Quality of life and perceived usability by Criciúma park goers: multilevel analysis

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Abstract:
This study aimed to measure and correlate the perceived quality of life and usability of park goers (quality of equipment, number of equipment, accessibility and safety) in Criciúma/SC. This is a quantitative, descriptive and cross-sectional study. The World Health Organization Quality of Life, short version, was administered to 312 volunteer visitors in the three city municipal parks. Multilevel regression models were used to analyze the data. Participants showed differences in relation to sex (perceived quality of life), age group (psychological domain), income (physical, psychological and environmental domain) and education (environmental domain). There was a low to moderate correlation between the quality of the equipment and the environment domain, between accessibility and the physical domain, and between safety and the psychological domains and social relationships. Parks are beneficial spaces for a more egalitarian quality of life among their visitors, although external factors influence this perception. The results of the correlations indicate that isolated usability factors may not favor higher values of the perception of quality of life, as well as indicating the subjectivity of this perception based on a multidimensional set of factors. It is recommended that future studies need to investigate the longitudinal impacts of the parks on peoples' quality of life.
Keywords: Health, public open Spaces, built environment, communities.

Qualidade de vida e usabilidade percebida dos frequentadores dos parques de Criciúma: análise multinível

Resumo:
O presente estudo teve por objetivo mensurar e correlacionar a percepção de qualidade de vida e usabilidade dos frequentadores dos parques (qualidade dos equipamentos, número de equipamentos, acessibilidade e segurança) de Criciúma/SC. Trata-se de um estudo quantitativo, descritivo e transversal. O World Health Organization Quality of Life, versão reduzida, foi administrado a 312 visitantes voluntários de três parques da cidade. Utilizou-se de modelos de regressões multiníveis para analisar os dados. Os frequentadores apresentaram diferenças em relação ao sexo (percepção da qualidade de vida), faixa etária (domínio psicológico), renda (domínio físico, psicológico e meio ambiente) e escolaridade (domínio meio ambiente). Verificou-se correlação baixa à moderada entre a qualidade dos equipamentos e o domínio meio ambiente, entre acessibilidade e o domínio físico e

entre segurança com os domínios psicológicos e relações sociais. Os parques apresentam-se como espaços benéficos para uma qualidade de vida mais igualitária dentre seus frequentadores apesar de fatores externos terem influência nesta percepção. Os resultados das correlações indicam que fatores isolados de usabilidade podem não favorecer a valores mais elevados da percepção da qualidade de vida, bem como indica a subjetividade desta percepção a partir de um conjunto multidimensional de fatores. Recomenda-se que estudos futuros investiguem os impactos longitudinais dos parques na qualidade de vida das pessoas.
Palavras-chave: Saúde, espaços públicos abertos, ambiente construído, comunidades.

Calidad de vida y usabilidad percibida de los visitantes de los parques de Criciúma: análisis multinivel

Resumen:
Este estudio tuvo como objetivo medir y correlacionar la percepción de la calidad de vida y la usabilidad de los asistentes al parque (calidad de los equipamientos, número de equipamientos, accesibilidad y seguridad) en Criciúma/SC. Se trata de un estudio cuantitativo, descriptivo y transversal. La versión corta de la Calidad de Vida de la Organización Mundial de la Salud se administró a 312 visitantes voluntarios de tres parques de la ciudad. Se utilizaron modelos de regresión multinivel para analizar los datos. Los participantes mostraron diferencias en relación al género (calidad de vida percibida), grupo de edad (dominio psicológico), ingreso (dominio físico, psicológico y ambiental) y educación (dominio ambiental). Hubo una correlación de baja a moderada entre la calidad del equipamiento y el dominio ambiental, entre la accesibilidad y el dominio físico, y entre la seguridad y los dominios psicológicos y relaciones sociales. Los parques son espacios beneficiosos para una calidad de vida más igualitaria entre sus visitantes, aunque factores externos influyen en esta percepción. Los resultados de las correlaciones indican que factores de usabilidad aislados pueden no favorecer valores más altos de la percepción de calidad de vida, además de indicar la subjetividad de esta percepción a partir de un conjunto multidimensional de factores. Se recomienda que futuros estudios investiguen los impactos longitudinales de los parques en la calidad de vida de las personas.
Palabras clave: Salud, espacios públicos abiertos, entorno construido, comunidades.

