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Public Perception on Attributes of Walking Avenues in Urban Areas of Sri Lanka

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ABSTRACT

Currently, the urban areas become more congested; numerous health concerns such as obesity are becoming more prevalent among urban dwellers followed by lack of exercise. With this situation, provision of adequate areas for exercising to the satisfaction of all is critical with limited space in urban areas. Hence, an ideal solution emerges as 'walking ways' where a strip of land is only needed. The interest of walking ways is also developed in Sri Lanka very recently. However, there is no evidence on a research to identify the attributes, should developed along with the walkway to increase the attraction of the users. The main aim of this study is to examine the public perception on attributes of walking avenues in urban areas of Sri Lanka. Data was acquired by a personal-administered questionnaire from a convenience sample of 150 walking trail users on three settings. The descriptive statistics, univariate analysis, hoc multiple comparisons and homogeneous subsets technique were used as methodological analysis. The findings disclose 'safety' as the preferred attribute while shading and natural settings significant. An income variation presents that user with above the income level of LKR 65,000 preferred cafeterias providing herbal drinks while the users with below that income level are less interest with the attributes of changing rooms and street vendors. This article fills the gap of identifying user perceptions particular to a novel design concept of walking trail in Sri Lanka with interesting attributes getting more benefits.

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1. Introduction

In recent decades, urban areas have faced difficulties related to increased population concentration. Creating a pleasant urban environment that improves people's quality of life has become problematic. As cities get denser, public open spaces such as parks, playgrounds, beaches, natural vistas, observation points, and so on, are attracting more attention from academic and policy circles. The public open spaces become locations for people to meet, relax, and exchange ideas and engage physical exercises that improve the social wellbeing of residents. Accordingly, public open spaces play multiple roles in making the cities more livable such as facilitate residents' recreation activities, provide a healthy living environment, preserve the biodiversity encourage the social interactions and promote attractive tourism development (Adiba & Roshida, 2019). However, it is hard to develop larger locations in the city to construct public open spaces to accommodate recreational demand. In this scenario, a new design concept was introduced to overcome this problematic situation. Accordingly, the "walking path" is characterized as the most novel

and original idea, which arose from the conversion of narrow strips, primarily of stream bank reserve or areas accessible between two different land uses, with the purpose of fostering urban residents to engage in physical activity. Henceforth, the government's attempt to improve the walkways in line with the elements of current land use planning and typically acknowledged in different themes such as jogging track, walking avenue, walking track and walking trail, etc., (Ranasingha & Ashika, 2016). Walkaways promote the preservation of bio-diversity, adding a more esthetic view to the urban milieu as well as enhancing social values with improvement of quality of life of urban dwellers.

The quality of life of the urban dwellers is usually based on the quality features of open spaces including walking avenues that meet their desires and requirements. Although the projects of public open spaces development including walking avenues have flourished only with physical development but ignored the public desires and requirements in planning and designing of public open spaces in different urban setting. These inconsistencies have led new development initiatives to lose their value and become a societal expense. Lately people's use and contentment with public open spaces as well as influencing variables has been the subject of much scientific research. Consequently the physical features of open spaces (including walkways) such as accessibility, size, facilities, and natural view as well as quality have been proven to influence people's experiences and perceptions (Bedimo-Rung, et al., 2005; Ezennia, et al., 2017; Farahani & Maller, 2018). Thus, without adequate upkeep, simply having facilities is insufficient (Koppen, et al., 2014). Accordingly, physical characteristics, services, maintenance, and management of open spaces, on the other hand, are internal variables that have a direct impact on people's intention and preference (Bedimo-Rung, et al., 2005; Loukaitou-Sideris, et al., 2016; Ramlee, et al., 2016). Meanwhile, several external elements are indirectly related to people's perceptions and contentment with open spaces. One of the most important aspects in this regard is user behavior. Other users' misbehavior leads to widespread unfavorable perceptions. In contrast, socioeconomic characteristics such as age, gender, education, occupation, and income of users (park, walkway, and playground etc.) are equally related to people's feelings within the open recreational space. These aspects are crucial in the provision of public open spaces to increase their quality and design them in accordance with user intentions and preferences. However, prior study has found significant links between public open spaces mainly park and playground features and user preference, as well as between neighborhood preferences and open spaces feature well-being. It conveniently ignores recreational walking, particularly the novel concept of walking trails and its attributes. Therefore more research is needed to examine individual walking track characteristics in depth and assess their relationships with contextually relevant social and economic characteristics of users to close these gaps and establish a better evidence basis to guide walking track design. The main aim of the present study is to examine the public perception on attributes of walking avenue in urban areas of Sri Lanka while assessing comparative influence of individuals' social and economic dynamics with walking trail attributes. The findings of the study will facilitate the policymakers and planners to enhance the use of walking trails effectively than the current use.

