

Article

Public Awareness of Accessible Environments and Its Influencing Factors in Underdeveloped Regions of China

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Abstract

The promotion of public awareness regarding accessible environments is crucial for their effective construction and utilization. While there has been extensive research focusing on the physical construction of accessible facilities, the issue of public awareness remains underexplored, especially in underdeveloped regions. This potential lack of awareness could hinder effective use and societal support of accessible environments. The present study explored the current state of public awareness regarding accessible environments and its influencing factors in Urumqi, a provincial capital in an underdeveloped region of China. Through stratified sampling, approximately 80 residents from each of seven districts in this western city were surveyed, resulting in 501 valid questionnaires. The findings indicated that public awareness of accessible environments was moderate, characterized by insufficient understanding of basic concepts and relevant legal policies. The presence of family members with mobility difficulties, personal experience with mobility challenges, and occupational roles were all relevant factors that contributed to differences in public awareness of accessible environments. The study identified two key influencing factors, including public attitudes towards accessible environments and the presence of family members with mobility difficulties. These insights could inform strategies to enhance public awareness of accessible environments. Future research should further explore the underlying mechanisms linking public awareness and its influencing factors.



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1. Introduction

An accessible environment enables individuals of all abilities—including those with mobility, visual, auditory, and cognitive impairments—to engage with physical spaces, information, and communication without barriers. The concept extends beyond physical infrastructure to include information accessibility, service availability, and social inclusion [1]. Developing accessible environments has become a critical global concern, valued not only for safeguarding the fundamental rights of persons with disabilities but also for advancing social equity, inclusive growth, and sustainable development [2]. The United Nations Convention on the Rights of Persons with Disabilities explicitly identifies accessibility as a key condition for independent living and full participation in social life [3]. Similarly, the World Report on Disability by the World Health Organization and the World Bank underscores that the benefits of accessibility extend beyond persons with disabilities. For example, ramps assist parents with strollers, while clear and comprehensible information

supports individuals with limited education or non-native language backgrounds [4]. Accordingly, accessible environments are widely regarded as a global public good, requiring joint efforts from governments, civil society, and the private sector across nations [5]. From the Convention on the Rights of Persons with Disabilities to domestic legislation, accessible environments have been recognized as a cornerstone for protecting the rights of persons with disabilities and fostering social justice [6]. Beyond improving mobility and participation for vulnerable groups, it also serves as a key indicator of a country's level of social development and civilization [7]. Worldwide, governments are increasingly committed to advancing accessible environments by removing physical, informational, and social barriers, thereby fostering more inclusive and equitable societies [8].

1.1. Public Awareness on Accessible Environments

Public awareness of accessible environments—formed through daily experiences, information exposure, and educational outreach—encompasses knowledge of their essence, value, scope, functions, and the associated rights and obligations [9,10]. Such awareness is essential for the effective and sustainable development of accessible environments, as it directly affects the proper use of facilities, the degree of social support, and the overall pace of progress [11]. However, research on public awareness of accessible environments remains limited. Existing studies have been scarce, and definitions of awareness often focus narrowly on the functional aspects of facilities, lacking a systematic breakdown of awareness dimensions. This has resulted in insufficient clarity in awareness measurement and an incomplete focus. This has led to unclear measurement frameworks of awareness and incomplete analytical focus [12]. Research has predominantly focused on developed regions with advanced infrastructure and promotional systems, limiting the applicability of findings to underdeveloped contexts. In addition, the cultural determinants of public awareness have been largely neglected. In Eastern collectivist cultures, such as China, the public tends to prioritize social harmony and collective interests over the needs of specific groups [13]. This contrast is particularly evident in Western individualist cultures, where the emphasis on individual rights and autonomy has positioned accessibility as a civil right [14]. By contrast, in underdeveloped regions of China, accessible environments are often perceived not as universal rights but as specialized services for disadvantaged groups. This cultural framing has significantly shaped public awareness by reducing the perceived relevance of accessibility to the wider population and weakening social support. Therefore, understanding cultural context is thus critical for interpreting levels of public awareness and for designing effective awareness-raising strategies in non-Western settings. Yet, existing research has largely overlooked cultural influences, leaving awareness conclusions and measurement tools developed in Western or developed contexts poorly transferable to Eastern societies. This limitation is particularly evident in underdeveloped regions, where practicality is prioritized over rights [15]. These gaps highlight the urgent need for systematic reviews within multicultural contexts and underscore the importance of targeted studies on public perceptions of accessible environments in underdeveloped regions.

1.2. Potential Influencing Factors of Public Awareness

Although prior studies have identified factors such as attitudes, personal experiences, occupational roles, age, gender, and other demographic characteristics that may shape public awareness of accessible environments, the findings remain inconsistent and geographically limited [16]. Attitudes play a central role in shaping public awareness. Guided by the perspective of the Theory of Planned Behavior (TPB), attitude serves as a key predictor of awareness (knowledge). Individuals with positive attitudes—viewing accessible environments as important and valuable—are more likely to seek information, engage with

relevant policies, and demonstrate higher levels of awareness [17]. Conversely, negative attitudes discourage information-seeking and hinder knowledge acquisition. In collectivist cultural contexts, attitudes are further shaped by social norms and emotional factors, which influence the extent to which individuals internalize information. This preexisting attitudinal disposition had significantly influenced the depth of subsequent information processing and the degree of knowledge internalization. Research from Western regions has confirmed that positive attitudes toward inclusive practices facilitate deeper understanding of the value of accessibility, yet the mechanisms through which negative attitudes suppress awareness remain unclear [18]. Moreover, existing evidence is largely derived from Western settings, leaving the role of attitudes in underdeveloped collectivist regions untested and creating a critical gap for developing context-specific cognitive intervention strategies.

