

## Open Space Utilization by the Old People in Public Residential Estates, Lagos, Nigeria

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### Abstract

This study examined the utilisation of open spaces by old people in four Lagos State Development and Property Corporation (LSDPC) public residential estates. A field survey research approach was adopted while Systematic Random Sampling technique was adopted to select the samples. Three hundred and Thirty five (365) copies of questionnaire were administered to elderly residents selected from Dolphin II, Ebute-Metta, Iba, and Jakande estates situated in Lagos Island and Lagos Mainland, and the data were analysed using descriptive and inferential statistical tests. Findings revealed that open spaces were utilised daily by majority of the respondents, predominantly in the evening and during the dry season chiefly for mental health balance, relaxation and recreation most often in the company of grandchildren. Gender, employment status before retirement, marital status, household population, number of elders per household and income status, were all significantly associated with the level of open space utilisation. Utilisation also differed significantly across estates with Jakande recording the highest average utilisation rank and Iba the lowest, but not across age sub-groups. Findings underscore open space as a socioeconomically stratified, rather than uniformly accessed, resource for elderly wellbeing, and point to the need for estate-level, income-sensitive interventions to broaden and sustain its use among older residents. The study recommends age-inclusive rather than age-segregated design, that can satisfy the utilization of the available open spaces by the old people, also estate-specific diagnosis rather than uniform policy for proper estate maintenance.

**Keywords:** Open space utilization; old people; public residential estates; and wellbeing

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### 1. INTRODUCTION

The development and utilisation of open spaces around the world underscores their importance to human wellbeing across environmental, social, physical, psychological, health, and economic domains (Palacky, Wittmann, & Frantisak, 2015). For senior citizens who have retired from active service, open space functions as a corridor for daily negotiation and a breathing space within the neighbourhood (Engelen, Rahmann, & de Jong, 2021). Wellbeing itself is understood as a multidimensional state mental, physical, material, emotional and social in which a person possesses the psychological, social, and physical resources needed to meet life's challenges (Burholt, Roberts, & Musselwhite, 2016).

The age at which a person is considered "old" is not universally fixed; it is generally tied to retirement age, which varies across countries according to institutional and legislative context. While the world average retirement age is approximately 64 years for men and 62 years for women (Munnell, 2011), and the World Health Organisation (2002) has used 65 years as a benchmark, Nigeria's public sector statutory retirement age is set at 60 years or 35 years of service, whichever comes first, with private sector retirement typically occurring between 55 and 60 years (Fapohunda, 2013). After retirement, older Nigerians tend to spend increasing amounts of time within their homes and immediate neighbourhood most commonly organised residential estates making the open spaces

within those estates disproportionately important to their daily lives (Adebayo & Iweka, 2013).

Lagos State's public residential estates, administered chiefly by the Lagos State Development and Property Corporation (LSDPC), comprise twelve low- and middle-income estates across Lagos Metropolis. Rapid urbanisation and rural-urban migration over the past three decades have placed sustained pressure on the open spaces within these estates, and safety concerns including anti-social behaviour and criminality further complicate their use, particularly for older residents (Anofojie, Adeleye, & Kadiri, 2014; Ajayi, Atanda, & Ajayi, 2020). Yet existing research on residential open space in Nigeria has focused overwhelmingly on children and the general population, with comparatively little empirical attention paid to how, and how much, old people actually use these spaces (Mwaniki, 2014). This paper addresses that gap directly, examining the demographic profile of elderly residents and the pattern, frequency, purpose, and determinants of their open space utilisation in four Lagos public residential estates.

Nigeria lacks adequate institutionalised care structures for older adults; although the National Senior Citizens Centre Act was assented to in 2018, it remains largely unimplemented, leaving elderly citizens with limited social security and a deteriorating economic position (Agwu, Samuel, Ngozi, & Uzoma, 2020). A large proportion of Lagos's ageing population, being low- to middle-income earners, resides in public housing estates that were often not purposefully planned around the needs of older residents (Adebayo & Iweka, 2013). Where open space utilisation data exist, they rarely disaggregate by the demographic characteristics; gender, marital status, income, household composition that plausibly shape how, and how often, old people actually use the open spaces available to them. This creates a gap between the assumption that open space is a universally available resource for elderly wellbeing and the empirical reality of who uses it and under what constraints. The aim of this study is to examine the level of open space utilisation by old people in selected public residential estates in Lagos Metropolis, Nigeria.