INTRODUCTION

Amidst the progress of urbanization, public parks have become a great asset for the population to balance an environment that is too "concreted" with green areas, as well as to provide a place for physical activity, socialization, and leisure (NGUYEN *et al*., 2021). Visiting parks has been prescribed as a way to help improve the population's quality of life. This concept of "park as prescription" was developed in the United States as a less costly and financially accessible way for the general population to believe that contact with nature and exposure to this environment for physical activity can help improve quality of life (MÜLLER-RIEMENSCHNEIDER *et al.*, 2020; PETRUNOFF *et al*., 2021).

Quality of life has been the subject of many discussions, especially since it is a broad concept that has a significant impact on people's lives. In order to measure the quality of life

of the population, the World Health Organization Quality of Life (WHOQOL) questionnaire was initially developed with 100 items (THE WHOQOL GROUP, 1998b; FLECK *et al.*, 1999). Subsequently, WHOQOL was reduced to 26 items and validated (THE WHOQOL GROUP, 1998a), including for Brazil (FLECK *et al.*, 2000). The first two items are about overall quality of life, and the remaining 24 items are distributed across four domains: physical, psychological, social relationships, and environment. It is worth noting that WHOQOL has been tested for different cultures and is a valid instrument for cross-cultural comparisons (POWER; BULLINGER; HARPER, 1999), with its use being widely recommended.

Studies that previously used WHOQOL in the Brazilian population indicate differences in relation to gender, age group, education, and income, with women, older people, those with less education, and lower income showing lower quality of life values (CRUZ *et al.*, 2011; BORTOLOTTO; MOLA; TOVO-RODRIGUES, 2018). Considering the usability of parks, the literature points out that safety and infrastructure (e.g., quality of equipment and number of equipment) can also influence the perception of quality of life among visitors (NGUYEN *et al.*, 2021). The access and use of public parks are also a contributing factor in parameters related to physical activity, reduction of sedentary behavior, and improvement of quality of life (KOTHENCZ *et al.*, 2017; ZHANG *et al.*, 2019; SHAMS; KADOW; TSOPANAKIS, 2021).

A post-pandemic study identified that Open Public Spaces provide conditions for well-being and help improve the health of citizens and cities, along with the provision of ecosystem services (XIMENES *et al.*, 2020). They present as preponderant factors for improving the quality of life of their visitors (BRUFATTO, 2021). However, few studies have effectively measured quality of life through an appropriate instrument, and no studies have been identified that correlate the usability of parks with dimensions of quality of life.

Stakeholders have been actively promoting the creation of natural settings for physical activity, based on the prescription of exercise in parks as an effective strategy (PETRUNOFF, *et al.*, 2021). Recognizing the challenges in public health, particularly in promoting quality of life, organizations prioritize initiatives that enhance public spaces for the population. This entails improving the availability, accessibility, and quality of public spaces, ideally offering exercise prescriptions and services free of charge.

The importance of measuring different contexts and locations, especially due to the diversity and cultural differences in different regions of Brazil (HOFSTEDE *et al.*, 2010), is

based on this evidence, and with the aim of measuring and correlating the perception of quality of life and usability of park visitors (equipment quality, number of equipment, accessibility, and safety) in Criciúma/SC. It is worth noting that this is the first study to correlate WHOQOL dimensions with park usability factors.

METHODS

The present study is characterized as a quantitative, descriptive, and cross-sectional study (DELGADO; MARÍN; SANCHEZ, 2011). It should be noted that the study was approved by the Ethics Committee for Research with Human Beings of the University of Extreme South of Santa Catarina (5.607.106), and all participants were volunteers who gave their consent to participate in the research.

