Visual Characteristics and Social Determinants of Health in Hispanics attending Senior Centers in Puerto Rico

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Objective: This study aimed to understand the visual and medical characteristics and their associated social determinants of health in Hispanic older adults in Puerto Rico attending senior centers. It provides essential information on visual impairment and factors that can contribute to older adults' well-being.

Methods: A cross-sectional study of individuals attending 16 senior centers in the island's metropolitan area was performed. Information on demographic, medical, visual, and social determinants was gathered. On-site visual screening, including visual acuity and refraction, was performed. Visual impairment was defined as a best-corrected visual acuity worse than 20/40 (>0.30 logMAR) in the better-seeing eye.

Results: A total of 304 participants were included. The mean age was 72.9 ± 9.1 years, with 37.8% being male and 62.2% female. Most of the participants lived alone, had not completed 12th grade, and lived below the poverty line. The average number of chronic conditions was 3.04 ± 1.78. Participants used an average of 4.07 ± 3.1 prescribed medications and 1.16 ± 1.45 over-the-counter. The mean presenting uncorrected visual acuity was 0.5 ± 0.46 logMAR, and the best-corrected visual acuity was 0.26 ± 0.44 logMAR. The mean difference in best-corrected visual acuity showed a significant improvement of 0.03 ± 0.32 logMAR. Of the participants, 29.9% had visual impairment, with cataracts the most common self-reported cause (16.5%).

Conclusion: These findings highlight the need for interventions and prevention to reduce visual impairment in Puerto Rico's older population. Comprehensive healthcare for the elderly is critical to improving the island's overall health outcomes.

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Key words: Elderly, Hispanics, Social determinants, Visual impairment

The rapidly increasing population of older adults in the United States is projected to place substantial demands on services designed for the members of this age group. The prevalence of older Americans is estimated to increase from 17% to 22% by 2040 (1). In 2020, 27% of the island population was older than 60 years, and that percentage is expected to increase to 35% by 2030 (2). Along with these demographic changes, visual impairment rates are also growing globally, influenced by age-related vision-threatening diseases (3,4).

Senior activity centers have emerged as critical community-based resources that support older adults' health, independence, and quality of life. Funded by government initiatives, these centers offer a wide range of services and resources, including nutritional support, physical activity programs, wellness education, social engagement opportunities, and lifelong learning activities (5). In addition to these services and resources, many centers incorporate healthcare-related offerings, such as health screenings, preventive interventions, and on-site clinics; these facilitate the early detection and management of health conditions and promote healthy aging (5).

Given that these centers primarily serve individuals aged 60 years and above, they offer a valuable platform for evaluating health determinants in this population, particularly those related to visual function. Despite its potential utility, data on the prevalence of visual impairment in the island of Puerto Rico remains limited. The Centers for Disease Control and Prevention estimate that approximately 17% of the population from Puerto Rico lives with some form of visual disability (6); however, more precise, age-specific data are lacking.

In this context, the present study aimed to examine visual and medical characteristics, age-related factors, and socioeconomic determinants in older adults attending senior centers in Puerto Rico. This work lays the groundwork for future targeted interventions to address visual impairment and its impact on quality of life in this growing and vulnerable population.

Methods

A cross-sectional study was conducted among older adults attending senior activity centers in Puerto Rico. Demographic data indicate that in 92% of the island's municipalities, individuals aged 60 years and older constitute more than 23% of the population, with 21% residing in the metropolitan region (2). According to official government sources, the metropolitan area includes approximately 31 senior centers, each enrolling between 25 and 180 participants (2).

The senior centers in the metropolitan area (32% of all centers) were approached because they had the largest proportion of older adults. At each center, an initial meeting was scheduled with that center's director to present and discuss the project's objectives. After approval, that center was visited so that the study could be introduced to potential participants. During this visit, the investigators explained the study's purpose and procedures in detail. Individuals who visited that facility and expressed interest in participating were then given an informed consent form to review and sign. Persons over 60 years old who consented, qualified for the study; convenience sampling was used to select participants. This process was repeated at each of the centers in the metropolitan area. Information for a comprehensive case history was collected from questionnaires covering demographic characteristics, past medical and ocular history, education level, and social and economic data. Three optometrists and 1 assistant, all trained in the study's protocols and procedures, visited the facilities.