## 2.0 LITERATURE REVIEW

Old people" is conventionally defined as individuals aged 60 years and above (Chen, Sun, & Seo, 2022). Alice, Roshida, Fadhline, Norshahida, and Muhammad-Nor (2020) further disaggregate old age into four categories which includes pre-old (55–64 years), young-old (65–74 years), middle-aged (75–84 years), and old-old (85 years and above) which can be collapsed into three broader "eras" of old age: active (55–69 years), old age (70–85 years), and advanced old age (86 years and above). Martin (2015) similarly distinguishes those aged 60–70 years as young-old from those above 70 as very old. In Nigeria, life expectancy at birth is estimated at approximately 60 years for males and 64 years for females (Sasu, 2023), and older Nigerians commonly experience declining health, narrowing social circles, and reduced material wellbeing following retirement, compounded by the erosion of filial care as younger relatives migrate for economic opportunity (Adisa, 2019).

A substantial body of evidence links outdoor open space use to improved wellbeing among older adults. Sugiyama and Thompson (2007) frame outdoor environments as a form of environmental support for activity and wellbeing in later life, while Chen, Sun, and Seo (2022) show that public open space contributes to older people's wellbeing through neighbourhood social cohesion and place dependence. Stepansky, Delbert, and Bucey (2023) identify a range of therapeutic impacts of engagement with green space for older users, including improved mood and reduced loneliness, and Chen, Liu, Xie, and Marušić (2016) find that community open space attracts users, including the elderly, for

both organised and informal recreation. Sarkissian and Stenberg (2013) argue that open space for older people should specifically support exploration, choice, independence, and accessibility, rather than being designed generically for all age groups. Several studies point to demographic and socioeconomic characteristics as determinants of open space use. Gender differences in leisure preference and mobility, for instance, have been documented as shaping the frequency and manner of open space use across cultures (Otufowora, Liu, Young, Egan, Varma, Striley, & Cottler, 2021). Household composition and income have similarly been shown to influence access to, and engagement with, recreational and green infrastructure (Ayeni, 2012). However, as Engelen et al. (2021) and Mensah, Andres, Perera, and Roji (2016) note, much of the literature on residential open space and wellbeing across the built environment has focused on the general population or on institutional care settings for the elderly, rather than the everyday use of neighbourhood-level open space by older adults ageing in place within ordinary residential estates the specific gap this study addresses.

This study conceptualises open space utilisation as jointly shaped by (i) the demographic and socioeconomic profile of the elderly resident (gender, marital status, employment history, household composition, income, and education), and (ii) estate-level characteristics (location, income class, and open space provision). Utilisation, in turn, is understood to generate the physical, psychological, and social benefits documented in the wellbeing literature, following the general framework advanced by Rakhshandehroo, Yusof, Johari, and Sahrakar (2017) and adapted here to foreground the elderly user.

3.0 STUDY AREA

The study was conducted in Lagos Metropolis, southwestern Nigeria, which comprises sixteen of the twenty local government areas of Lagos State. Four state-owned LSDPC public residential estates were purposively selected to represent both income class and geographic spread within the metropolis: Dolphin II and Ebute-Metta, middle-income estates on Lagos Island; and Iba and Jakande, low-income estates on the Mainland. Only state-owned estates were considered, as federal estates within the metropolis are largely sold or earmarked for sale, complicating both data access and the identification of a stable resident population (Adebayo & Iweka, 2013).

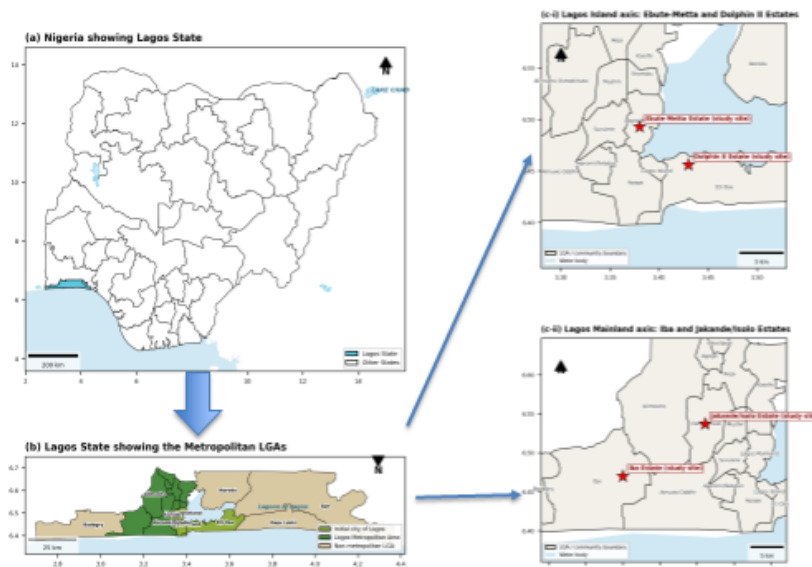


Figure 1: Location of the study area (a) Nigeria showing Lagos State; (b) Lagos State showing the Metropolitan Local Government Areas; (c) detailed map of the study area showing the four selected estates