The sample consisted of 312 visitors approached during their stay in the three major municipal parks (Parque das Nações Cincinato Naspolini, Parque Municipal Prefeito Altair Guidi, and Parque dos Imigrantes), which have suitable places for physical activity, accessibility, safety, and a diversity of opportunities, such as outdoor gyms, sports spaces, green areas, walking paths, bike lanes, playgrounds, sports courts, and stages for events (MORAIS, 2021), as well as public restrooms, snack bars, restaurants, and a large parking area. Although Criciúma is not considered a big city (around 220 thousand habitants), there are three major parks (around 170 thousand square meters) strategically built to serve the macro regions of the city, with accessibility to the entire population and with free programs and actions to encourage physical activity.

All interviewees were informed about the research objectives. After their agreement and signature of the Free and Informed Consent Form and/or Free and Informed Assent Form, only those who declared visiting the park for at least six months (inclusion criterion) were included in the research. Visitors who started answering the survey and, for some reason, gave up participating were excluded from the research.

Data collection procedures

To collect the data, a structured questionnaire was used, subdivided into three blocks. The first block was related to participant characterization questions (gender, age, marital status, family income, and education level). The second block was related to visitors' satisfaction perception in relation to (the number of park equipment, equipment quality, safety, and accessibility). Questions were answered on a five-point Likert scale ranging from 1 (completely dissatisfied) to 5 (completely satisfied).

To measure the quality of life (third block) of park visitors in Criciúma, the WHOQOL-BREF short version questionnaire (THE WHOQOL GROUP, 1998b) adapted to Brazilian culture (FLECK *et al.*, 2000) was used, consisting of 26 questions. The first item is about overall quality of life and the second item about health satisfaction. The other 24 items are distributed in four domains named physical domain, psychological domain, social relationships domain, and environmental domain, answered on a Likert-type scale ranging from one to five. The data were collected during September 2022 in the morning, afternoon, and evening periods, on different days. The interview time was approximately 15 minutes per participant.

Volunteers were trained by the researchers to collect the data and all questions and questionnaires were uploaded into the Epicollect5 application in order to facilitate the data collection. Thus, data could be easily collected in any place of the parks.

Data Analysis

Multilevel regression models were used to extract estimates of the dimensions of the WHOQOL-BREF in relation to gender (female and male), age group (<18 years, 18 to 29 years, 30 to 39 years, 40 to 49 years, 50 to 59 years, and over 60 years), family income (less than R$ 4,000.00 and greater than or equal to R$ 4,000.00), education level (up to complete high school and ongoing or complete higher education), and marital status (married, single, divorced, and widowed). Models of the intercept of the variable assuming participants (level 1) aggregated by groups (level 2, e.g., gender) were used. To perform this analysis, the data were standardized and therefore the results are presented in effect sizes. For interpretation purposes, effect sizes of small, medium, and large will be considered when the compared estimates were greater than 0.1, 0.3, and 0.5, (COHEN, 1992) respectively.

Multilevel models consider the hierarchical structures of data, allowing the intercept to vary between groups, which provides more flexible and robust analyses (GELMAN; HILL, 2007). Moreover, Bayesian methods consider parameters as random variables. It estimates the probability distribution based on the available data and prior distribution information that measures uncertainty about the parameters (MCELREATH, 2015). Considering different sources of inferential uncertainty, Bayesian methods allow for combining the prior information known before seeing the data (i.e., prior uncertainty about a parameter) with what is learned from the observed data (i.e., the probability of the data conditional on the parameter or hypothesis) to update knowledge expressed as the posterior distribution (LEE; WAGENMAKERS, 2013).