2. Theoretical Background

The concept of public open space is prestigious urban design element in planning field (Rogers, 1999; Ezennia, et al., 2017). Public open space is often acknowledged by urban planners and landscape architects as per the acronym of 'POS' (Manta, et al., 2018). Although, within the wider built environment literature, there is a lack of unanimity on how to define public open space. Accordingly, Gold, (1980) defined the term of public open spaces as different meanings which were "Public" denoted as national or local government ownership; "open" publicized as to access for all or not a space for buildings and place for a green; and "space" called as a continual area or expanse which is free, vacant, or unoccupied. Afterward Madanipour, (2003) defined public space as areas beyond the control of an individual or small group, bridging the gap between private and public areas and serving a range of overlapping functional and symbolic functions which have multipurpose accessibility. Accordingly, public open space allies to those entire elements inbuilt and natural environment where the public has free access within the framework of their function (Koppen, et al., 2014) either for collective or personal activities (Wang, et al., 2015). In the current urban milieu, public open spaces are providing tremendous benefits to the economy, society and natural environment viz., protection of natural resources, conservation of historic and archeological sites, resource management, encourage the local economy through job creation and investment, social interaction and social cohesion and expressively providing physical and mental fitness (health) via offering recreation and leisure (Yassin, et al., 2012; Wan & Shen, 2015; Ranasingha & Ashika, 2016; Rahana & Nizar, 2020).

Recreation, in its wider sense, is identical with leisure for most people or else, recreation and leisure are synonymous terms for things which are done during free time (Koppen, et al., 2014). Conversely, the concept of leisure and recreation has a long-lasting history. As per the historical records, the concepts of Garden City, City Beautiful Movement and Neighborhood Unit can be considered as basic theories relating to the notion of recreation since the utopian philosophic era, while recreation was considered to restore mental energy/mental balance by discharging (surplus) energy which can be physical and/or psychological (Jazilatur, 2008). Accordingly, it was developed as far back as the late 19th century since seems applicable today too. Present day recreation still functions as a tool to restore and conserve men and women's energy for further work, duties, and obligations (Brademas, 2018). Even though, the physical activities are being phased out of daily life, transportation, and the workplace while some people walk and exercise in their spare time to make up for their inactive lifestyles. Accordingly, residents have access to local physical activity possibilities, notably recreational walking, through public open spaces (POSs), which are regarded as an important community resource for facilitating active living in the modern era. In modern built environment literature, studies are confirmed significant positive associations of POS access with recreational walking (Bjerke, et al., 2006; Conedera, et al., 2015; Manta, et al., 2018; Adiba & Roshida, 2019). Conversely, planning and design literature elaborated the importance of planning the suitable spaces for walking in urban environment (Giles-Corti et al., 2005; Jim & Chen, 2006) while requirement of overlong space for such development. The present

high demand and competition for urban land resources, it is extremely difficult to locate land for public open space development, explicitly for recreational walking in metropolitan regions. Consequently, narrow strips of stream bank reserve were identified as prime areas for designing public open spaces to promote recreational walking (Refer Figure 1). The new style of public open space is a renowned idea in urban planning today, and it is often recognized in several themes, such as jogging track, walking avenue, walking track, and walking trail, (Ranasingha & Ashika, 2016) inter alia.