Visual screening included presenting distance visual acuity without correction, measured using either the Early Treatment Diabetic Retinopathy Study chart or a numbers chart for illiterate participants, at a distance of 10 feet; scores were transformed into the logarithm of the minimal angle resolution (logMAR). An additional approach, using hand motion, light perception, or no light perception, was employed in cases in which conventional methods could not assess visual acuity. The United States definition of visual impairment was used to classify participants as having visual loss or not. Normal visual acuity was defined as best-corrected visual acuity better than or equal to 20/40 (logMAR ≤ 0.30) while visual impairment was defined as worse than 20/40 (>0.30 logMAR) in the better-seeing eye (7).

The objective refraction of the participants was determined using an autorefractor (Retinomax) or retinoscopy for those with media opacities. Subjective refraction was performed using a phoropter to determine the best-corrected visual acuity. The licensed optometrists on staff performed the refraction procedures. Ethical approval was obtained from the Institutional Review Board of the Inter-American University of Puerto Rico, in accordance with the Declaration of Helsinki.

Descriptive statistics—including mean ± SD and interquartile percentiles range—were used for continuous variables. As appropriate, proportions were calculated using the chi-square ($\chi2$) test or Pearson's test, both with a 95% CI for categorical variables. Spearman's correlation, the Wilcoxon rank-sum test, and the Kruskal–Wallis test were used for non-parametric variables. For further analysis, the age groups were subdivided into 60–69, 70–79, and 80 years or older. The poverty level was defined as an annual income of less than or equal to $14,000 (8). The right eye was selected because the best-corrected visual acuity between both eyes was highly correlated (r = 0.81; P ≤ .001). Results were considered statistically significant at P < .05. Statistical analyses were conducted using IBM SPSS Statistics for Windows, version 29.

Results

Demographic characteristics

Sixteen centers in the metropolitan district agreed to participate in the study. A total of 304 participants were recruited, with an approximate participation rate of 18% to 25%, depending on a given center's attendance on the visit day. It is essential to note that the study was conducted from 2021 through 2023, during which time, in some centers, attendance was limited to prevent the spread of COVID-19 among participants. The age range was from 60 to 97 years, with a mean age of 72.9 ± 9.1 years (95% CI: 71.9–74.0). The sex distribution was 37.8% male and 62.2% female. The other self-reported demographic and socioeconomic characteristics of the participants are shown in Table 1.

Medical and visual history

The frequencies of self-reported systemic medical conditions are shown in Table 1. The average number of comorbidities per participant was 3.04 ± 1.78 (range: 0–8). When age groups were compared, there was no significant difference in the average number of comorbidities ($X^2(2) = 1.51, P = .47$) with a mean rank of 151.6 for those aged 60–69, 159.6 in the 70–79 group, and 143.2 in the 80 years or older group. There was a statistically significant difference between sex and the number of comorbidities, and women were more frequently affected (3.47 ± 1.7; 95% CI: 1.53–1.90) than men (2.34 ± 1.70; 95% CI: 1.51–1.91; $U = 6685$, $P ≤ .001$).

The average number of prescribed medications in the sample was 4.07 ± 3.1 (95% CI: 3.73–4.44), with a range from 0 to 20. For over-the-counter medications, the average number was 1.16 ± 1.45 (95% CI: 1.19–1.72), ranging from 0 to 11. When comparing age groups, the 70- to 79 group used more prescribed drugs, but this was not statistically significant ($X^2(2) = 1.29, P = .53$), with a mean rank of 160.7, followed by the 60–69 group at 149.6 and the 80 and over group at 147.25. Participants aged 60–69 years also reported higher consumption of over-the-counter products (1.41 ± 1.67; 95% CI: 1.15–1.72) compared with the other groups (0.78 ± 1.1; 95% CI: 0.54–1.01; $X^2(2) = 10.77; P < .05$). Women were more likely to use prescribed medications (U = 9435, $P < .05$). However, there was no significant difference between sexes in the consumption of over-the-counter products (U = 10616, $P = .96$). Regarding visual status, the number of prescribed medications used did not differ significantly between individuals with normal vision and those with visual impairment (U = 9541, $P = .83$). Additionally, a significant difference in the number of over-the-counter products used was observed between these groups (U = 8259, $P < .05$).