Personal and family experiences contribute to the development of awareness through repeated exposure. Experiential learning theory suggests that direct experience with mobility impairments—either personally or through family members—can enhance awareness [19,20]. However, empirical findings remain mixed: some studies report no significant association between such experiences and awareness [21]. This discrepancy may reflect cultural and regional variation. In developed regions with well-established infrastructure, personal or family experiences may exert limited influence, whereas in underdeveloped regions with inadequate infrastructure, their impact may be more pronounced. Yet, the absence of comparative studies in underdeveloped areas has left the true effect of personal and family experiences on public awareness of accessible environments largely unresolved.

Demographic characteristics may indirectly influence awareness. The role of demographic characteristics in shaping awareness remains contested. Occupational background may shape awareness indirectly by influencing exposure opportunities and role-specific responsibilities [22]. Professionals in healthcare, social work, and urban planning, for instance, are more likely to engage with accessibility facilities and policies, while students and public sector workers may encounter accessibility issues in educational or service settings [23,24]. In contrast, evidence on age and gender remains inconclusive. Some studies suggest that younger and female groups display higher awareness [25,26], while others find no significant associations [27].

Based on the above analysis, existing research has largely concentrated on developed regions or specific populations, with limited attention to underdeveloped contexts. Moreover, the influence of key factors remains contested. Although attitudes, experiences, and demographic characteristics have been examined individually, no study has integrated these determinants comprehensively. Empirical evidence on their interactions in shaping public awareness of accessible environments in underdeveloped regions is particularly lacking. This limitation constrains the development of targeted strategies and undermines efforts to enhance the effectiveness of accessible environment construction. Accordingly, this study incorporates these factors to explore the key determinants of public awareness in underdeveloped regions.

1.3. Background of Relatively Slow Development of Accessible Environments Infrastructure in Underdeveloped Regions of China

Although China has made progress in developing accessible environments [28,29], underdeveloped regions continue to lag behind [30,31]. Evidence of this gap spans multiple dimensions. First, these regions exhibit low coverage and utilization rates of accessible facilities, which are often of poor quality and lack adequate post-installation maintenance [32]. Second, accessible information infrastructure remains limited, particularly in areas with lower economic development, leaving people with disabilities and the elderly facing significant barriers to accessing social information and participating in community life [33]. Third, efforts have largely focused on constructing physical infrastructure, while public awareness

of accessible environments has been neglected [34]. Existing research has confirmed that public awareness is crucial for promoting the construction of accessible environments [35]. Yet, underdeveloped regions face additional challenges, including low economic resources, limited educational opportunities, and insufficient cultural dissemination, which further constrain awareness and understanding. Moreover, the current state of public awareness and the factors influencing it in these regions remain largely unknown. Based on this, it is necessary to accurately measure the current state of public awareness of accessible environments in underdeveloped regions and clarify the relevant influencing factors. Targeted research should then be conducted, focusing on the characteristics of public awareness in these regions. This will provide a scientific basis for improving local awareness of accessible environments and have significant practical implications for accelerating the construction of accessible environments and promoting inclusive social development in underdeveloped regions.

2. Methods

2.1. Design of the Survey

This study employed a cross-sectional survey to assess public awareness of accessible environments and their influencing factors in Urumqi, an underdeveloped region as defined by the 14th Five-Year Plan for the Revitalization and Development of Special-Type Regions issued by the State Council of China [11]. In 2024, Urumqi's per capita GDP (CNY 109,632) was only 84.5% of the national average, accompanied by lower higher education enrollment (56.8%), internet penetration (82%), and public library resources (0.52 books per capita), reflecting broader developmental constraints relevant to accessibility issues. While city-level disability data are unavailable, the 2024 Xinjiang Statistical Communiqué reported 545,000 registered persons with disabilities across the province (2.1% of the population). Applying this rate to Urumqi suggests approximately 87,000 residents with disabilities. Including an additional 0.9 million seasonal migrants who rely on city infrastructure, the pressure on existing accessible environments is substantial. A stratified sampling approach was used to recruit roughly 80 participants from each of Urumqi's seven municipal districts, ensuring geographic and demographic representation.

Data were collected via a structured questionnaire measuring awareness and potential influencing factors, including demographics, personal experiences, and attitudes. The survey was administered both online and offline from 1 March to 15 April 2023. Offline, researchers collaborated with communities to access household registration lists and applied stratified sampling (every 10th household) with follow-up visits to maximize participation. This ensured equal selection probability across all households within the community. Online, neutral invitations (e.g., "Hello, we are surveying urban public environment construction. . .") were used to minimize selection bias, avoiding thematic terms such as "accessibility." Screening excluded respondents residing locally for less than six months and professionals in accessibility-related fields to reduce expert bias. After screening, 59 invalid questionnaires were removed, yielding a final sample of 501 and an effective response rate of 89.5%. This high response rate can be attributed to three key factors. Official partners, such as the Federation of Persons with Disabilities, provided credibility assurance. On-site staff clarified questions, reducing dropouts. The streamlined 10 min questionnaire design also eliminated redundant content.