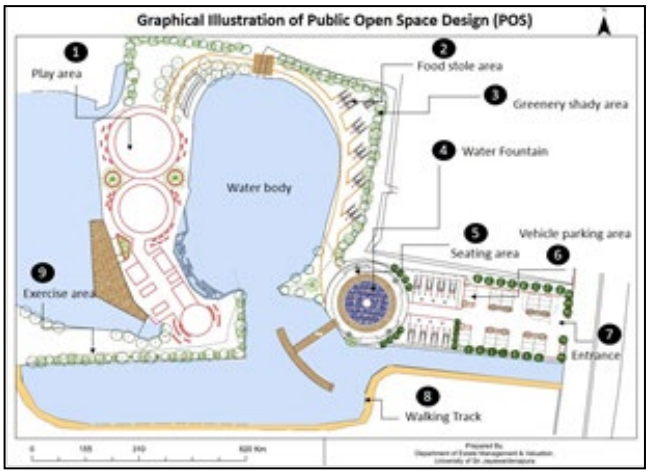

Figure 1 Graphical Illustration of POS with Walking Avenue (Constructed by Author, 2019)

2.1 Attributes of walking Avenues

There is very little information relevant to walking avenue attributes in prevailing literature since the concept has been newly endorsed in urban planning. Therefore, the common characteristics of public open spaces were considered for this study. The studies found that "access" as a major attribute in open spaces (Grahn & Stigsdotter, 2003; Peterson, et al., 1983; Jim & Chen, 2006; Schipperijn, et al., 2010; Koppen, et al., 2014; Loukaitou-Sideris, et al., 2016). According to Bedimo-Rung et al. (2005), access has been defined as "the ability of people to get to and navigate within a public open space" which has been measured using the criterion of park availability to the community, distance from the visitors' place of residence, and ability to navigate within the park. In addition, Fisher et al., (2004) empirically investigated the accessibility measures of older adults towards open spaces in Portland. The results revealed that the overall measure of walking activity within the neighborhood was significantly associated with the number of parking areas, paths, and trails per neighborhood acre, parking condition and traffic to the park. Accordingly, "access" was the main attribute of public open spaces in different studies.

Subsequently, the "Aesthetic appearance" of the natural environment was identified as another attribute of public open spaces in literature. Accordingly, Gobster and Westphal, (2004) confirmed that aesthetic appearance is a critical factor for attracting visitors to Chicago River greenways. Furthermore, Giles-Corti et al., (2005) examined the aesthetic components for contributing to people's enjoyment of open spaces which were tree-lined paths, water features, and the presence of birds, etc. However, aesthetic appearance was measured as per the different dimensions of the natural setting, particularly on perception and preference of user experiences of nature view, landscape, and the environmental features and qualities (Alessa, Bennett, & Kliskey, 2003; Bedimo-Rung, et al., 2005; Brademas, 2018; Madureira, et al., 2018).

The "safety" is one of thr important attribute that has significantly considered when developing public open spaces according to different perspectives of literature (Bedimo-Rung, et al., 2005; Bjerke, et al., 2006; De La Barrera, et al., 2016; Jim & Shan, 2013; Ode Sang, et al., 2016; Schetke, et al., 2016). Bedimo-Rung et al. (2005) empirically investigated the importance of safety factors for attracting visitors to the park environment. The results indicated that the condition and safety of play equipment are significantly impacted by parents' decisions to visit parks with their children. Conversely, Stodolska et al., (2009) showed that how gangs and gang-related drug activities in park environments have discouraged Latino residents' preferences to visit park environments. Accordingly, safety has been confirmed as an essential attribute within the development of open spaces in different countries.

Finally, the studies were identified the importance of "available amenities" in public open spaces in different urban settings. Furthermore, the availability of amenities has been classified as per the different branches in different studies. Accordingly, Aspinall et.al (2008) studied that how "Cafeteria and Sanitary facilities" affected to the older people preferences towards park visitation. The value of having the toilet and cafeteria facilities is significantly greater in this study. In other reference studies indicate that people are more likely to visit the places if it is having the facilities, such as cafes, toilets, changing room, sign system, parking, availability of benches and shadings, etc. which significantly associates with visitors' intention to select particular public open space for a visit (Zhang, et al., 2015; Wan & Shen, 2015; Wang, et al., 2015; Schetke, et al., 2016; Manta, et al., 2018; Madureira, et al., 2018).