Source: GIS Map Extract, digitized by the Authors, 2025

Table 1: Sampling Frame and Sample Size of the Selected Estates

| Estate       | Location       | Income Class  | Dwelling Units | Sample Size (5.1%) |
|--------------|----------------|---------------|----------------|--------------------|
| Dolphin II   | Lagos Island   | Middle-income | 576            | 29                 |
| Ebute-Metta  | Lagos Island   | Middle-income | 528            | 27                 |
| Iba          | Lagos Mainland | Low-income    | 2,388          | 122                |
| Jakande      | Lagos Mainland | Low-income    | 3,664          | 187                |
| <b>Total</b> | —              | —             | 7,156          | 365                |

Source: Authors' Fieldwork, 2023, adapted from Adebayo and Iweka (2013)

## 4. MATERIALS AND METHODS

### 4.1 Research Design and Sampling

A mixed-methods design combining a structured-questionnaire survey with observation, photographic documentation, and informal interviews was employed, following Creswell (2014). The research population comprised all dwelling units in LSDPC low- and medium-income estates in Lagos Metropolis (17,679 units across twelve estates), of which four estates were selected through stratified random sampling, yielding a sampling frame of 7,156 dwelling units (Table 1). The sample size of 365 was computed using Yamane's formula at a 95% confidence level and 5% margin of error (Qualtrics, 2022; Singh & Masuku, 2014), and dwelling units were selected within each estate using systematic random sampling with replacement at an interval of every 20th unit. Where a sampled unit contained no resident aged 60 years or above, the next unit was substituted.

### 4.2 Data Collection and Analysis

Structured questionnaires, administered by trained field assistants, elicited data on respondent demographics, open space utilisation patterns, and perceived wellbeing outcomes; data collection occurred during evenings and weekends to maximise respondent availability. Quantitative data were analysed using descriptive statistics (frequency, percentage, mean) and inferential statistics which includes chi-square tests, Pearson product-moment and Spearman rank-order correlation, and Kruskal–Wallis analysis of variance with Bonferroni-adjusted post-hoc comparisons computed using SPSS (version 25). Chi-square and correlation tests were used to examine the association between demographic characteristics and utilisation (Hypothesis 1), while Kruskal–Wallis tests examined differences in utilisation across estates and age sub-groups (Hypothesis 3).

## 5. RESULTS

### 5.1 Demographic and Socio-Economic Characteristics of Respondents

Respondents were predominantly female overall (52.9% male; 47.1% female note: male share driven largely by Iba Estate), though this varied sharply by estate: in Iba, 79.5% of respondents were male, compared with 37.9% in Dolphin II, 37.0% in Ebute-Metta, and 40.1% in Jakande (Table 2). The age distribution was concentrated between 60 and 80 years, with 50.1% of respondents aged 71–80 years and 36.4% aged 60–70 years across the four estates. Most respondents (71.5%) had retired between the ages of 55 and 69 years, consistent with Nigeria's statutory and private-sector retirement age ranges (Fapohunda, 2013).

Table 2: Gender and Age Distribution of Respondents by Estate (%)



| Estate       | Male (%) | Female (%) | 60–70 yrs (%) | 71–80 yrs (%) | Above 80 yrs (%) |
|--------------|----------|------------|---------------|---------------|------------------|
| Dolphin II   | 37.9     | 62.1       | 27.6          | 55.2          | 17.2             |
| Ebute-Metta  | 37.0     | 63.0       | 25.9          | 51.9          | 22.2             |
| Iba          | 79.5     | 20.5       | 41.0          | 46.7          | 12.3             |
| Jakande      | 40.1     | 59.9       | 36.4          | 51.3          | 12.3             |
| <b>Total</b> | 52.9     | 47.1       | 36.4          | 50.1          | 13.4             |

Source: Authors' Fieldwork, 2024

Household size was concentrated in the 4–6 person range (65.5% overall), and most households (79.0%) had only a single elderly resident, who constituted the target respondent for the survey. Prior to retirement, respondents in the middle-income estates were predominantly formally employed (44.8% in Dolphin II; 48.1% in Ebute-Metta), while those in the low-income estates were predominantly self-employed (46.7% in Iba; 51.9% in Jakande) (Table 3).

Table 3: Employment Status before Retirement, by Estate (%)

| Estate       | Unemployed | Employed | Self-Employed |
|--------------|------------|----------|---------------|
| Dolphin II   | 17.2       | 44.8     | 37.9          |
| Ebute-Metta  | 14.8       | 48.1     | 37.0          |
| Iba          | 2.5        | 50.8     | 46.7          |
| Jakande      | 4.3        | 43.9     | 51.9          |
| <b>Total</b> | 5.5        | 46.6     | 47.9          |

Source: Authors' Fieldwork, 2024

Educational attainment differed markedly by estate income class: 41.4% of Dolphin II respondents and 37.0% of Ebute-Metta respondents held tertiary qualifications, reflecting their middle-income, multinational- and civil-service-director resident profile, whereas secondary education was most common in Iba (47.5%) and Jakande (41.7%). A similar pattern held for income before retirement: the majority of Dolphin II and Ebute-Metta respondents earned between ₦90,001 and ₦120,000 monthly, while the majority in Iba and Jakande earned between ₦60,001 and ₦90,000 (Table 4).