Visual impairment

The visual acuity of the participants is shown in Table 2. The average uncorrected visual acuity was 0.55 ± 0.46 logMAR (95% CI: 0.50–0.60). The average best-corrected visual acuity was 0.26 ± 0.44 logMAR (95% CI: 0.21–0.32; Z = −13.2, $P ≤ .001$). Changes in visual acuity based on age and sex are displayed in Table 2. No difference in the presenting visual acuity was observed between age groups ($X^2(2) = 5.14, P = .08$), but there was a significant difference in best-corrected visual acuity ($X^2(2) = 43.6, P ≤ .001$). There were no significant differences between men and women regarding the mean change in presenting and best-corrected visual acuity (U = 9924, $P = .20$ and U = 9550, $P = .07$, respectively). Visual impairment was present in 29% of the sample. The prevalence increased with age, from 17.5% in the 60–69 age group

Table 1. General characteristics of the sample

Demographic Variable	Number N = 304	Percentage (%)
Age (years)		
60–69	126	41.4
70–79	96	31.6
80+	82	27.0
Sex		
Men	115	37.8
Women	189	62.2
Ethnicity		
Hispanic White	34	19.7
Hispanic	129	74.6
Hispanic Black	10	5.8
Yearly income ($)		
≤10,000	178	63.6
10,001 – 14,000	64	22.9
14,001 – 24,000	18	6.4
24,001 – 34,000	11	3.6
34.001 – 44.000	5	1.6
45,000 – 54,000	3	1.1
54,001+	1	0.4
Poverty status		
≤$14,000	242	84.4
>$14,000	38	13.6
Income source		
Social security	211	69.4
Pension	48	15.8
Social assistance	126	41.4
Work	24	7.9
Other	8	2.6
Marital status		
Single	96	31.7
Married	81	26.7
Divorced	40	13.2
Separated	3	1.0
Widowed	78	25.7
Partner	5	1.7
Type of residence		
Housing for the elderly	131	43.1
House (own)	173	56.9
Living arrangements		
Alone	177	58.2
Family member/friend	127	41.8
Level of education		
No schooling	4	1.3
Less than high school	106	35.6
High school	94	31.5
Some college credits	30	10.1
Technical degree	19	6.4
Bachelor's degree	28	9.4
Graduate degree	17	5.7
Transportation		
Currently driving	135	44.4
Other (public, family, collective)	169	55.6
Medical condition(s)		
Hypertension	191	62.8
Hyperlipidemia	121	39.8
Diabetes mellitus	116	38.2
Hypothyroidism	89	29.3
Musculoskeletal	84	27.6
Ocular disease(s)		
Cataracts	59	19.1
Glaucoma	27	8.9
Diabetic retinopathy	12	3.9
Age-related macular degeneration	10	3.3

to 41.4% in those 80 years or older $(X^2(2) = 19.4, P ≤ .001)$. Visual impairment was significantly more common in men (36.5%) than in women $(25.9\%; X^2(1) = 3.82, P < .05)$.

Table 1 summarizes the most commonly self-reported ocular diseases, with cataracts identified as the leading cause of visual impairment among participants. To provide further context for visual impairment, Table 3 outlines the visual status and the medical and socioeconomic characteristics of affected individuals. Notably, 70% of the participants with visual impairment reported living alone. Additionally, educational attainment appeared to vary by a greater proportion of participants with visual impairment (83.0%) than those with normal vision (62.4%) had not completed high school, a statistically significant difference $(\chi^2(1) = 12.15, P ≤ .001)$. Figure 1 provides the key results from the study.