2.2 User Perceptions on Walking Avenues

The term "perception" is often defined as "a cognitive meaning which having a set of detection and interpretation of sensory information" (Lemberg, 2010). User perception of public open spaces including walking avenues can be reviewed through the lens of how such open areas being appreciated, and whether or not they are ideal for other spaces. In this sense, perception can be identified as subjective sympathetic feeling, thus, in reality, can be observed across the behavior of individuals through their interactions surrounding the environment (Addis, et al., 2011). Thus, the people's behavioral intentions and perceptions differ depending on their specific qualities. Farahani & Maller, (2018) studied the individual characteristics of green spaces as per the criteria of gender, age, marital status, ability status, immigration status, acculturation status, cultural knowledge, ecological knowledge, place of residence, etc. Accordingly, user perception is an intellectual, complex, and multi-dimensional phenomenon that has been mainly examined based on biological and social, economic, and cultural aspects of users in particular urban areas (Adiba & Roshida, 2019; Ezennia, et al., 2017). Accordingly, the socio-economic and cultural factors mainly investigated on users' age (Schetke, et al., 2016; Schipperijn, et al., 2010; Kienast, et

al., 2012), gender (Ode Sang, et al., 2016; Schipperijn, et al., 2010; Carter & Horwitz, 2014; Conedera, et al., 2015), education, income, and employment (Jim & Shan, 2013; Schipperijn, et al., 2010; Ramlee, et al., 2016), etc. These factors are important to the provision of public open spaces to improve the quality of public open spaces and design them in line with user intensions and preferences.

Prior research has discovered substantial connections between POS features and user preference, as well as substantial connections between neighborhood preference and well-being on POS features. It does not, however, explicitly address recreational walking, including the novel paradigm of walking avenues and its characteristics. To address these gaps and develop stronger evidence foundation to guide walking track construction, further research is needed to evaluate specific walking track elements in depth and analyze their links with contextually relevant social and economic factors of users.

3. Methodology

3.1 Description of Study Area

The study focused on three urban walking avenues that are recently developed from two key neighborhood districts, which are located in western province Sri Lanka (Refer Figure 2). The Table 1 presents the specific characteristics of each selected walking avenues.

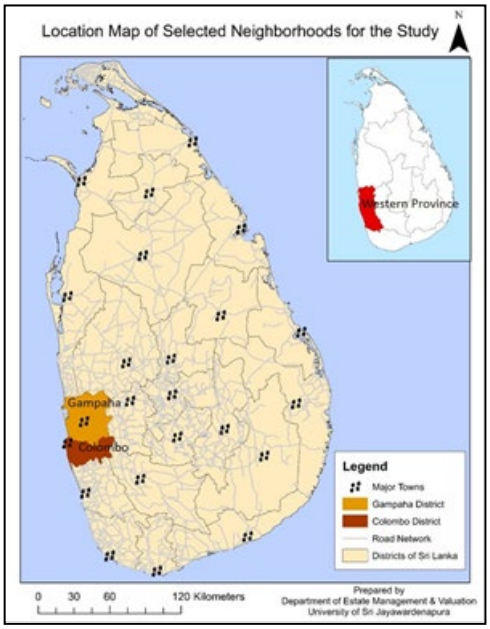

Figure 2 Location Map of Neighborhood Districts (Constructed by Author, 2019)

3.2 Data Collection - A Selection of Respondents

The mixed method approach is primarily adopted for this study. The primary data was collected through a self-administered questionnaire, face-to-face interviews, and observations. The users of the walking ways are the target population of the study. The design of the questionnaires is based on a literature survey and pilot field observation. The questionnaire consists of nominal, ordinal, and Likert scale questions. The sample size is determined as 50 from each location while adopting the convenience sampling method. Conversely, semi-structured interviews were carried out for in-depth understanding of research arena with selected professionals, in particularly urban planners, engineers and technical officers of the Sri Lanka Land Reclamation & Development Corporation, Provincial Road Development Authority and Urban Development Authority. The secondary data was mainly collected from the main planning authority in the relevant areas.