Estimates from Bayesian multilevel modeling were derived using the "brms" package " (BÜRKNER, 2017) through R software (R CORE TEAM, 2018). To regularize the estimates, weakly informative prior distributions were used, a normal distribution (0, 10) for population-level effects and normal distributions (0, 1) for group-level effects. Additionally, to ensure the convergence of the Markov chains, two chains were run for 4,000 iterations considering a warm-up phase of 1,000 iterations to ensure chain convergence. Trace-plots were used to assess convergence of the Markov chains, and posterior predictions were checked to validate the models (GELMAN *et al*., 2013).

Unlike many studies (using frequentist methods), readers will not see mention of p-values. There is currently evidence of the limitations of using the term "statistically significant" and the inappropriate use of hypothesis tests (AMRHEIN; GREENLAND, 2018; MCSHANE *et al*., 2019). For McShane *et al*. (2019), this change in the interpretation of research results encourages researchers to move beyond the paradigm of routine "discovery" and binary statements about the existence of "an effect" or "no effect," toward a continuous and inevitably flawed learning that accepts uncertainty and variation.

Bayesian multilevel regression models were also used to extract correlations between the domains of the WHOQOL and park satisfaction (number of equipment, equipment quality, accessibility, and safety). Park satisfaction questions were modeled as population-level effects, and sociodemographic variables (gender, age group, income, and education level) were modeled as group-level effects. It is worth noting that to perform this analysis, the data

were standardized. The same package, software, and regularization of the estimates described above were used.

RESULTS

Sample comprised 312 participants, which 158 were women and 154 men, with 30 participants aged <18 years, 125 between 18-29 years, 68 between 30-39 years, 54 between 40-49 years, 20 between 50-59 years and 15 ≥60 years. Regarding socioeconomic components, 69 attested to having completed higher education and 243 did not complete higher education and, regarding family income, 34 interviewees had a family income equal to or greater than four thousand reais and 278 had family income less than four thousand reais.

Based on the results of the multilevel models (Table 1), differences were observed in relation to sex (perception of quality of life), age group (psychological domain), income (physical, psychological, and environmental domains), and education (environmental domain). There was no difference in satisfaction with health and the social relationships domain.

Regarding the perception of the interviewees' quality of life, only small differences (low effect) were found between sex groups, with men showing higher effect magnitudes than women. In the physical domain, a low effect magnitude was also found in the income variable, with people with higher income showing higher effects.

In the psychological domain, low effect magnitudes were observed in relation to sex, with men showing higher effects. Considering the age group, there was a low effect magnitude when comparing attendees aged 30-39 with younger attendees (<18 years and 18-29 years) and elderly attendees; the 30-39 age group showed higher effects. A low effect was observed in relation to income, with attendees with higher income showing higher effects compared to those with lower income.

In the environmental domain, a moderate effect was verified regarding the income variable, with attendees with higher income presenting higher estimates when compared to attendees with lower income. In this same domain, a low effect was also verified in relation

to the education variable, with attendees with lower education presenting higher values compared to attendees with higher education.

Table 1 – Estimate and confidence interval (95%) of the WHOQOL-BREF dimensions in relation to sex, age group, wage and education.

	Quality of life perception	Health satisfaction	Physical domain
	Estimate (95% confidence interval)		
Sex			
Female	-0.06 (-1.37 to 1.18)	-0.01 (-1.32 to 1.31)	0.03 (-1.20 to 1.29)
Male	0.11 (-1.19 to 1.36)	0.03 (-1.28 to 1.36)	0.06 (-1.19 to 1.34)
Age group			
< 18	0.05 (-1.63 to 1.68)	0.05 (-1.49 to 1.65)	0.05 (-1.44 to 1.56)
18 - 29	0.00 (-1.68 to 1.62)	0.00 (-1.56 to 1.58)	0.04 (-1.44 to 1.54)
30 - 39	0.00 (-1.69 to 1.64)	0.05 (-1.56 to 1.58)	0.06 (-1.43 to 1.56)
40 - 49	0.03 (-1.65 to 1.67)	0.02 (-1.50 to 1.62)	0.05 (-1.44 to 1.54)
50 - 59	0.00 (-1.71 to 1.63)	-0.01 (-1.56 to 1.59)	0.07 (-1.43 to 1.56)
≥ 60	0.02 (-1.67 to 1.64)	-0.01 (-1.57 to 1.59)	0.03 (-1.47 to 1.54)
Wage			
< R$ 4,000	-0.02 (-1.45 to 1.31)	0.00 (-1.28 to 1.24)	-0.02 (-1.22 to 1.22)
≥ R$ 4,000	0.05 (-1.36 to 1.42)	0.01 (-1.27 to 1.27)	0.10 (-1.10 to 1.38)
Education			
< Higher education	0.03 (-1.41 to 1.47)	0.02 (-1.29 to 1.36)	0.07 (-1.18 to 1.30)
≥ Higher education	0.01 (-1.44 to 1.44)	0.01 (-1.30 to 1.35)	0.03 (-1.24 to 1.30)