Discussion

Community senior centers enable healthcare specialists to assess the health state of older adults attending the centers, thereby aiding in early diagnosis. The initiative that funds these centers helps individuals without transportation reach the facilities, enabling them to receive treatment. Visual impairment has been linked to lower quality of life and reduced independence among the elderly (9). It has also been associated with age-related sight-threatening conditions such as glaucoma, diabetic retinopathy, cataracts, and age-related macular degeneration (10–12). Older adults must maintain visual health to manage their daily activities independently. This study aimed to identify the visual, medical, and socioeconomic characteristics of individuals 60 years and over attending senior centers. It offered insights into the visual status and associated health determinants of older Hispanic participants.

Our study's findings showed that most of the participants were women in their 60s who lived alone, earned incomes below the federal poverty threshold, possessed limited formal education, and reported transportation difficulties. These sociodemographic characteristics align with well-established determinants of health and have been consistently identified in the literature as barriers to accessing adequate healthcare services, including routine and specialized visual care (13). Living alone may contribute to increased social isolation and reduced support for managing healthcare needs, while low income and educational attainment are associated with reduced health literacy and limited ability to navigate the healthcare system. Additionally, transportation barriers can significantly hinder access to preventive services and timely medical intervention, exacerbating health disparities in this vulnerable population.

With optimal correction, the participants' presenting visual acuity improved from a Snellen equivalent of 20/63 to 20/36. This finding represents a clinically significant improvement, highlighting that correcting refractive errors can significantly enhance visual acuity. While direct comparison with other studies is challenging due to methodological differences and population characteristics, our results (Snellen equivalent 20/36) are comparable to those reported in the United States (Snellen equivalent of 20/28). These findings suggest that most elderly individuals can benefit from vision correction, potentially reducing visual impairment (14,15).

Table 2. Presenting uncorrected and best-corrected visual acuities in logMAR by age and sex

	n	Presenting Uncorrected Visual Acuity (logMAR) Mean ± SD	Corrected Visual Acuity (logMAR) Mean ± SD	Mean Difference (logMAR)	Mean Difference (95% CI)	P value
Age range (years)						
Mean	304	0.50 ± 0.46	0.26 ± 0.44	0.03 ± 0.32	0.25 to 0.32	≤.001
60–69	126	0.49 ± 0.44	0.17 ± 0.37	0.33 ± 0.35	0.26 to 0.39	≤.001
70–79	96	0.57 ± 0.48	0.31 ± 0.47	0.26 ± 0.27	0.20 to 0.21	≤.001
80+	82	0.60 ± 0.43	0.36 ± 0.46	0.24 ± 0.32	0.17 to 0.31	≤.001
Sex						
Male	115	0.59 ± 0.48	0.32 ± 0.49	0.27 ± 0.30	0.22 to 0.32	≤.001
Female	189	0.52 ± 0.44	0.22 ± 0.40	0.30 ± 0.33	0.25 to 0.34	≤.001

P significant at < .05.
Abbreviation: logMAR, logarithm of the minimal angle resolution.

The prevalence of visual impairment in Puerto Rico remains understudied. This investigation found a higher rate of visual impairment among Hispanic adults living in Puerto Rico than was found in their counterparts in the United States (11–16). Although the findings do not fully represent the older population in Puerto Rico, the observed prevalence exceeds that reported in similar United States–based studies involving Hispanic populations (15,16). Additional population-based research is necessary to determine the true prevalence on the island.