2.2. Data Collection

The survey was distributed through the platforms of Disabled Persons' Federations in underdeveloped regions of China, community WeChat groups, and local neighborhood committees to ensure representativeness of the public. Data were collected from 1 March

to 15 April 2023, using a combination of online and paper-based questionnaires to reach individuals with limited internet access. Inclusion criteria were: (a) residence in the selected underdeveloped regions for more than six months, and (b) sufficient cognitive ability to understand the survey content. Eligibility was assessed via initial screening questions. Before completing the questionnaire, participants received a standardized explanation: accessible environments enable individuals with diverse abilities (e.g., visual, hearing, mobility impairments) to access spaces, information, and communication without barriers. After excluding invalid responses, the final sample consisted of 501 participants, all of whom provided informed consent. Although the study targeted the general public in underdeveloped regions, we recognized substantial heterogeneity within this population. Subgroups defined by age, gender, occupational role, or personal experiences may differ systematically in their exposure to, use of, and engagement with accessible environments, potentially influencing their knowledge, willingness to utilize facilities, and attitudinal perceptions. As a preliminary large-scale survey, the primary objective was to provide an overview of public awareness and identify key influencing factors. Therefore, we not only analyzed the population as a whole—a standard and necessary approach, but also examined differences in awareness across various demographic and experiential subgroups.

2.3. Measures

2.3.1. Measurement Instrument and Validation

The scales measuring public awareness and attitudes were adapted from Guo et al. [36] and subjected to a rigorous cross-cultural adaptation process to ensure validity in the local context. An expert panel, including a special education professor, a local sociologist, and a disability practitioner, evaluated the scales for professional relevance, cultural appropriateness, and linguistic clarity. A pilot test involving 30 residents from diverse backgrounds was conducted, followed by cognitive interviews with 10 participants to refine item phrasing. During data collection, bilingual research members provided real-time linguistic assistance. All items used a five-point Likert scale (1 = “do not understand at all” to 5 = “completely understand”). Both scales demonstrated excellent reliability and validity in this study, with a Cronbach’s alpha of 0.941 and a Kaiser-Meyer-Olkin (KMO) value of 0.962.

2.3.2. Public Awareness of Accessible Environments

Public awareness of accessible environments was measured across three dimensions: (a) basic concepts, (b) planning and use of facilities, and (c) legal policies and norms. The basic concepts dimension included eight items assessing the public’s understanding of the essence, scope, and significance of accessible environments. The planning and use of facilities dimension comprised six items evaluating knowledge of facility functions, familiarity with their use, and actual application capabilities. The legal policies and norms dimension contained two items capturing awareness of relevant laws and regulations, comprehension of policy content, and recognition of the importance of legal safeguards. It should be noted that, while the questionnaire for this study had included sections in the “Basic Information” module regarding whether the respondent is mobility-impaired or has a mobility-impaired family member at home, aimed at analyzing cognitive differences between this group and the general population, the core content of the questionnaire had not focused solely on the physical accessibility needs of mobility-impaired individuals. For example, the item “Accessible environments in the digital age should possess comprehensiveness, educational value, practicality, safety, economy, universality, fluency, and timeliness” question in the “Basic Awareness” module was used to assess awareness of information accessibility. All items were evaluated using a five-point Likert scale ranging from “1” (completely disagree) to “5” (completely agree) to assess public awareness of accessible environments. Dimension

scores were calculated as the average of corresponding items, with higher scores indicating greater public awareness and more positive attitudes toward accessible environments in Urumqi.

2.3.3. Measurements of Potential Influencing Factors

The independent variables examined in this study are demographic characteristics, relevant experience, and public attitudes towards accessible environments. Demographic characteristics were measured as follows. Gender was recorded as a categorical variable with two options ('Male' and 'Female') to examine gender differences in awareness. Age was collected as a continuous variable and also categorized into four brackets (<18, 18–30, 31–50, ≥51 years) to assess potential age-related effects. Occupational categories were adapted from the International Standard Classification of Occupations (ISCO-08) to fit China's socio-economic context [37]. Occupational role was recorded as a categorical variable with the following options: "student", "professionals and technicians", "service providers", "freelancers", "blue-collar workers", "company employees", "government workers", and "other (businessmen, etc.)". This enabled us to examine the association between occupational background and awareness of accessible environments. Experience variables included personal experience of mobility challenges and the presence of family members with mobility difficulties, both recorded as dichotomous variables ("yes"/"no") to assess their impact on awareness. Public attitudes toward accessible environments were measured via items assessing proactive maintenance of facilities, learning usage methods, sharing knowledge with others, offering suggestions, and discouraging destructive behavior. Sample items included: "I am willing to proactively maintain various accessible facilities in public places," "I am willing to learn how to use various accessible environment equipment," and "I am willing to guide others on how to maintain accessible facilities and equipment." The questionnaire was obtained directly from the original research team via personal communication and is not publicly available. All attitude items used a five-point Likert scale, and the overall score was calculated as the mean across items, with higher scores indicating greater awareness and more positive attitudes toward accessible environments.

2.4. Data Analysis

This study employed IBM SPSS Statistics for Windows (version 26) to systematically analyze 501 valid questionnaire responses. The analysis proceeded in four distinct phases. First, a descriptive statistical analysis was performed to summarize the demographic characteristics and relevant experiences of the respondents, providing an overview of the sample composition. Second, mean values and score percentages were used to assess the overall and dimension-specific levels of public awareness regarding accessible environments, thus determining the general state of awareness. Third, T-tests and one-way Analysis of Variance (ANOVA) were conducted to examine potential differences in public awareness across various demographic and other variables. Lastly, a multiple linear regression model was employed, with public awareness of accessible environments as the dependent variable. Demographic characteristics, relevant experiences, and attitudinal variables were incorporated into the regression model to quantify the explanatory power of each factor, ultimately identifying the key determinants of public awareness in underdeveloped regions.