Source: Authors.

Table 1 – Continuation.

	Psychological domain	Social relation domain	Environmental domain
	Estimate (95% confidence interval)		
Sex			
Female	0.03 (-1.27 to 1.40)	0.01 (-1.35 to 1.35)	0.08 (-1.63 to 1.70)
Male	0.13 (-1.17 to 1.49)	-0.04 (-1.38 to 1.29)	0.14 (-1.55 to 1.76)
Age group			
< 18	0.03 (-1.54 to 1.62)	-0.02 (-1.64 to 1.57)	0.12 (-1.78 to 1.95)
18 - 29	0.02 (-1.55 to 1.61)	-0.06 (-1.65 to 1.53)	0.10 (-1.80 to 1.94)
30 - 39	0.15 (-1.42 to 1.75)	0.04 (-1.54 to 1.62)	0.14 (-1.75 to 1.98)
40 - 49	0.12 (-1.43 to 1.69)	-0.01 (-1.60 to 1.58)	0.12 (-1.77 to 1.96)
50 - 59	0.07 (-1.50 to 1.64)	-0.01 (-1.63 to 1.58)	0.06 (-1.85 to 1.88)
≥ 60	0.05 (-1.52 to 1.63)	-0.04 (-1.65 to 1.54)	0.11 (-1.79 to 1.94)
Wage			
< R$ 4,000	-0.02 (-1.30 to 1.20)	0.00 (-1.26 to 1.22)	-0.13 (-1.56 to 1.23)
≥ R$ 4,000	0.15 (-1.10 to 1.44)	-0.05 (-1.35 to 1.20)	0.37 (-1.05 to 1.78)
Education			
< Higher education	0.09 (-1.28 to 1.44)	0.00 (-1.30 to 1.27)	0.25 (-1.31 to 1.77)
≥ Higher education	0.04 (-1.35 to 1.39)	-0.05 (-1.34 to 1.25)	-0.03 (-1.63 to 1.52)

Source: Authors.

When analyzing the correlation between park usability variables and the WHOQOL-BREF domains, in general, there is low correlation between all analyzed variables. However, as more robust and rigorous analyses are being used, these values should be reconsidered when compared to traditional correlation values. Indicators demonstrate low to moderate correlation between equipment quality and the environmental domain, between accessibility and the physical domain, and between safety and the psychological and social relationships

domains. It should be noted that these interpretations must be made with caution and cannot be extrapolated to analogous contexts.

Table 2 – Correlation estimates and confidence intervals (95%) between parks' usability variables and WHOQOL-BREF domains.