Hypertension is the leading cause of death in Puerto Rico, with an estimated prevalence of 14.5% (17,18); related to hypertension is hypertensive retinopathy, which has not been previously studied on the island, with no reports existing regarding its sight-threatening manifestations. Uncorrected refractive errors, cataracts, macular degeneration, glaucoma, and diabetic retinopathy are the 5 causes of visual impairment identified by the World Health Organization, and 4 of them are related to older age (3,19). The frequency of visual impairment related to uncorrected refractive error was found to be low, likely because of the availability of visual evaluations in Puerto Rico. Cataracts were the most common cause of visual impairment, a finding similar to those of earlier studies on Hispanics (11,12,16,20). However, this study did not include independent variables associated with cataract surgery adherence; therefore, it is vital to understand the indicators of unmet cataract-surgery needs in this population. These data could be used to develop both an analysis

to study the issues and a public health initiative to address cataract complications that result in vision loss. The frequency of visual impairment increased with age— the highest rates being observed in individuals aged 80 years or older—which can be associated with sight-threatening age-related ocular diseases. The age-specific prevalence of visual impairment in the Los Angeles Latino Eye Study (LALES) ranged from 0.3% to 15.3%; similar results were found in Proyecto Ver (0.3%–15.5%), while our study revealed a higher frequency (17.5%–41.5%); however, this difference is likely due to the sample characteristics (15,16).

In a comparison of sexes, women experienced a higher frequency of visual impairment than men. In the United States, it has been documented that women use healthcare services significantly more frequently than men due to various

Table 3. Demographic, medical, and visual characteristics distribution of persons with normal vision and visual impairment

	n = 213	Normal Vision	n = 91	Visual Impairment	P value
Demographic (%)					
Age range (years)					≤.001
60–69	104	82.5	22	17.5	
70–79	61	63.5	35	36.5	
80+	48	58.5	34	41.5	
Sex					.05
Male	73	63.5	42	36.5	
Female	140	74.1	49	25.9	
Social determinants (%)					
Income under poverty level	161	81.7	81	97.6	≤.001
Lives alone	113	53.1	64	70.3	.005
Still drives	111	52.1	24	26.4	
Type of residence					.02
Own house/apt	179	84.0	74	82.2	
Housing for the elderly	34	16.0	16	17.8	
Medical history (mean ± SD)					
Comorbidities	212	3.22 ± 1.8	91	2.63 ± 1.7	.98
Medication(s)	213	4.04 ± 3.1	91	3.97 ± 3.1	.67
Over-the-counter product(s)	209	1.20 ± 1.5	91	0.86 ± 1.2	.20
Visual characteristics					
Visual acuity (mean ± SD) logMAR	213	0.08 ± 0.1	91	0.71 ± 0.6	≤.001
Ocular conditions (%)	43	20.2	15	16.5	.63
Cataracts	13	6.1	14	15.4	.02
Glaucoma	3	1.4	9	9.9	.001
Diabetic retinopathy	7	3.3	3	3.3	.99
Age-related macular degeneration					

P significant at < .05.

comorbidities (21,22). This demographic information, previously unreported on the island, provides preliminary data for potential programs aimed at increasing awareness about the importance of visual evaluation for the early detection of sight-threatening visual conditions.

To understand how visual impairment affects daily activities, it is essential to comprehend the socioeconomic factors that impact the visually impaired. In 2023, the poverty level in the United States was defined

Figure 1. Summary of key results

Sample characteristics
- 304 participants included
- Mean age 72.9 ± 9.1
- 37.8% male and 62.2% female

Socioeconomic background
- Most participants lived alone, had less than 12th grade literacy, and were impoverished.

Medical history
- Chronic conditions: 3.04 ± 1.78.
- Prescribed medications: 4.07 ± 3.1.
- Over-the-counter products: 1.16 ± 1.45

Visual acuity characteristics
- Mean presenting visual acuity: 0.5 ± 0.46 logMAR
- Best-corrected visual acuity: 0.26 ± 0.44 logMAR
- Best-corrected diference: 0.03 ± 0.32 logMAR

Visual history
- Visual impairment: 29.9%
- Cataract being the most common self-reported cause: 16.5%.