3. Results

3.1. Participant Characteristics

A total of 501 valid questionnaires were collected, with all participants residing in Urumqi, a city in western China. The sample distribution is presented in Table 1. In

terms of gender, there were 187 valid male sample responses (37.3%) and 314 valid female responses (62.7%). In terms of age, 14 people were under 18 years old (2.8%), 191 were between 18 and 30 years old (38.1%), 133 were between 30 and 50 years old (26.6%), and 163 were over 50 years old (32.5%). The largest age group was those between 18 and 30 years old, accounting for over one-third of the total. In terms of occupational roles, the sample included 58 professionals and technicians (11.6%), 42 professionals and technicians (8.4%), 76 freelancers (15.1%), 45 blue-collar workers (9.0%), 26 company employees (5.2%), 39 government workers (7.8%), 112 students (22.3%), and 103 others (businessmen, etc.). Of these, the largest number (22.36%) were students. Additionally, 44.11% of survey participants reported personal experience with mobility challenges, and 45.11% reported having family members with mobility difficulties. Further details are provided in Table 1.

Table 1. Descriptive statistics on the basic situation of the survey participants.

Basic Informational	Category	Number	Percentage	Mean	SD	<i>t</i> -Value/ <i>F</i> -Value	<i>p</i> -Value
Gender	Male	187	37.3%	3.567	1.034	<i>t</i> = 1.270	0.206
	Female	314	62.7%	3.682	0.885		
Age	Under 18 years old	14	2.8%	3.980	0.537	<i>F</i> = 0.868	0.458
	18–30 years old	191	38.1%	3.584	0.916		
	31–50 years old	133	26.6%	3.651	1.035		
	51 years old and above	163	32.5%	3.664	0.926		
Occupational roles	Professionals and technicians	58	11.6%	3.697	1.010	<i>F</i> = 6.662	0.000
	Service providers	42	8.4%	3.417	1.201		
	Freelancers	76	15.1%	3.147	0.915		
	Blue-collar workers	45	9.0%	3.749	0.982		
	Company employees	26	5.2%	3.447	1.240		
	Government workers	39	7.8%	3.671	0.865		
	Students	112	22.3%	3.650	0.709		
	Other (businessmen, etc.)	103	20.6%	4.037	0.710		
Personal experience with mobility challenges	Yes	221	44.1%	3.535	0.969	<i>t</i> = 2.789	0.005
	No	280	55.9%	3.771	0.913		
Presence of family members with mobility difficulties	Yes	226	45.1%	3.780	0.902	<i>t</i> = 3.071	0.002
	No	275	55.0%	3.523	0.964		

3.2. Current Status of Public Awareness of Accessible Environments

Table 2 illustrates the public awareness of accessible environments and their scores for each dimension. The data analysis revealed that public awareness in underdeveloped regions of western China was 3.639, indicating a medium level of awareness regarding accessible environments. The mean scores for each dimension ranged between 3 and 4, reflecting an intermediate level of understanding across all dimensions. The dimensions were ranked in order of their score: planning and use of facilities, basic concepts of accessible environments, and legal policies and norms.

Independent sample *t*-test (gender, Personal experience with mobility challenges, and presence of family members with mobility difficulties) and one-way ANOVA (age, occupational roles) were used to test for differences in public awareness of accessible environments in terms of gender, occupational roles, and experience of mobility challenges. The results were shown in Table 1. According to the test results, females ($M = 3.682$) scored higher than males ($M = 3.567$) in terms of their awareness of accessible environments. But there was no significant difference between males and females in terms of their awareness of accessible environments ($p > 0.05$). There was no significant difference between the two groups ($p > 0.05$). There was no significant difference in public awareness of accessible environments by age ($p > 0.05$). Although the group under 18 years of age had the highest

mean awareness score ($M = 3.980$), this difference was not statistically significant. However, a significant difference in awareness of accessible environments was found among members of the public with different occupational roles ($p < 0.001$). Further analyses using the Fisher's least significant difference (LSD) post hoc test revealed that, among other categories, blue-collar workers ($M = 3.749$) scored significantly higher than freelancers ($M = 3.147$) in their assessment of accessible environments. However, there were no significant differences between other occupational roles. Freelancers had a significantly lower awareness of accessible environments than blue-collar workers, government workers, students, and other people (businessmen, etc.) ($M = 3.15$, $p < 0.01$). There were no statistically significant differences in awareness levels among professionals, students, government workers, company employees, and service providers. Those who had experience with mobility challenges themselves ($M = 3.535$) were significantly less aware than those who had not ($M = 3.771$, $p < 0.01$). Public awareness of family members with mobility difficulties ($M = 3.780$) was significantly higher than public awareness of people without such issues ($M = 3.523$, $p < 0.01$).

Table 2. Public awareness of accessible environments and scores for each dimension.

Dimension	Minimum	Maximum	Mean	Score	N
Public awareness of accessible environments	1.00	5.00	3.639	72.8%	501
Basic concepts of accessible environments	1.00	5.00	3.644	72.9%	501
Planning and use of facilities	1.00	5.00	3.686	73.7%	501
Legal policies and norms	1.00	5.00	3.476	69.5%	501

3.3. Factors Associated with Public Awareness of Accessible Environments

The results of the multiple regression analysis examining factors influencing public awareness of accessible environments were presented in Table 3. The F -value of the model was 18.597, with a p -value of less than 0.001. This finding indicated that the regression model incorporating these six variables was statistically significant, with at least one independent variable exerting a significant predictive effect on the dependent variable. The model was valid overall. After controlling for other variables, positive public attitudes towards accessible environments and the presence of family members with mobility difficulties were found to be significant predictors of public awareness of accessible environments. Specifically, public awareness of accessible environments was higher when the public had a positive attitude towards them ($\beta = 0.368$, $p < 0.001$) or when family members with mobility difficulties were present ($\beta = 0.082$, $p < 0.05$). The effect of having personal experience with mobility challenges on awareness level was close to the level of statistical significance ($\beta = 0.083$, $p < 0.1$) and showed a positive trend. However, none of the demographic variables, such as age, gender, and occupational roles, had a significant impact on public awareness of accessible environments. The Variance Inflation Factor (VIF) of all the independent variables was less than 1.2, which indicated that multicollinearity was not an issue in this study's model [38].