	Number to equipment	Quality of the equipment	Accessibility	Security
	Estimate (95% confidence interval)			
Quality of life perception	0.01 (-0.09 to 0.13)	0.13 (0.01 to 0.24)	-0.13 (-0.24 to -0.02)	0.07 (-0.04 to 0.18)
Quality of life perception	-0.03 (-0.14 to 0.09)	0.05 (-0.06 to 0.16)	-0.07 (-0.18 to 0.04)	0.09 (-0.02 to 0.20)
Quality of life perception	-0.04 (-0.15 to 0.07)	-0.01 (-0.12 to 0.10)	-0.20 (-0.31 to -0.09)	0.08 (-0.03 to 0.19)
Psychological domain	0.07 (-0.04 to 0.18)	0.11 (0.00 to 0.22)	0.01 (-0.12 to 0.10)	0.19 (0.07 to 0.30)
Psychological domain	0.13 (0.02 to 0.24)	0.17 (0.05 to 0.28)	0.04 (-0.08 to 0.15)	0.22 (0.11 to 0.33)
Psychological domain	0.07 (-0.04 to 0.18)	0.09 (-0.02 to 0.20)	-0.05 (-0.17 to 0.06)	0.14 (0.03 to 0.25)

Source: Authors.

DISCUSSION

The present study investigated the perception of quality of life and usability of visitors to the parks in Criciúma/SC. It was found that the majority of the sample participants were young adults with income below four thousand Brazilian reals and no higher education. Visitors showed differences in terms of gender (perception of quality of life), age group (psychological domain), income (physical, psychological, and environmental domains), and education (environmental domain). There was a low to moderate correlation between

equipment quality and the environmental domain, between accessibility and the physical domain, and between safety and psychological and social domains.

A study conducted with park visitors in a city in southern Brazil (Curitiba) identified a higher presence of women, adults over 50 years old, and low and moderate socioeconomic levels (FERMINO *et al*., 2015), differing from some of the findings of the present study. These differences may be related to the equipment (e.g., sports courts and leisure spaces) available to the population, which can attract different audiences to the spaces (COHEN *et al*., 2010).

The low number of older adults in these spaces may be justified by the promotion actions aimed at the public in the Elderly Living Center of the municipality and in the elderly clubs held directly in the neighborhoods near their residences (AFASC, 2023). Although studies report that this age group has a higher frequency of use of parks and open spaces (MARSELLE *et al*., 2014; TAN *et al*., 2019), having a specific location, with easy access to public transportation and close to home, are facilitators for the elderly, taking into account the decline in mobility and functional capacity related to aging (CHOI; MATZ-COSTA, 2018).

The fact that there is a higher presence of visitors with lower income and education level indicates that these spaces provide access to physical activity and leisure for part of the population that is usually less favored (COHEN *et al*., 2007; HINO, *et al.,* 2019). However, a study carried out in Denmark, which is considered a developed country and presents a different cultural context, found that the level of education was not related to the usability of parks (SCHIPPERIJN *et al*., 2010).

Regarding the quality of life of park visitors, the results found in this study differ from the literature, which points to differences between men and women, except for the Social dimension (CRUZ *et al*., 2011; BORTOLOTTO; MOLA; TOVO-RODRIGUES, 2018; LI, 2020) and differences regarding age, with young adults having higher values (LI, 2020). There is evidence of differences in the educational level of visitors, especially in the Physical and Psychological dimensions, with people with more years of schooling showing higher values of quality of life (CRUZ *et al*., 2011; BORTOLOTTO; MOLA; TOVO-RODRIGUES, 2018; LI, 2020). In this study, only a difference was found in the Environment dimension concerning the years of schooling, corroborating with Crus's study (2011). The income variable stood out due to its differences and is in line with discussions on quality of life. It was found that visitors with lower income also presented lower values in the physical, psychological, and environmental

domains. These data corroborate with the literature, which indicates that populations with higher income have the possibility of satisfying their needs and pursuing their goals that they consider important for their lives, enabling them to sustain these choices over time (EUROPEAN UNION, 2017). An increase in income has also been associated with improvements in other dimensions of well-being, life expectancy, and education (EUROPEAN UNION, 2017).

The present findings indicate parks as a favorable environment for a more equitable quality of life among men and women and people with different educational levels, age groups, and socioeconomic levels. The presence and use of these parks imply an improvement in the urban environment of the city in general, and provide spaces for the population to engage in leisure activities, physical activities, contact with nature, and social exchanges, which are ascending actions in the realm of quality of life (SOARES *et al*., 2019).