as an annual income of less than $14,580 per person (8). This study showed that 84.4% of the sample lived below the poverty level, with 97.6% of participants with visual impairment also falling below this threshold sample and 97.6% of those lived below the poverty level. Persons equal to or older than 80 years and having visual impairment were the most affected (95.7%), and social security was their primary income source (79.1%). On the island, individuals over 65 who receive Social Security are eligible for Medicare benefits. Medicare recipients typically face annual out-of-pocket costs of at least $865.46 for deductibles and non-covered healthcare services. This amount excludes medication and medical supplies (23). It has been reported that lower-income persons do not follow the recommendations of healthcare professionals due to financial constraints. Elderly individuals are more likely to have multiple illnesses, resulting in higher medical costs and lower treatment adherence (24). Low income, loneliness, and low educational level are social determinants of health that can contribute to lower treatment adherence and the increased risk of visual impairment (24).

Most of the people in our sample with visual impairment had less than a high school education (0–12 years), which may have led to lower health literacy and reduced understanding of the importance of preventive eye care. Half of the participants with visual loss were widows who lived alone and did not drive. Although the 16 senior centers that participated in the study offered transportation services, the availability of these services was often limited, which reduced access to healthcare services, including rehabilitation. Future research is needed to explore the impact of sociodemographic factors and healthcare barriers on those with visual impairment.

In the United States, 25% of adults have 2 or more chronic diseases (25). Hispanics constitute one of the largest minority groups in the country, and their health profiles differ from those of other ethnic groups. It has been reported that the most common conditions among older Hispanics are hypertension, arthritis, heart disease, diabetes, and cancer (26).

Over half of the participants (58.1%) had more than 2 chronic conditions; similar findings were observed in LALES, in which the subjects studied reported an average of 2.4 chronic conditions

(16). This study identified the 5 most common systemic conditions—hypertension, lipid disorders, musculoskeletal diseases, thyroid disease, and diabetes mellitus—that increase risk for the most common sight-threatening conditions. Beyond these 5 conditions, visual manifestations of chronic diseases in general can be prevented or reduced with early intervention, monitoring, and treatment. Visual and hearing loss often occur simultaneously (26); this kind of concurrent sensory loss can significantly impact a patient's daily activities, as it prevents them from receiving input from their surroundings (27). Concurrent hearing loss was more common in the visually impaired group (33.3%). Multidisciplinary rehabilitation can provide appropriate strategies to manage these deficits, improving patients' quality of life.

Prescribed and over-the-counter medications were used to manage chronic conditions. Medication use increased with age due to having several comorbidities, increasing the risk of adverse effects and drug interactions (28). In 17.1% of patients, at least 1 prescribed medication was taken daily, with an average of 4 medications per patient. Taking several medications not only increases the risk of adverse events and drug interactions but also has economic implications (28).

People with visual impairment face challenges managing their medication intake (29). Reading labels, identifying pills, opening bottles, and administering ophthalmic drugs are all recognized as difficulties encountered by the visually impaired. Several strategies have been proposed to improve drug-therapy compliance. Some pharmacies offer alternatives, including large-font labels, easy-to-open bottles, individually packed medications, and user-friendly eye-drop dispensers. Promoting education for patients and healthcare professionals about the availability of medication management aids could be the first step toward improving medication adherence.

