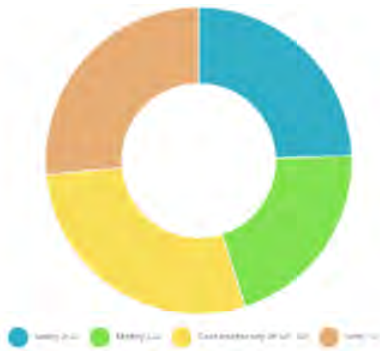
	Saudi	non Saudi	undefined
All Data	92 (93%)	7 (7%)	0 (0%)

Figure 8.



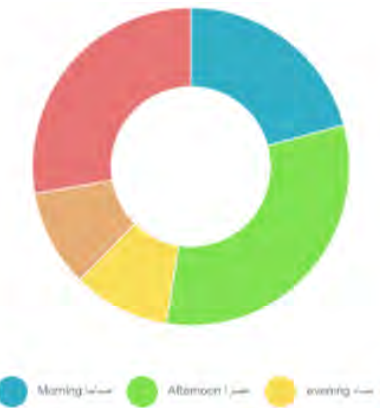
	Single غير متزوج	Married متزوج
All Data	52 (51%)	50 (49%)

Figure 9.



	weekly أسبوعياً	Monthly شهرياً	Good weather only الطقس الجيد فقط	rarely نادراً
All Data	25 (25%)	21 (21%)	29 (28%)	27 (26%)

Figure 10.



	Morning صباحاً	Afternoon ظهراً	evening مساءً	night ليلاً	depends on your time بمقتضى وقتك
All Data	21 (21%)	32 (32%)	10 (10%)	10 (10%)	28 (28%)

Figure 11.



	Alone وحداً	Friends مع الأصدقاء	Family مع العائلة
All Data	3 (3%)	25 (25%)	74 (73%)

Figure 12.



Figure 13.



Figure 14.

لتسلي ان تدوين التصاميم بعمق اكبر بحيث يوضح في الاعتبار المتطلبات الاستثمارية والبنية والاجتماعية على مستوى عالمي
مواقف السيارات قليلة
الترح العاكس مع شركة نظافة متكررة لخدمة وصيانة ونظافة الحسابات. انحر كم انه وان تحزن بزمزم تقطى قيمة مضافها
اشارة التوروس سيدت اجمة وعرفلة الاسياوية . والترح عمل بوتون في الشارع بكثرة
أرجو مراعات مواقف ذوي الاحتياجات الخاصة للمواقف حدا قليلة و يستولى عليها نابل اسماحهم
زيادة مواقف السيارات
واحيه اعادت لخدمه روتتها شكرا امانة جده
زيادة الخدمات الاعاشة وتنوعها بالتمهيرة لكل شرايح المجتمع
وضع لوحات الكترونية لتداخل المواقف لتوضح عدد المواقف المتاحة
اتساعة لسيات
التشديد على عقوبة العابثين والسماح للتدخين واليهوبين بالمتراجح هو انهم في المكان في حجرة التهام والانب العام
عطيه للتغطية لمرئادي الواجهه من ناحية الملابس والتصرف وساحته الجرية للشخصية. انكراسي حسب العادات يمكن عائله صغيره تحجز كرسي كبير الاضواء في بعض المواقف داخل الواجهه تحتاج الى بياده انتشار عمله
المقاولين وهم غير مرتدين زي موجد ولون مخصص لكل غرض منهم مثال المزارعين المصير والصيدية بيع وهكذا زياره الترحات الارشادية بواسطة شئائه اليح الخائططافة الدورين للواجهه والحسبات
المصالحاة على نظافة الأماكن وذلك بالمراقبة المستمرة ومنع استخدام المنطقة للتدخين و التدخين و المصالحاة على نظافة دورات المياه والاهتمام بالمظهر العام مع الشكر لكم ا
مراقبه دورات المياه بشكل يومي
توفير لوحات ارشادية توضح اماكن مواقف السيارات المتواجرة

Figure 15.

اتصالحاة على نظافة الأماكن وذلك بالمراقبة المستمرة ومنع استخدام المنطقة للتدخين و التدخين و المصالحاة على نظافة دورات المياه والاهتمام بالمظهر العام مع الشكر لكم ا
مراقبه دورات المياه بشكل يومي
توفير لوحات ارشادية توضح اماكن مواقف السيارات المتواجرة
زيادة عدد المطلات حتى يستطيع الزائر في الصباح والمظهر الطلوس تحتها
امكان مخصصة للتراب
توفير خدمات عامة مثل مياهي مطاعم
حديقة الله ببارك في التلايه الساحرة على بلازلا الوطن دام عزك يا وطن
المصالحاة على النظافة
لاوجه
لا يوجد كامل والتكامل له
ترويه رجل الاذن
التنظيف
وضع اماكن بيع طعام
زيادة مواقف السيارات
نظافة السكان وصل عو به للمفروبين وجعل اماكن مخصصة لتلاطسه والمطروبات وجعل مقاعد مريحة

Figure 16.