Table 3. Analysis of factors influencing public awareness of accessible environments.

Dimension	B	SE	β	VIF	<i>p</i>
Public attitudes towards accessible environments	0.514	0.060	0.368	1126	0.000
Age	−0.071	0.046	−0.068	1.173	0.124
Gender	0.001	0.082	0.000	1.070	0.994
Occupational roles	0.027	0.017	0.070	1.137	0.109
Personal experience with mobility challenges	0.159	0.083	0.083	1.149	0.056
Presence of family members with mobility difficulties	0.212	0.082	0.112	1.132	0.010
R^2			0.184		
<i>f</i>			18.597		
<i>p</i>			0.000		

4. Discussion

This study represented an initial effort to systematically investigate public awareness in underdeveloped regions of China, with a focus on the characteristics of public awareness concerning accessible environments. By addressing gaps in prior research, which had largely concentrated on developed or Western contexts, it utilized localized empirical data from these underdeveloped areas as the primary research focus. This investigation provided insight into the actual level of public awareness of accessible environments in these regions, helping address the underrepresentation of such areas in global research. Notably, this study revealed that public awareness in these regions was significantly shaped by individuals' background characteristics. Marked disparities in awareness emerged across occupational groups, where the depth of such awareness was directly linked to whether individuals themselves or members of their families had lived with mobility impairments. These findings yielded precise empirical insights into the nature of cognitive stratification. Finally, the empirical analysis has identified factors influencing awareness in underdeveloped areas, including public attitudes toward accessible environments and the presence of family members with mobility impairments. While personal mobility experiences have not reached conventional levels of statistical significance, a clear positive trend has emerged. These findings diverged from Western frameworks rooted in individual rights awareness, instead underscoring the pivotal role of family support networks and attitudinal drivers within Eastern cultural contexts. Accordingly, they have furnished localized evidence that clarifies how public awareness of accessible environments operates in underdeveloped regions with distinct cultural contexts.

The research findings indicated that the overall public awareness score for accessible environments in underdeveloped regions of western China was 3.639. Based on a five-point scale commonly used in similar studies, this score was categorized as an “intermediate level” of awareness, where scores ranging from 2.50 to 3.99 represent a moderate level. Although China has advanced in the construction of accessible environments, public understanding of their significance remains superficial, with little awareness of accessible environments performance testing or coordination between different standards [39]. This finding aligned with the global pattern observed across developing countries, wherein the development of accessible environments lagged behind other societal advances. However, the result carried distinct implications within an Eastern cultural context. In underdeveloped regions of China, the general public tended to perceive accessible environments as exclusive services for specific groups, showing limited recognition of their universal value or social significance. This stance contrasted with the Western emphasis on the universality of individual rights and instead reflected the “categorical care” mindset inherent in traditional Eastern collectivist culture [40]. When the dimensions were ranked by average score in descending order, they were as follows: planning and use of facilities, basic concepts of

accessible environments, and legal policies and norms. This distribution reflected the universal logic of human cognitive development, progressing from concrete to abstract concepts. It further reflected a key characteristic of awareness in Eastern contexts: frequent exposure to concrete facilities, such as tactile paving and wheelchair ramps, fostered a clear understanding, whereas awareness of abstract legal and policy concepts remained relatively underdeveloped [41]. Unlike in the West, where the general public typically demonstrates greater awareness of legal policies, owing to a long-standing tradition of rights-based education [42], the Chinese public depend on specialized education to grasp abstract norms. Notably, the current lack of science popularization initiatives in underdeveloped regions has contributed to the lowest scores in the legal dimension, a pattern that reflects a preference for experiential over institutional forms of awareness in Eastern contexts [43].

Regarding disparities in public awareness of accessible environments, significant variations in awareness levels were observed across individuals with different occupational roles. This aligned with findings from Western studies, where business professionals demonstrated the highest awareness levels, attributed to their frequent interactions and professional engagements, whereas freelancers exhibited the lowest levels, stemming from insufficient social capital [44]. This study further found that personal experiences of mobility challenges and the presence of family members with mobility difficulties contributed to variations in public awareness of accessible environments in underdeveloped regions of China. Specifically, individuals with family members facing mobility difficulties demonstrated a higher level of awareness, which was largely driven by cultural specificities that were primarily manifested through family-related factors. Notably, the significantly greater awareness observed among those with mobility-impaired family members stemmed from the extension of family care responsibilities to broader social care practices. This observed effect aligned with experiential learning theory, which posited that knowledge emerges from experience and social interaction [45]. Within the Chinese context, characterized by strong family ties, caregiving roles have exposed individuals to the daily realities of environmental barriers, in turn converting private experiences into shared cognitive insights. This form of vicarious experiential learning likely proved more effective than textbook or media-based education, given its emotional salience and contextual rootedness. This stands in contrast to the research model observed in Western contexts, where personal experience serves as the primary driver of awareness [46]. By contrast, this phenomenon where family ties shape awareness highlights the unique influence of family-centered social support networks, a defining feature of Eastern societies, on public awareness of accessible environments. Individuals with personal experience of mobility difficulties demonstrated a higher level of awareness of accessible environments. This can be attributed to the strong demand for accessible facilities among this group [17], leading to a more intuitive and profound understanding of the convenience and accessibility of such accessible environments, as well as the related issues.