Quality of life is sometimes related to how much a particular environment makes a person feel satisfied in being present in it (RAMKISSOON; MAVONDO; UYSAL, 2018). In addition, according to the Conceptual Model of the Role of Parks in Public Health (BEDIMO-RUNG; MOWEN; COHEN, 2005), parks provide individual, social, economic, and environmental benefits. However, based on the findings of this study, it seems that certain usability factors do not correlate with the quality of life of visitors. It should be noted that this is the first study to correlate usability factors with the dimensions of WHOQOL-BREF, and until now, what was found in the literature was a theoretical discussion of usability and its possible reflections on the quality of life of its visitors (BEDIMO-RUNG; MOWEN; COHEN, 2005; LEEUWEN; VREEKER; RODENBURG, 2006).

Empirical studies have shown that visiting parks helps improve quality of life by providing opportunities for relaxation, socialization, and contact with nature (RAMKISSOON; MAVONDO; UYSAL, 2018), making it possible for multiple needs that promote quality of life to be met in a single space (DI GIULIO *et al*., 2022). Among the usability factors measured, safety stood out as the most positive in the psychological and social relationship domains. Other studies have also identified that a sense of safety is a facilitating factor for park use (FAUSTINO; TELES, 2021), as well as a sense of safety during the path to the parks (CAMARGO; RAMÍREZ; FERMINO, 2017). In addition, such correlations indicate that the sense of safety in these parks aligns with the United Nations' action plan, which includes one of its Sustainable

Development Goals of "providing universal access to safe, inclusive, accessible, green, and public spaces" by 2030 (UNITED NATIONS, 2023).

The quality of parks involves adequate planning to better serve and benefit quality of life in urban environments (KONG, *et al.*, 2022). However, this design and structural concern are perceived by park visitors as secondary factors for motivation to frequent these places (KRAJTER OSTOIĆ *et al.*, 2017), which corroborates with the results of the present study. Only a weak correlation was found with the social relationship dimension, which may indicate that the quality of equipment could be a factor that contributes to higher social relationship values. Additionally, the lack of care with the equipment is perceived as negative by park visitors (COSTIGAN *et al.*, 2017; KONG, *et al.*, 2022), which could have a negative impact on quality of life values.

Summarily, the results reflect an ongoing process of cultural adoption of these public green spaces as places favorable for improving the population's quality of life. Additionally, it indicates the need to improve parks' facilities.

CONCLUSION

Aiming to measure and correlate the perception of quality of life and usability of park visitors in Criciúma/SC, it was found that gender (perception of quality of life), age group (psychological domain), income (physical, psychological, and environmental domain), and education level (environmental domain) seem to influence the perception of quality of life of park visitors in the city. Regarding the usability factors of the parks, there appears to be a low to moderate correlation between the quality of equipment and the environmental domain, between accessibility and the physical domain, and between safety and the psychological and social relations domains.

Therefore, it can be verified that parks present themselves as beneficial spaces for a more equitable quality of life among their visitors despite external factors, such as income, having a great influence on this perception. In addition, the correlation results indicate that

isolated usability factors may not favor higher values of the perception of quality of life, as well as indicating the subjectivity of this perception from a multidimensional set of factors.

Among the strengths of this study, the investigative context stands out, in which the parks of the city of Criciúma present themselves as a scenario of extensive investigative opportunity, which no study had been carried out to investigate their visitors and possible influence on their levels of quality of life. Additionally, the data analysis process considered multilevel models and the use of characterization variables with different types of information is also noteworthy. Despite these potentialities, the low number of participants may be a limiting factor in interpreting the results. Additionally, other places that these visitors also frequent were not investigated, which may influence their perceptions of quality of life. In this process of understanding space use and quality of life, it is relevant to highlight the need to expand the sample, implement longitudinal studies, and use mixed methods to have a deeper understanding of the data.

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