Table 4: Monthly Income before Retirement, by Estate (%)

| Estate       | Below ₦30,000 | ₦30,001–60,000 | ₦60,001–90,000 | ₦90,001–120,000 | Above ₦120,000 |
|--------------|---------------|----------------|----------------|-----------------|----------------|
| Dolphin II   | 6.9           | 13.8           | 27.6           | 41.4            | 10.3           |
| Ebute-Metta  | 7.4           | 14.8           | 29.6           | 37.0            | 11.1           |
| Iba          | 6.6           | 31.1           | 35.2           | 21.3            | 5.7            |
| Jakande      | 6.4           | 19.8           | 36.4           | 24.6            | 12.8           |
| <b>Total</b> | 6.6           | 22.7           | 35.3           | 25.2            | 10.1           |

Source: Authors' Fieldwork, 2024

Widowhood dominated the marital status profile of respondents overall (58.6%), followed by married (24.1%) and divorced (17.2%) (Figure 2) a pattern consistent with Nigeria's life expectancy gap between men and women (Sasu, 2023) and with the survey's concentration of respondents in the 71–80 year age band. Most respondents (72.3%) had resided within Lagos State before retirement, and a large majority (75.3%) confirmed they had retired directly to their current estate, with 50.1% having resided in their estate for between 21 and 30 years (Figure 3) a tenure long enough to provide informed perspectives on open space availability and use over time.

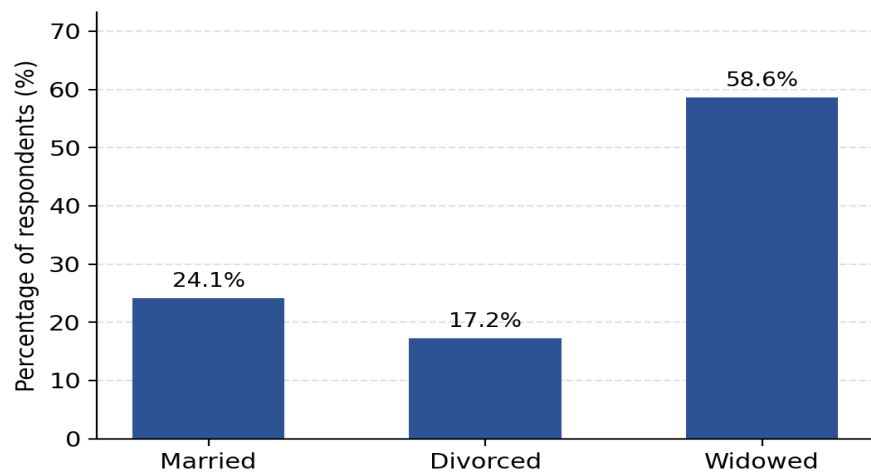


Figure 2: Marital Status of Respondents (%)

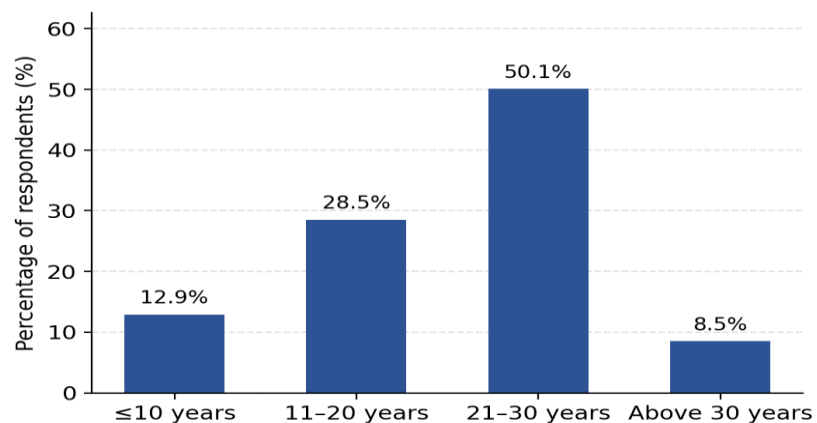


Figure 3: Length of Residency in the Estate (%)

## 5.2 Pattern and Frequency of Open Space Utilization

The majority of respondents (65.9%) reported that there were no open space facilities specifically designated for the elderly in their estate (Figure 4), meaning that old people in the study area utilise open spaces shared with, and generally designed for, the general population rather than age-specific amenities. Notwithstanding this, open spaces were utilised frequently: 45.8% of respondents visited open spaces daily, 26.3% several times a week, 12.6% once a week, and 15.3% rarely, with the highest daily-visitation rate recorded in Iba (54.9%) and the lowest in Jakande (38.5%) (Table 5).