The multiple regression analysis confirmed the key factors influencing public awareness of accessible environments, with attitude identified as the strongest predictor. This supports the Theory of Planned Behavior, which posits that positive attitudes strengthen behavioral intentions, thereby increasing cognitive engagement with related issues [47]. However, the influence of family members with mobility impairments was a significantly stronger predictor than individual experiences. This contrasts with findings from Western studies, where awareness of individual rights is the primary driver of awareness [48]. Although the personal experience with mobility challenges did not reach conventional significance thresholds, the positive trend suggests their potential to enhance sensitivity toward accessible environments. Static factors such as age and gender had no significant impact, indicating that awareness of accessible environments is more shaped by experien-

tial exposure than by fixed social categories. This finding is consistent with environmental psychology perspectives and supports the cognitive framework of Eastern cultures, where contextual experiences are prioritized over identity markers [49].

In summary, this study paralleled Western research in highlighting patterns such as delayed development in emerging regions and a focus on tangible awareness. However, the key distinction lay in the influence of Eastern family values and experiential cognitive patterns on awareness of accessible environments, providing a unique Chinese perspective on cross-cultural research in this domain. While this study centered on Urumqi, its findings may hold partial relevance for other underdeveloped regions in China that share similar socioeconomic and cultural characteristics, such as select cities in Gansu, Qinghai, and Ningxia provinces. These areas often face challenges such as low economic development, limited educational resources, and underdeveloped infrastructure, which could contribute to comparable levels of public awareness of accessible environments and similar influencing factors [50]. However, regional variations may arise in areas with distinct cultural backgrounds, such as regions with large ethnic minority populations that possess unique family support systems or social norms. These factors may influence the impact of family members with mobility impairments on public awareness [51]. Globally, the findings may be relevant to other underdeveloped regions in Eastern collectivist cultures, such as parts of Southeast Asia, where family-centered values similarly shape public awareness. In contrast, in underdeveloped regions of Western individualist cultures, personal experience may exert a stronger influence than family dynamics, limiting the generalizability of these findings [52]. Future cross-regional comparative studies involving multiple underdeveloped regions worldwide are needed to further validate the universality and specificity of these findings.

4.1. Limitations

This study has several limitations that should be acknowledged. First, the regional representativeness of the study may be limited. The research was conducted in Urumqi, a provincial capital in an underdeveloped region of China, with 501 valid samples obtained through stratified sampling. While Urumqi, as the provincial administrative center, offers a degree of representativeness, underdeveloped regions differ in terms of economic levels, cultural traditions, and the stringency of policy implementation. These differences may lead to variations in public awareness of accessible environments and the factors that influence such awareness [47]. As a result, the generalizability of the study's findings has been constrained, and they may not comprehensively represent the cognitive characteristics of the public across all underdeveloped regions of China. Additionally, the sample in this study was predominantly sourced from platforms of the Disabled Persons' Federation, community WeChat groups, and local neighborhood committees. While this approach likely enhanced the representation of individuals actively engaged in community affairs or connected to accessibility-related groups, it may have underrepresented those less involved in community activities, with limited internet access, or with lower interest in accessibility issues. Despite efforts to minimize sampling bias, some level of bias remained unavoidable. This may have resulted in a sample with a disproportionate number of individuals holding positive attitudes toward accessible environments, potentially exaggerating the observed relationship between attitudes and awareness [53]. To address these limitations, future research will aim to collaborate with local statistical bureaus to obtain a more comprehensive sampling frame and employ stricter probability sampling methods. This approach will enhance the generalizability of the findings by ensuring a more representative sample of the broader population.

Secondly, the sample exhibited demographic imbalances that may have introduced bias into its structure. The proportion of female participants (62.7%) was significantly higher than that of males (37.3%), which could have resulted in an overrepresentation of female perspectives (approximately 17.95% according to China's 7th census). This imbalance raises concerns regarding the generalizability of the findings, particularly to male groups, as gender differences in awareness of accessible environments have not been excluded [54]. Moreover, participants under 18 years old accounted for only 2.8%, significantly lower than their proportion in the overall population of underdeveloped regions. This underrepresentation has limited the study's ability to accurately reflect the cognitive status of this key demographic in the future promotion of accessible environments [55].

Thirdly, the study exclusively relied on self-reported questionnaire data to assess public awareness of accessible environments and their influencing factors. Such data have been prone to subjective recall and social desirability biases, which may have led participants to overstate their understanding and support. This could have resulted in discrepancies between the measured values and actual public perceptions and attitudes, thereby compromising the accuracy of the findings [56]. Additionally, as the questionnaire did not provide an explicit definition of accessibility at the outset, some respondents may have misunderstood the concept. This could have led to the perception of accessible environments as solely concerning physical accessibility for individuals with mobility impairments, while other dimensions, such as information accessibility, were overlooked. As a result, minor biases may have arisen in responses to questions related to awareness. Future similar studies could include a conceptual definition of accessibility at the beginning of the questionnaire to enhance respondents' shared understanding of its broader implications and mitigate the influence of cognitive biases on data integrity.

Fourth, the underlying mechanisms remain to be explored. Although this study employed a multiple linear regression model to identify key influencing factors, such as public attitudes, occupational roles, personal experiences of mobility challenges, and family member status, it only established statistical correlations between variables. The study did not examine the intrinsic mechanisms through which these factors shape public awareness. Consequently, the findings are primarily descriptive, limiting insight into the underlying processes driving the observed effects and potentially constraining the effectiveness of interventions, leaving room for future studies to explore the underlying mechanisms [57].