3.2 Data Analysis Procedure

The descriptive statistics is used to identify the socioeconomic characteristics of the respondents from the three case study areas. The Univariate analysis was used to analyze the level of affection of social factors of the mentioned facilities. For the purpose of Compare Dimensions, those factors can group according to the output of univariate analysis. Then, Robust test of equality of mean was applied to check whether mean of all dimensions are same or not. If at least one dimension is different from other, then the technique of Homogeneous Subsets were utilized to analyze the users' perceptions towards walking avenue attributes by classifying them with comparable mean values (to rank the above identify groups of facilities)

Table 1 Characteristic of Selected Walking Avenues

Parliament Walking Track (Case A)	Oruthota Walking Track (Case B)	Mahara Dalupitiya Walking Track (Case C)
Type of Development		
Recreational	Recreational	Recreational
Purpose of Development		
Retention of water	Retention of water	Retention of water
Water Body		
Diyawanna Oya	Ooruwal Oya	Mudun Ela stream
Length and Width of the Track		
1.88km(L) 5m(W)	1.95km(L) 2.4m(W)	1.7km(L) 2.4m (W)
Location		
Western province	Western province	Western province
Colombo District	Gampaha District	Gampaha District
Sri Jayawardenepura Kotte	Oruthota	Kiribathgoda
Significant Elements		
covered with Sandy Loam Soil, Solar power lightning, Shady trees, benches, parking, and cafeteria, etc.	covered with Paving blocks and it contains 120m length and 8 ft. width foot therapy section. Solar power lighting, Shady trees.	covered with Paving blocks and it contains 120m length and 3 feet width ft. therapy section. Solar power lighting, Shady trees
Present Condition		
Entrance		
		
Walking Track		
		
Parking		
		
Bench Arrangement		



Cafeteria/ food outlets



4. Results and Discussion

4.1 Socioeconomic Characteristics of Respondents

The five socioeconomic parameters of gender, age, education level, employment type, and income level were used to identify the characteristics of respondents are summarized in Table 2.

The male respondents outnumbered female respondents by a little margin. The respondents were classified into seven age groups viz., <18 years (Σn = 3);19- 25 years(Σn= 9); 26-35 years(Σn= 36); 36- 45 years(Σn= 63); 46-55 years(Σn=34); 56-65 years(Σn=4) and >66 years (Σn=1). In case A, the majority of respondents (n= 29) had degree-level education, whereas in cases B (n=26) and C (n=22), the majority of respondents had education levels up to A/Ls. Among all 150 respondents, employment types were identified as private sector Employed (Σn=67); Government sector ((Σn=24); Self employers (Σn=34), Unemployed person (Σn=16) and Retired (Σn=9). Majority of respondents in case A earned LKR 65001 – 75,000 income range per month (n=12) and 14% of respondents' monthly income more than LKR 100,000. Conversely, majority of case B (n= 13) and C (n=12) respondents income level were LKR 45,001- 55,000, and anyone not earned more than LKR 100,000 per month.

Table 2 Socio Economic Characteristics of Respondent

Socioeconomic Parameters	Case A		Case B		Case C	
	Frequency	%	Frequency	%	Frequency	%
Gender						
Male	36	72	38	76	40	80
Female	14	28	12	24	10	20
Age						
>18	1	2	2	4	-	-
19 - 25	4	8	3	6	2	4
26 - 35	13	26	14	28	9	18
36 - 45	20	40	21	42	22	44
46 - 55	11	22	9	18	14	28
56 - 65	1	2	1	2	2	4
<66	-	-	-	-	1	2
Education Level						
Up to O/L	2	4	18	36	12	24
up to A/L	19	28	26	52	22	44
Degree Level	29	58	6	12	16	32
Employment Type						
Private Sector	27	54	21	42	19	38

Government Sector	14	28	6	12	4	8
Self-Employment	4	8	12	24	18	36
Unemployment	1	2	7	14	8	16
Retired	4	8	4	8	1	2
Income Level						
<15000	5	10	4	8	10	20
15001 - 25000	2	4	5	10	4	8
25001 - 35000	2	4	11	22	7	14
35001 - 45000	1	2	9	18	9	18
45001 - 55000	3	6	13	26	12	24
55001 - 65000	7	14	2	4	8	16
65001 - 75000	12	24	3	6	-	-
75001 - 85000	10	20	2	4	-	-
85000 - 100000	1	2	1	2	-	-
>100000	7	14	-	-	-	-