9. Discussion

The survey results showed that from all participants almost half (46%) are female while (54%) are male which shows almost equal distribution between the two genders. Most of the participants (37%) are in age 18-20, (19%) are 21-30, (13%) are 41-50.

From all participants, more than half (53%) holds a bachelor degree while only (11%) and (4%) holds a master and PhD respectively; (32%) holds a high school degree, which may represent the age range 18-20 of the participants. Most of the sample (93%) are Saudi while only (7%) are from other nationalities which mostly represent the feedback of Saudi residents in Jeddah. Almost half of the participants (52%) are Single and (49%) are married, which represents feedback of both social status especially in a large city such Jeddah.

Regarding NJW: (28%) recorded frequent outgoing in good weather only, (25%) weekly, (27%) rarely, and (21%) monthly, which represent the impact of weather on people social and outgoing behaviour in hot, humid cities such in Jeddah.

Regarding preferable outgoing timing to NJW, (28%) prefer outgoing timing based on their free time while (32%) prefer afternoon, (21%) prefer mornings and only (10%) prefer evening and night time. People may prefer the afternoon time because of sunset views or to find comfortable places for seating before the crowd.

According to participants, (73%) prefer to go out with their family, (25%) with friends while only (3%) prefer to go out by themselves which represent the social tendency and culture of Jeddah society in general.

Regarding the satisfaction rating with the current condition of the NJW, quality and cleanliness of the spaces scored (4.06 /5). Although this rating sounds like an average, it should be higher for a new location such as NJS which was launched by December 2018, a few days before the conduct of this survey.

The number of and quality of seating scored (3.82 /5). This may be an indicator of a shortage of sitting places or crowding of the space. The quality of lighting during the day scored (4.11 /5), and the availability of parking scored lower rating of (3.7 /5). Although the space provides a parking area to fit about 3000 cars, shortage of parking may be due to the unexpected crowding.

The noise and smell of the area also scored a low rating of (3.4 /5). Similarly, the availability of quality services such as foods, cafes, restaurants, and snacks scored (3.17 /5). This indicates a shortage of food and beverage facilities which may affect long-term people behaviour or frequency of visit.

Safety from crime rating was above average (4.09 /5) while the feeling of comfort within the space was lows (3.93 /5). This may be an indicator of some missing design quality related to user's comfort within the urban space. It could be due to safety, availability of services and facilities, or other items that scored below average rating. The overall satisfaction with Design scored (4.45 /5) which considered an overall good rating for the space.

Finally, participants, their suggestions and preference in NJW can be summarized the following: to provide more parking area, especially for special needs and disabilities; maintain the cleanness of the space and washroom by hiring cleaning company; to provide efficient lighting through day; to provide more comfortable seating than the available concrete one; to use more graphic signs for direction and information; to increase food services; and to provide special area for male singles.

10. Conclusion and Recommendation

Based on user's satisfaction and preference approaches, this study main objective is to understand the relationship between urban physical quality and users satisfaction and comfort. The research investigated data from both qualitative and quantitate approach illustrates indicating results that serve the main objectives of this research

- The importance of NJW as an outing destination in Jeddah City.
- Users are unsatisfied with the number of parking available. This can be improved by increasing the number

of parking for disability as well as the use of smart technology such as a sign with parking number available in this lots to enhance cars circulation in the parking area.

- Users are unsatisfied with the noise and smell within the space. This can be improved by providing covered trashcans instead of the open ones.
- The design should provide filtration system and buffers for street noise or fountains.
- Users are unsatisfied with the cleanness of the spaces and washrooms. This can be enhanced through continues maintenance or hourly basis.
- People are unsatisfied with the quality and amount of food and beverage services in JWF. Food services should be increased such as restraints, cafes, snacks shops, food trucks, or snack booths.
- Users prefer seating near water. Develop areas that are physically related to the water with jetties, steps, boat clubs, ramp and marinas.
- Design activities should be organized toward the water view.
- Need to provide benches positioned with good viewpoints of the sea.
- More comfortable seating should be provided and well distributed along the NJW.
- Locate sitting next to the kid’s playgrounds for safety considerations.
- Effective lighting programs can create a stronger sense of security at dusk or in the evening, particularly at the shore area. Provide lights on sidewalks and activity areas to extend opportunities for activity into the evening.
- Increase signage number and variety: informational, directional, prohibitory. Signs in public spaces are often prohibitive or regulatory. While these notices are sometimes required for legal or health and safety reasons, observation showed that prohibitions that appeared to be arbitrary or unreasonable were often ignored.
- Careful attention to providing more shaded areas especially for the hot afternoon hours to extend the space use during the day and enhance the user’s comfort.
- Respect the cultural aspects of Saudi Arabia and the need for privacy especially for women and families.
- Finally, waterfronts present the unique opportunity for education and raising awareness. Increasing the awareness through campaigns can enhance people belonging, community attachment, and caring about the space.

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