4.2. Recommendations for Future Research

Exploring the underlying mechanisms of the relationship between influencing factors and public awareness is crucial. While this study has identified key factors, such as public attitudes and personal and family experiences with mobility challenges, it does not yet clarify how these factors specifically shape cognitive formation. A mixed-methods approach could be employed to elucidate the pathways through which these factors influence cognitive processes. For instance, it could examine how positive attitudes enhance cognitive levels by increasing attention to relevant information and fostering a greater intention to engage in behavior. This would provide a theoretical basis for the development of more targeted cognitive enhancement strategies.

Secondly, to enhance the representativeness of the findings, the scope of the study should be broadened. Subsequent research is recommended to include multiple underdeveloped regions of various types for cross-regional comparative analysis. This research should integrate regional variables such as economic level, cultural traditions, and policy implementation intensity. Such an approach would facilitate the identification of common patterns and regional variations in public awareness of accessible environments, clarify the

role of regional factors in cognitive formation, and strengthen the generalizability of the research outcomes.

Future research should refine the sample design to minimize sampling bias. More precise stratified or quota sampling methods could be employed to achieve a balanced gender and age distribution within the sample, particularly by increasing the proportion of participants under 18. This would ensure a comprehensive representation of cognitive characteristics across different age groups. To further mitigate sampling bias, data collection channels should be expanded beyond organizations such as the Disabled Persons' Federation and community groups. Multi-channel sampling should also be conducted in diverse settings, including schools and businesses, to include populations with limited participation in community activities, restricted internet access, or low engagement with accessibility issues.

5. Conclusions

This study has enhanced our understanding of public perceptions of accessible environments in underdeveloped regions of China. An empirical survey conducted among Urumqi residents offers key insights into this issue. The findings indicated that public awareness of accessible environments in these regions was moderate, with relatively low awareness of legal and policy regulations. Furthermore, public attitudes and the presence of individuals with mobility impairments within households have appeared to be key factors that influence public awareness of accessible environments. A statistically significant positive correlation has been observed between personal experience of mobility impairments and awareness levels. Despite recent policy advancements in accessible environment development in China, there has remained considerable room for improvement in public awareness, particularly in underdeveloped regions [58]. In Urumqi, a city marked by low legal literacy and strong family networks, our findings have suggested that community-based sharing within caregiving families and positive exposure to the concept of accessible environments have been more effective than generic policy campaigns in raising awareness. Notably, public awareness of the legal and policy frameworks for accessible environments has been the lowest of all the dimensions, highlighting two critical gaps. First, government outreach has been insufficient, with existing promotions relying excessively on formal documents and lacking practical, everyday-oriented dissemination. Second, enforcement has been weak, with unsupervised violations rendering policies appear formalistic [59]. To address these issues, governments should provide community legal lectures and produce short videos to popularize policies, alongside establishing a regular supervision mechanism for accessible facilities, in order to strengthen public awareness of policy authority [60]. This can be accomplished through a range of educational and promotional activities, along with supportive measures, such as increasing opportunities to engage with accessible environments. Effective intervention measures should target multiple dimensions, including improving public attitudes and expanding experiential opportunities, rather than focusing exclusively on knowledge dissemination. By identifying the key factors that influence public awareness of accessible environments, this study has paved the way for future research and practices aimed at enhancing public awareness of accessible environments in underdeveloped regions and promoting their development.

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Institutional Review Board Statement: Ethical review and approval were waived for this study based on several key considerations. First, the study posed minimal risk to participants, as it utilized anonymous data collection methods that involved no physical or psychological harm. Second, the data collection process was non-invasive and did not infringe upon participants' rights or welfare. Furthermore, the findings offer broader societal benefits without compromising individual rights. Finally, only essential data required to achieve the research objectives were collected, thereby avoiding the gathering of unnecessary information that could potentially harm participants or violate confidentiality. This study was granted an exemption by the Ethics Committee of the Faculty of Education at Southwest University (ID SWUFEIRB 2025-1003).

Informed Consent Statement: Informed consent was obtained for all individual participants included in the study.

Data Availability Statement: The data presented in this study are available on request from the corresponding author. The data are not publicly available due to privacy considerations.

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Disability Language/Terminology Positionality Statement: In this study, we adhered to inclusive and respectful language conventions relating to disability. Person-first expressions such as 'people with disabilities' were used throughout to emphasize individual humanity rather than impairment, aligning with current academic and activist discourse. However, the term "disabled persons" is used when referring to the official title Disabled Persons' Federation, where such terminology is conventionally employed. Any derogatory or outdated labels were deliberately excluded, and the diversity of community preferences was acknowledged. Consistent terminology was employed to ensure clarity while safeguarding the dignity of all individuals referenced in the manuscript.