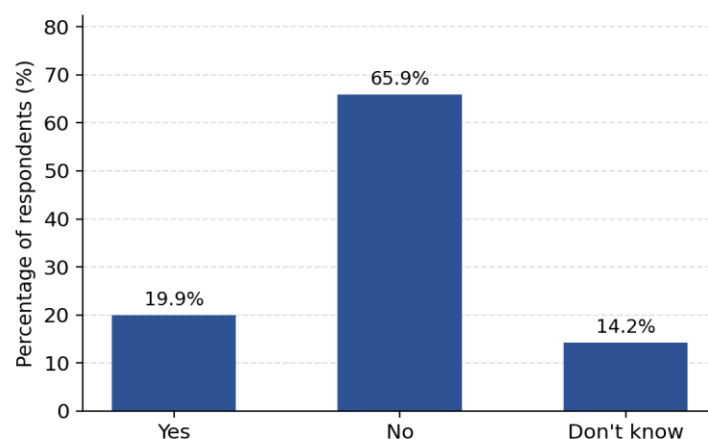


Figure 4: Availability of Open Space Facilities Specifically for the Elderly (%)



Table 5: Frequency of Open Space Visits, by Estate (%)

| Estate      | Daily | Several times/week | Once a week | Rarely |
|-------------|-------|--------------------|-------------|--------|
| Dolphin II  | 44.8  | 34.5               | 13.8        | 6.9    |
| Ebute-Metta | 55.6  | 29.6               | 14.8        | 0.0    |
| Iba         | 54.9  | 24.6               | 8.2         | 12.3   |
| Jakande     | 38.5  | 25.7               | 15.0        | 20.9   |
| Total       | 45.8  | 26.3               | 12.6        | 15.3   |

Source: Authors' Fieldwork, 2024

Open spaces were used predominantly in the evening (58.1%), followed by morning (30.1%) and afternoon (11.8%) (Figure 5), consistent with the World Health Organization's (2010) observation that morning and evening periods are most conducive to outdoor recreation. Visitation was also strongly seasonal: 76.7% of respondents reported visiting open spaces mainly in the dry season, rising to 83.4% in Jakande and 74.6% in Iba, while Dolphin II and Ebute-Metta showed comparatively higher wet-season visitation (44.8% and 37.0% respectively) likely reflecting their better-drained, more paved open space typology relative to the flood-prone conditions documented at both estates during heavy rain.

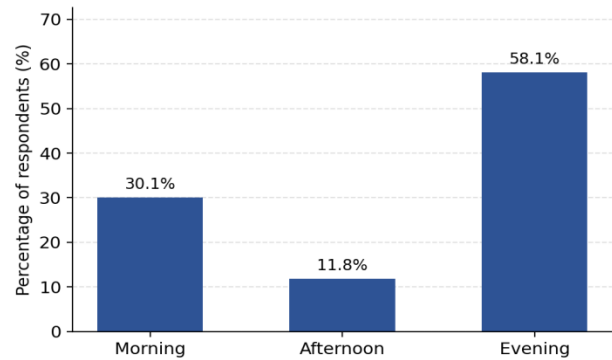


Figure 5: Time of Day Old People Visit Open Spaces (%)

Family accompaniment during open space visits was dominated by grandchildren (67.1% overall; 75.9% in Jakande), followed by children (19.2%) and spouses (13.7%) (Table 6), indicating that open space visitation is, for most elderly respondents, an intergenerational rather than solitary activity.

Table 6: Family Support during Open Space Visits, by Estate (%)

| Estate      | Spouse | Children | Grandchildren |
|-------------|--------|----------|---------------|
| Dolphin II  | 24.1   | 27.6     | 48.3          |
| Ebute-Metta | 14.8   | 25.9     | 59.3          |
| Iba         | 18.9   | 21.3     | 59.8          |
| Jakande     | 8.6    | 15.5     | 75.9          |
| Total       | 13.7   | 19.2     | 67.1          |

Source: Authors' Fieldwork, 2024

5.3 Activities Carried Out in Open Spaces

Respondents rated the frequency of six categories of open space activity on a five-point scale (Table 7). Recreation (leisure/sport) recorded the highest mean score in three of the four estates Ebute-Metta (4.67), Iba (4.63), and Jakande (4.16) and the second-highest in Dolphin II (4.90 for a related leisure item), confirming recreation as the dominant activity



category for old people across the study area. Landscape-related activity and ecosystem protection were the next most frequently reported activities, while transportation-related use of open space was consistently the lowest-rated activity across all four estates.