Chronic health conditions significantly impact individual health outcomes and are linked to significant economic and social burdens. This study found a higher prevalence of multiple comorbidities among participants living in poverty than in those not living in poverty. Consequently, patients with chronic diseases demonstrate increased healthcare utilization and higher associated healthcare expenditures, which may restrict access
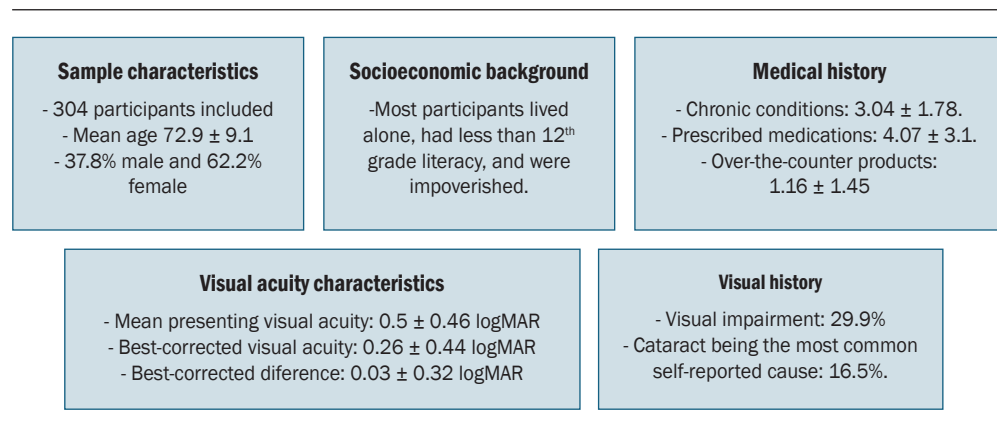
to care, particularly among socioeconomically disadvantaged populations. It is essential to note that many older adults in Puerto Rico rely primarily on Social Security income to cover their financial obligations, including healthcare costs. Although additional research is necessary to fully understand the impact of poverty on healthcare access, these findings provide critical insight into the economic and health challenges faced by the island's aging population.

However, our study had some limitations. First, since this was a convenience sample of participants recruited in the metropolitan area of Puerto Rico, these results may not accurately represent the elderly population attending senior centers in other parts of the island. Second, when patients report their medical and visual conditions in a research study, they provide valuable firsthand information about their health status; however, self-reporting can introduce bias, as patients may underestimate, overestimate, or misinterpret their symptoms due to factors such as forgetfulness, social desirability, or a lack of medical knowledge. Nonetheless, the findings offer valuable, previously undocumented insights into Puerto Rico's senior population.

Conclusions

This study thoroughly examined the demographic, visual, medical, and socioeconomic aspects of older adults in Puerto Rico, providing unique insights into aging and visual health within this population. These findings emphasize the significant occurrence of visual impairment among older Hispanics in Puerto Rico. Additionally, fostering interdisciplinary collaboration among healthcare professionals, policymakers, and community stakeholders to develop future healthcare policies and comprehensive programs that address the needs of the elderly is crucial to mitigating the burden of vision loss and improving the island's overall health outcomes. This study has laid the groundwork for informed decisions about targeted treatments to promote healthy aging in and enhance the quality of life of older adults in Puerto Rico.

Resumen

Objetivo: Investigar las características visuales, médicas y sus determinantes sociales asociados a la salud en Hispanos que asisten a centros para adultos mayores en Puerto Rico. Métodos: Se realizó un estudio transversal en 16 centros para adultos mayores en el área metropolitana de Puerto Rico. Información demográfica, visual, médica y sus determinantes sociales fueron recopiladas. Se realizó un examen visual que incluyó agudeza visual y refracción. La discapacidad visual se definió como una agudeza visual mejor corregida peor que 20/40 (> 0.30 logMAR) en el mejor ojo. Resultados: Se incluyeron 304 participantes con una edad media de 72.9 ± 9.1 años La mayoría de los participantes vivían solos, tenían escolaridad inferior al 12º grado y vivían bajo el nivel de pobreza. El promedio de enfermedades crónicas fue de 3.04 ± 1.78. El uso promedio de medicamentos prescritos fue de 4.07 ± 3.1 y de 1.16 ± 1.45 para productos sin receta. La media de agudeza visual sin corregir fue de 0.5 ± 0.46 y la mejor agudeza visual corregida fue de 0.26 ± 0.44 logMAR. Se encontró una mejora significativa en la diferencia media de la mejor agudeza visual corregida de 0.03 ± 0.32. Entre los participantes, el 29.9% tenía discapacidad visual y catarata fue la causa asociada más común (16.5%). Conclusión: Estos hallazgos resaltan la necesidad de intervenciones preventivas para disminuir la discapacidad visual en adultos mayores de Puerto Rico. Los servicios de atención médica integral dirigidos a los adultos mayores son fundamentales para mejorar los resultados generales de salud de la isla.

Acknowledgments

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