Source: Survey data 2019

4.2 Evaluating Walking Avenue Attributes in Relation to Socioeconomic Characteristics of Users

In the questionnaire survey, it has been collected data from respondents about different type of facilities such as Toilets, Changing Rooms, Cafeteria, and Street Vendors, parking facility, Availability of Benches, Shading, Land Escape, Natural View, and Safety. To analyze the level of affection of above social factors for the mentioned facilities the Univariate analysis were used. Accordingly, Table 3 represents the significant values of each socio-economic factors and different facilities of walking avenues in three case areas

Table 3 Walking Avenue Attributes in Relation to Social & Economic Characteristics of User

Test of Between – Subjects Effects										
Types of facilities	C	SV	P	B	T	CR	Sh	LE	NV	Sa
Social and economic factors	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.
Corrected Model	.053	.273	.156	.156	.070	.053	.047	.315	.643	.508
Intercept	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Gender	.112	.206	.500	.500	.066	.063	.530	.329	.312	.042
Age	.415	.814	.183	.183	.382	.537	.116	.274	.996	.523
Education	.967	.783	.239	.239	.248	.652	.220	.339	.900	.721
Employment	.141	.704	.481	.481	.671	.052	.143	.419	.317	.140
Income	.010	.380	.135	.135	.083	.055	.775	.975	.649	.294
Gender * Age	.268	.666	.121	.121	1.000	.105	1.000	.304	.210	.172
Gender * Education	1.000	.	.432	.432	1.000	.681	.319	.304	1.000	.818
Gender * Employment	.780	1.000	.432	.432	1.000	.681	.319	1.000	1.000	.490
Gender * Income	.962	.720	.680	.680	.973	.261	.504	.369	.945	.332
Age * Education	.076	.483	.178	.178	.490	.304	.469	.756	.416	.269
Age * Employment	.600	.497	.440	.440	.639	.930	.056	.941	.701	.096
Age * Income	.758	.347	.635	.635	.710	.105	.676	.067	.382	.977
Education * Employment	.	.	.	.	.	.	.	.	.	.
Education * Income	.477	.122	.638	.638	.743	.685	.660	.235	.335	.487
Employment * Income	.620	.989	.592	.592	.158	.247	.600	.537	.611	.908
Gender * Age * Education	.	.	.	.	.	.	.	.	.	.
Gender * Age * Employment	.	.	.	.	.	.	.	.	.	.
Gender * Age * Income	.	.	.	.	.	.	.	.	.	.
Gender * Education * Employment	.	.	.	.	.	.	.	.	.	.
Gender * Education * Income	.	.	.	.	.	.	.	.	.	.

Gender * Employment * Income	.	.	.	.	.	.	.	.	.	.
Age * Education * Employment	.	.	.	.	.	.	.	.	.	.
Age * Education * Income	.617	.809	1.000	1.000	.785	.909	.103	.320	.485	.726
Age * Employment * Income	.160	.866	.537	.537	1.000	.747	.122	.228	1.000	.856
Education * Employment * Income	.	.	.	.	.	.	.	.	.	.
Gender * Age * Education * Employment	.	.	.	.	.	.	.	.	.	.
Gender * Age * Education * Income	.	.	.	.	.	.	.	.	.	.
Gender * Age * Employment * Income	.	.	.	.	.	.	.	.	.	.
Gender * Education * Employment * Income	.	.	.	.	.	.	.	.	.	.
Age * Education * Employment * Income	.	.	.	.	.	.	.	.	.	.
Gender * Age * Education * Employment * Income	.	.	.	.	.	.	.	.	.	.
Error	120.33	55.66	15.08	15.083	9.583	55.250	9.333	8.750	5.833	7.047
Total	1625	1253	2371	2371	3394	1437	2870	3203	3545	23360
Corrected Total	677.47	223.3	73.87	73.873	52.240	310.86	53.333	38.193	21.473	27.762
R Squared	.822	.751	.796	.796	0.817	0.822	.825	.771	.728	.746

*Note: (Cafeteria= C, Street Vendors=SV, parking facility=P, Availability of Benches= B, Toilets = T, Changing Rooms= CR, Shading=Sh, Land Escape= LE, Natural View= NV, and Safety=Sa.)