Table 7: Activities Carried Out by Old People in Open Spaces (Mean Score, 1–5 scale)

| Activity                      | Dolphin II | Ebute-Metta | Iba  | Jakande |
|-------------------------------|------------|-------------|------|---------|
| Landscape                     | 4.17       | 4.52        | 4.19 | 3.94    |
| Agriculture                   | 3.04       | 3.36        | 3.71 | 1.60    |
| Ecosystem protection          | 3.86       | 4.19        | 4.34 | 3.36    |
| Biodiversity                  | 4.14       | 4.00        | 4.10 | 3.90    |
| Transportation                | 2.66       | 2.56        | 1.97 | 2.21    |
| Recreation<br>(Leisure/Sport) | 4.90       | 4.67        | 4.63 | 4.16    |

Source: Authors' Fieldwork, 2024. N = 29 (Dolphin II), 27 (Ebute-Metta), 122 (Iba), 187 (Jakande).

5.4 Purpose and Benefits of Open Space Utilization

Mental health balance, relaxation, and recreation were the three most frequently cited purposes for open space utilisation across all estates, cited by 82.2%, 81.4%, and 76.2% of respondents overall respectively (Table 8a). Notable estate-level variation was also observed: in Iba and Jakande, meaningful proportions of respondents also identified public awareness (41.0% and 45.5% respectively) and commercial activity (45.9% in Iba) as purposes for open space use, reflecting informal trading activity observed in these low-income estates that was largely absent in Dolphin II and Ebute-Metta.

Table 8a: Purpose for Open Space Utilization by Old People, by Estate (% of Respondents)

| Purpose               | Dolphin II | Ebute-Metta | Iba  | Jakande | Total |
|-----------------------|------------|-------------|------|---------|-------|
| Mental health balance | 75.9       | 77.8        | 83.6 | 82.9    | 82.2  |
| Relaxation            | 75.8       | 85.2        | 80.3 | 82.3    | 81.4  |
| Recreation            | 69.0       | 100.0       | 73.8 | 75.4    | 76.2  |
| Public awareness      | —          | —           | 41.0 | 45.5    | —     |
| Commercial activities | —          | —           | 45.9 | —       | —     |

Source: Authors' Fieldwork, 2024. Dashes indicate values not separately reported at estate level in the underlying field data.

Beyond stated purpose, respondents also identified the wellbeing impacts they associated with open space use (Table 8b). Social togetherness (mean = 4.52) and improved mental health (mean = 4.48) were the leading impacts in Dolphin II; improved mental health led in Ebute-Metta (mean = 4.74); and environmental aesthetics and improved mental health were jointly leading in Iba (mean = 4.25 each). In Jakande, social togetherness (mean = 4.07) led, followed closely by improved mental health (mean = 3.91) and economic activity (mean = 3.75), the latter again reflecting the informal commercial use of open space observed in this estate.

Table 8b: Impact of Open space

| Impact                    | Dolphin II | Ebute-Metta | Iba  | Jakande |
|---------------------------|------------|-------------|------|---------|
| Social togetherness       | 4.52       | 4.04        | 4.00 | 4.07    |
| Improved mental health    | 4.48       | 4.74        | 4.25 | 3.91    |
| Environmental aesthetic   | 4.17       | 4.00        | 4.25 | 3.14    |
| Economic activities       | 2.52       | 2.63        | 2.71 | 3.75    |
| Play local games          | 3.66       | 3.59        | 3.87 | 3.44    |
| Good quality of life      | 3.52       | 3.74        | 4.00 | 3.69    |
| Reduced criminal activity | 3.52       | 3.30        | 3.58 | 3.24    |

Source: Authors' Fieldwork, 2024



**Figure 6: A typical green open space used for recreation, Jakande Estate**

Source: Authors' Fieldwork, 2024

## 5.6 Demographic Determinants of Open Space Utilization

A series of chi-square and correlation tests examined the association between demographic characteristics and level of open space utilisation (Table 9). Gender was significantly associated with utilisation ( $\chi^2(2) = 17.631$ ,  $p < .001$ ,  $\phi = .220$ ), with women found to be more intensive users of open space than men. Employment status before retirement was also significantly associated with utilisation ( $\chi^2(4) = 45.656$ ,  $p < .001$ , Cramer's  $V = .250$ ): the self-employed showed higher medium-to-high utilisation, reflecting greater schedule flexibility, while formerly employed respondents clustered around medium utilisation, consistent with more structured, carried-over routines. Marital status was significantly associated with utilisation ( $\chi^2(4) = 18.839$ ,  $p < .001$ , Cramer's  $V = .161$ ): widowed respondents showed the highest medium-level utilisation, plausibly reflecting a search for social interaction to offset loneliness, while divorced respondents showed a stronger tendency toward high-level utilisation.

Whether a respondent had retired directly to the estate was also significantly associated with utilisation ( $\chi^2(2) = 16.164$ ,  $p < .001$ , Cramer's  $V = .210$ ), with those who had not retired directly to the estate showing higher utilisation, plausibly reflecting open-space habits carried over from previous residential settings. Age itself showed no significant association with utilisation ( $r = .052$ ,  $p = .319$ ), suggesting that, within the 60-and-above population sampled, chronological age alone does not meaningfully differentiate how much old people use open space — a finding with implications for the design of age-inclusive, rather than age-segmented, open space amenities.