Source: Survey data 2019

As per the findings of table 3, all the significant values are greater than 0.05 (5% level significant) that are insignificant apart from the income level with facility of cafeteria and gender with safety facilities. Hence, it is indicating that the Income affected to the Facility of Cafeteria. In such a situation, it is appropriate to check the relation of various income categories. For this purpose, the study was use the method of post Hoc Multiple Comparisons for Observed mean. The results reveled that mean value of all income groups were not different expect few groups. Therefore, for the purpose of Compare Dimensions it can group as follows according to the output of post hoc output.

- Group 3.1: Cafeteria facilities for person who's income level below Rs. 65 000
- Group 3.2: Cafeteria facilities for person who's income level above Rs. 65 001
- Perception on safety different among gender groups.

Therefore, safety can group as below for the purpose of Compare Dimensions.

- Group 10.1: Safety of male
- Group 10.2: Safety of Female

To Compare 12 groups, researcher can use One-way ANOVA or Robust test after test homogeneity of variance.

Table 4 represents each group of variables for compare dimension.

Table 4 Comparative Dimension of each Variable

Group No	Dimensions
Group 1	Facility of Toilet
Group 2	Facility of Changing Room
Group 3: 1	Cafeteria facilities for person who's income level bellow Rs. 65 000
Group 3.2	Cafeteria facilities for person who's income level above Rs. 65 001
Group 4	Availability of Street vendor
Group 5	Facility of Car parking
Group 6	Availability of Bench
Group 7	Availability of Shading
Group 8	Availability of land Scape
Group 9	Availability of Natural View
Group 10.1	Safety of male
Group 10.2	Safety of Female

The Levene's Test for Equality of Variances is used to determine variance homogeneity.

Table 5 Test of Homogeneity of Variance

Test of Homogeneity of Variances			
Dimension			
Levene Statistic	df1	df2	Sig.
142.777	11	1488	.000

P value is less than 0.05 (P value < 0.05); therefore reject the null hypothesis. Hence, at least one variance is differing from others. Therefore, Robust test of equality of Means were apply to check whether means of all dimensions are same or not (refer Table 5).

Table 6 presents the results of the Robust Tests of Equality Means of this study.

Table 6 Robust Test of Equality Means

Robust Tests of Equality of Means				
Dimension	Statistic	df1	df2	Sig.
Welch	4.213E3	11	425.109	.000
Brown-Forsythe	951.874	11	385.445	.000
a. Asymptotically F distributed.				

P value is less than 0.05 (P value < 0.05); therefore reject the null hypothesis. At least one Mean Value is differing from others.Therefore, homogenous subsets technique was applied to identify each homogenous group of dimensions. Table 7 presents the homogeneous subsets of the Study.

Table 7 Homogeneous Subsets of the Study

Dimension Hochberg							
Group	N	Subset for alpha = 0.05					
		1	2	3	4	5	6
Group3.1	114	2.04					
Group4	150		2.62				
Group2	150		2.74				
Group5	150			3.91			
Group6	150			3.91			
Group3.2	36			4.03			
Group7	150			4.33	4.33		
Group8	150				4.59	4.59	
Group1	150				4.72	4.72	
Group9	150					4.85	
Group10.1	114						4.95
Group10.2	36						4.98
Sig.		1.000	1.000	.198	.365	.994	1.000
Means for groups in homogeneous subsets are displayed.							

Source: Survey data 2019

As per the results of Table 7, five homogenous groups of dimensions were identified viz., Group 10.2 and Group10.1; Group 1, Group 7, Group 8 and Group 9; Group 3.2, Group 5 and Group 6; Group 2 and Group 4 and Group 3.1. According to the identified groups of the study, the above ranks can expansion as follows.

- 1st Rank: Safety of male, Safety of Female
- 2nd Rank: Facility of Toilet, Availability of Shading, Availability of land Escape, Availability of Natural View
- 3rd Rank: Cafeteria facilities for person who's income level above Rs. 65 001, Facility of Car parking, Availability of Bench
- 4th Rank: Facility of Changing Room, Availability of Street vendor
- 5th Rank: Cafeteria facilities for person who's income level bellow Rs. 65 000

The above ranks indicating that, Safety (Safety of male, Safety of Female) is the most prioritized character, which influence for attract public for walking areas. Subsequently characters such as Facility of Toilet, Availability of Shading, Availability of land Escape and Availability of Natural View are affecting for attract public for walking areas up to some extent. Furthermore, it emphasize that, the factor of Cafeteria facilities for person who is income level bellow Rs. 65000 is the lowest prioritized character, which influence for attract public for walking areas according to the above sample.