By contrast, several household and economic variables showed significant positive associations with utilisation. Household population was significantly correlated with utilisation ( $r = .426$ ,  $p < .001$ ), as was the number of elders within a household ( $r = .552$ ,  $p < .001$ ) — households with more elderly residents utilised open space more frequently, underscoring open space's role as a shared communal resource for elderly co-residents. Income status showed the strongest association of all variables tested ( $r = .722$ ,  $p < .001$ ), indicating that wealthier respondents utilised open space substantially more than lower-income respondents, plausibly reflecting disparities in the quality, proximity, and appeal of open space by estate income class documented elsewhere in this study. Educational



level showed a weak but statistically significant positive correlation with utilisation ( $r_s = .197$ ,  $p < .001$ ), suggesting education plays a contributory, rather than primary, role in shaping utilisation behaviour.

Table 9: Summary of Statistical Tests – Demographic Characteristics and Open Space Utilization

| Variable                           | Test                 | Statistic            | Effect size   | p-value  | Decision        |
|------------------------------------|----------------------|----------------------|---------------|----------|-----------------|
| Gender                             | Chi-square           | $\chi^2(2) = 17.631$ | $\phi = .220$ | $< .001$ | Significant     |
| Employment status (pre-retirement) | Chi-square           | $\chi^2(4) = 45.656$ | $V = .250$    | $< .001$ | Significant     |
| Marital status                     | Chi-square           | $\chi^2(4) = 18.839$ | $V = .161$    | $< .001$ | Significant     |
| Retired directly to estate         | Chi-square           | $\chi^2(2) = 16.164$ | $V = .210$    | $< .001$ | Significant     |
| Age                                | Pearson correlation  | $r = .052$           | —             | .319     | Not significant |
| Household population               | Pearson correlation  | $r = .426$           | —             | $< .001$ | Significant     |
| Number of elders in household      | Pearson correlation  | $r = .552$           | —             | $< .001$ | Significant     |
| Income status                      | Pearson correlation  | $r = .722$           | —             | $< .001$ | Significant     |
| Educational level                  | Spearman correlation | $r_s = .197$         | —             | $< .001$ | Significant     |

N = 365 for all tests.

5.7 Differences in Utilization across Estates and Age Groups

A Kruskal–Wallis test found a statistically significant difference in the level of open space utilisation across the four estates ( $H(3) = 13.246$ ,  $p = .004$ ). Bonferroni-adjusted post-hoc comparisons identified the most notable difference as between Iba and Jakande (adjusted  $p = .006$ ); the difference between Dolphin II and Jakande was significant before adjustment ( $p = .022$ ) but not after (adjusted  $p = .133$ ). Average utilisation ranks (Figure 8) place Jakande highest (201.68), followed by Ebute-Metta (182.89), Dolphin II (153.55), and Iba lowest (151.39) — indicating that estate-level factors beyond income class alone (Jakande and Iba are both low-income estates, yet differ substantially in utilisation rank) shape the intensity of elderly open space use.

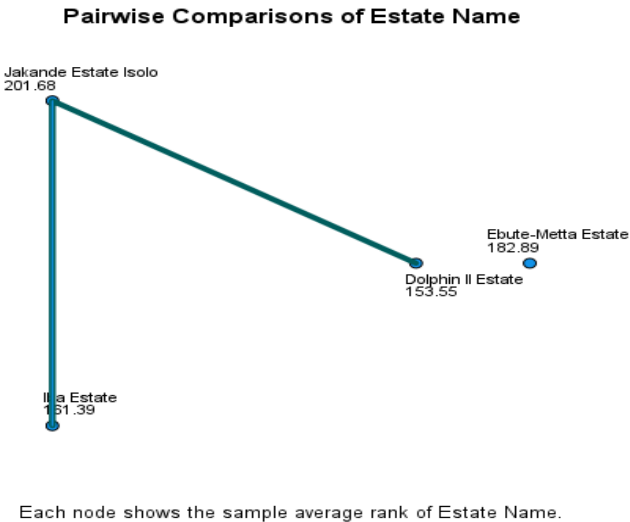


Figure 8: Pairwise Comparison of Average Open Space Utilization Rank by Estate



By contrast, a Kruskal–Wallis test found no statistically significant difference in utilisation across old-age sub-groups young-old, middle-old, and oldest-old ( $H(2) = .170$ ,  $p = .919$ ) indicating that, once a respondent qualifies as an old person for the purposes of this study, further age stratification does not meaningfully predict the extent of open space use. This finding again favours age-inclusive open space design over age-segmented provision (Table 10).

Table 10: Summary of Kruskal–Wallis Tests – Differences in Open Space Utilization

| Grouping variable                                     | Test statistic | Df | p-value | Decision                                 |
|-------------------------------------------------------|----------------|----|---------|------------------------------------------|
| Estate (Dolphin II, Ebute-Metta, Iba, Jakande)        | $H = 13.246$   | 3  | .004    | Reject $H_0$ — significant difference    |
| Old-age sub-group (young-old, middle-old, oldest-old) | $H = 0.170$    | 2  | .919    | Retain $H_0$ — no significant difference |

N = 365.

The demographic profile documented here a predominantly widowed, formerly employed or self-employed population aged 60–80, retired between 55 and 69 years, and long resident within their estate situates the study's respondents squarely within the population that Nigeria's weak institutional eldercare infrastructure leaves most reliant on informal, neighbourhood-level resources such as open space (Agwu et al., 2020; Adisa, 2019). That open spaces are used daily by nearly half of respondents, mostly for mental health balance, relaxation, and recreation, and mostly in the company of grandchildren, corroborates the broader literature's emphasis on open space as a setting for both individual restoration and intergenerational social connection among older adults (Chen, Sun, & Seo, 2022; Stepansky, Delbert, & Bucey, 2023).

The absence of a significant relationship between chronological age and utilisation and, separately, between old-age sub-group and utilisation is a notable finding that departs from an intuitive expectation that utilisation might decline with advancing age. Read alongside the finding that 65.9% of respondents reported no elderly-specific open space facilities, this suggests old people in these estates are using general-purpose open space largely undifferentiated by age, and that whatever barriers exist to utilisation are not primarily age-related but socioeconomic.

That reading is reinforced by the demographic determinants that were significant: gender, employment history, marital status, household composition, and most strongly income. The strength of the income–utilisation correlation ( $r = .722$ ) in particular echoes this study's companion analysis of open space management, which found that better-resourced, middle-income estates sustain better-maintained open spaces; taken together, these findings suggest income operates on utilisation both directly (through respondents' own resources and flexibility) and indirectly (through the quality of open space their estate provides). The significant estate-level difference in utilisation, with Jakande outranking the ostensibly comparable low-income estate of Iba, further indicates that estate-specific factors social cohesion, informal commercial use of open space, or accumulated habit matter independently of income class alone.

The significant association between marital status and utilisation, with widowed respondents showing elevated medium-level use, is consistent with open space serving a compensatory social function for those who have lost a spousal companion a pattern also noted by Chen et al. (2016) in their study of community open space attractiveness. Similarly, the prominence of grandchildren as visiting companions suggests that, in the Nigerian residential estate context, open space utilisation by old people cannot be fully understood in isolation from household and family structure.

## 6.0 CONCLUSION

This study has shown that open space utilization by old people in Lagos public residential estates is frequent, socially embedded, and demographically patterned, rather than uniform across the elderly population. Women, the formerly self-employed, widowed residents, those in larger and elder-dense households and most decisively higher-income residents utilize open space significantly more than their counterparts, while chronological age itself does not meaningfully predict utilization. Utilization also varies significantly by estate, independent of income class alone, pointing to the influence of estate-specific social and physical conditions. As Nigeria's ageing population continues to grow without a robust institutional eldercare system, the open spaces within ordinary public residential estates will remain a primary and, this study suggests, an unevenly accessed resource for elderly wellbeing. Closing that gap requires interventions that are sensitive to income, marital status, household structure, and estate-specific conditions, rather than a uniform, age-based approach to open space provision.

## 7.0 RECOMMENDATION

The study recommends

- Age-inclusive rather than age-segregated design: because utilisation did not differ significantly across old-age sub-groups or with chronological age, open space investment should prioritise general accessibility (seating, shade, walkable surfaces, safe evening lighting) over narrowly age-targeted facilities.
- Income-sensitive intervention: given the strong positive association between income and utilisation, estate managers and social welfare agencies should consider targeted subsidies, transport support, or facility investment in lower-income estates to narrow the utilisation gap linked to economic status.
- Support for intergenerational visitation: given the dominant role of grandchildren as companions during open space visits, family-oriented amenities play elements alongside seating, shaded gathering areas would support the intergenerational pattern of use already observed rather than working against it.
- Attention to widowed and socially isolated residents: given the elevated utilisation among widowed respondents, open space programming (organised walks, gardening groups, social clubs) could be targeted at this group specifically, both to sustain existing engagement and to reach isolated non-users.
- Estate-specific diagnosis rather than uniform policy: because utilisation differed significantly between estates of similar income class (Jakande versus Iba), estate management should investigate and address local, estate-specific barriers to utilisation rather than assuming income class alone explains usage gaps.
- Evening and dry-season service provision: given the concentration of visits in the evening and dry season, security lighting and evening-appropriate amenities should be prioritised, alongside drainage improvements in flood-prone estates to extend usability into the wet season.

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