Accordingly, safety (safety of male, safety of female) was a major concern for respondents in all three surveys, as safety was not a problem for users in terms of fear of other people, fear of harm, fear of unsecured animals, and anxiety about traffic flow (especially for those who walking on the jogging trails). Other studies, such as one in Los Angeles (Gearin and Kahle, 2006) have discovered a significant preference for safety in parks. City dwellers in Los Angeles (Gearin and Kahle, 2006) and Hong Kong (Lo and Jim, 2012) have expressed concerns about safety. Increased maintenance seems to boost a person's liking for and sense of security in order to increase public usage of parks visitors. Subsequently, facilities of toilet, availability of shading, availability of landscape and availability of natural view have affected to attract public for walking areas in this study. All three studies had considerable sanitation in terms of cleanliness toilet facilities, and it can be inferred that because all the walking avenues were recently established, they have a proper management system in place with a fresh backdrop. The landscape, shade, and natural view are all considered vital components of POS, and they are also important factors in this study due to the presence of walking pathways with suitable paving blocks, a therapeutic area, solar power illumination, shaded trees, and well-maintained water streams. Thus, many of the respondents stated that natural environment variables had a direct impact on their desire to engage in physical exercise. Various natural environmental influences motivate individuals to jog, stroll, or engage in various forms of physical exercise. The visual aesthetic quality and natural view are vital for users' physical and psychological well-being, as well as for POS's tourist potential. In line with prior research, the study found that high landscape visual quality and natural view have a significant impact on users' enjoyment with urban parks (Chen

et al., 2009). Hence, the variable of Cafeteria facilities for person who is income level above LKR 65,001, facility of car parking and availability of benches are the third significant variables that important to attract public for walking areas. Finally, facility of changing room and availability of street vendors are identified as forth group of factors that influence on user preferences towards walking avenues. The cafeteria facilities for person whose income level below LKR 65, 000 are the lowest prioritized and less influenced factor to attract public for walking areas. Accordingly, people do not expect changing rooms and street food, while high-income groups (income level above LKR 65, 000) enjoy herbal drinks in cafeterias along walking avenues.

5. Conclusion and Research Implications

This paper enlightened the knowledge from survey-based respondent to examine public perceptual preference towards attributes of urban walking avenues in Sri Lanka. For this purpose, it was selected three different cases in Colombo and Gampaha urban areas depicted as (Case A), (Case B) and (Case C). The most common geographical feature of these three places is designed related with water streams. Findings specify that safety is most prominent and preferred attribute of walking avenues. Subsequently, well designed landscaping with natural view, availability of shading and facility of toilet has significant contribution on better perceptions of the walking avenues in the study area. The respective significant factors affecting to the user's attractiveness to the walking avenues are facility of car parking and availability of benches as per the findings of the study. However, people do not show a considerable preference to facilities of changing rooms and street foods, while high-income groups favorably wish to promote ~~to~~ the herbal drinks in cafeterias of walking avenues. The outcome of this study is immensely important to design and management of outdoor environment to prioritize interventions that are likely to maximize preference for different segments of the population. Analysis of participant's responses produced useful information about the relative importance of attributes. Accordingly, analysis procedure of this study may be applied to other environmental settings in which attribute priorities are required to be understood. The safety of the walking path is most preferred attribute in this study. It provides a clue towards responsible bodies for constructing new walking paths with safer environment. In addition offering health and recreational facilities for the public which can also be identified specific benefits, such as protecting water resource (resurgence of streams with clean water, restore of pollute streams, reduction of erosion of stream banks), income generation (By designing community based riverine gardening projects which can generate income for local residence through plant nurseries, cultivating riverine fruit, herbal, vegetables and other useful trees such as bamboos in the stream banks, cultivating high value rice varieties in paddy lands adjacent to the foot paths and promoting inland fishery), Ecology & Recreation (this project can be creatively expanded to transform from improved streams into bio corridors by connecting forest with upgrading ecological balance of biodiversity of the watershed) and promoting eco-tourism (It can be creatively linked with activities of botanical gardens which will generate the opportunities for local investors who involved in eco-tourism).

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