References

1. State Council of the People's Republic of China. Regulations on the Construction of Accessibility Environment. State Council Order No. 622. 2012. Available online: <http://lawdb.cncourt.org/show.php?fid=147086.2012> (accessed on 1 August 2012).
2. Deakin, M. The case for socially inclusive visioning in the community-based approach to sustainable urban regeneration. *Sustain. Cities Soc.* **2012**, *3*, 13–23. [CrossRef]
3. UNGA. Convention on the Rights of Persons with Disabilities. United Nations. 2006. Available online: <https://www.ohchr.org/en/instruments-mechanisms/instruments/convention-rights-persons-disabilities> (accessed on 9 October 2025).
4. World Health Organization. World Report on Disability. In World Report on Disability. 2011. Available online: <https://www.who.int/teams/noncommunicable-diseases/sensory-functions-disability-and-rehabilitation/world-report-on-disability> (accessed on 14 December 2011).
5. Elgar, K.; Ahmad, Y.; Bejraoui, A.; Carey, E.; De Paepe, G.; Choudhury, M. Development Co-Operation and the Provision of Global Public Goods. OECD Development Co-operation Working Papers. 2023. Available online: <https://www.oecd.org/dac/development-co-operation-and-the-provision-of-global-public-goods.htm> (accessed on 15 May 2023).
6. MacKay, D. The United Nations Convention on the rights of persons with disabilities. *Syracuse J.* **2006**, *34*, 323.
7. Maliszewska-Nienartowicz, J. Accessibility for persons with disabilities as an important element of economic and social development: The European Union case. *Eur. Res. Stud. J.* **2020**, *23*, 1084–1099. [CrossRef]
8. Lyu, J. The Protection of Human Rights in the Construction of Barrier-Free Environment-Viewed from the Perspective of the Marxist Human Rights Concept. *J. Hum. Rts.* **2023**, *22*, 1277.
9. Imrie, R.; Hall, P. *Inclusive Design: Designing and Developing Accessible Environments*; Taylor Francis: Abingdon, UK, 2003.
10. Evcil, A.N. Raising awareness about accessibility. *Procedia-Soc. Behav. Sci.* **2012**, *47*, 490–494. [CrossRef]
11. Chen, Q.L.; Han, Y.N.; Zhou, Z.A.; Mao, M.R. Research on Travel Preferences of Wheelchair Users in Barrier-Free Environments and Improvement Strategies for Adaptive Urban Roads. *Landsc. Archit. Front.* **2024**, *12*, 26.
12. Cho, H.Y.; MacLachlan, M.; Clarke, M.; Mannan, H. Accessible home environments for people with functional limitations: A systematic review. *Int. J. Environ. Res. Public Health* **2016**, *13*, 826. [CrossRef]
13. Yablo, P.D.; Field, N.P. The role of culture in altruism: Thailand and the United States. *Psychologia* **2007**, *50*, 236–251. [CrossRef]

14. Yama, H. Cultural Differences in Human Reasoning: Some Philosophical Reflections on Theories and Implications. In *Belonging in Culturally Diverse Societies-Official Structures and Personal Customs*; IntechOpen: London, UK, 2024.
15. Qu, Y. Breaking Down the Barriers and Developing a New Mode of Citizenship: A Sociological Analysis of Internet Use by Disabled People in China. Ph.D. Thesis, The University of Glasgow, Glasgow, UK, 2017. Available online: <https://eleanor.lib.gla.ac.uk/record=b3289797> (accessed on 27 September 2024).
16. Lynch, S.; Proverbs, D.G. How adaption of historic listed buildings affords access. *Int. J. Build. Pathol. Adapt.* **2020**, *38*, 589–605. [CrossRef]
17. Ajzen, I. The theory of planned behavior. *Organ. Behav. Hum. Decis. Process.* **1991**, *50*, 179–211. [CrossRef]
18. Bandura, A. Social cognitive theory: An agentic perspective. *Annu. Rev. Psychol.* **2001**, *52*, 1–26. [CrossRef]
19. Szumski, G.; Smogorzewska, J.; Grygiel, P. Attitudes of students toward people with disabilities, moral identity and inclusive education—A two-level analysis. *Res. Dev. Disabil.* **2020**, *102*, 103685. [CrossRef]
20. Liu, S.; Bazzana-Adams, K.D.; DeBraga, M.; Kamenetsky, S.B. Factors Affecting Experiential Learning Experiences of University Students with Disabilities. *Disabilities* **2024**, *4*, 801–814. [CrossRef]
21. Lingsom, S. Public space and impairment: An introspective case study of disabling and enabling experiences. *Scand. J. Disabil. Researc.* **2012**, *14*, 327–339. [CrossRef]
22. Kristl, Ž.; Temeljotov Salaj, A.; Roumboutsos, A. Sustainability and universal design aspects in heritage building refurbishment. *Facilities* **2020**, *38*, 599–623. [CrossRef]
23. Lau, D.C.; Lam, L.W.; Salamon, S.D. The impact of relational demographics on perceived managerial trustworthiness: Similarity or norms? *J. Soc. Psychol.* **2008**, *148*, 187–209. [CrossRef] [PubMed]
24. Bezyak, J.L.; Sabella, S.A.; Gattis, R.H. Public transportation: An investigation of barriers for people with disabilities. *J. Disabil. Policy Stud.* **2017**, *28*, 52–60. [CrossRef]
25. Zhong, T.; Li, S.; Liu, P.; Wang, Y.; Chen, L. The impact of education and occupation on cognitive impairment: A cross-sectional study in China. *Front. Aging Neurosci.* **2024**, *16*, 1435626. [CrossRef]
26. Heckhausen, J.; Wrosch, C.; Schulz, R. A motivational theory of life-span development. *Psychol. Rev.* **2010**, *117*, 32. [CrossRef] [PubMed]
27. Mittal, S.; Verma, P.; Jain, N.; Khatter, S.; Juyal, A. Gender based variation in cognitive functions in adolescent subjects. *Ann. Neurosci.* **2012**, *19*, 165. [CrossRef]
28. Pavlinac Dodig, I.; Krišto, D.; Lušić Kalcina, L.; Pecotić, R.; Valić, M.; Đogaš, Z. The effect of age and gender on cognitive and psychomotor abilities measured by computerized series tests: A cross-sectional study. *Croat. Med. J.* **2020**, *61*, 82–92. [CrossRef] [PubMed]
29. Liu, X.; Chen, X.; Gao, C. The Status Quo, Challenges, and Policy Recommendation of Transport Barrier-Free Environment Development in China. In *Proceedings of the CICTP 2019: Transportation in China—Connecting the World*, Nanjing, China, 6–8 July 2019; Ma, W., Ding, Y., Eds.; American Society of Civil Engineers (ASCE): Reston, VA, USA, 2019; pp. 5351–5363.
30. Liu, J.; Lai, Z.; Meng, B.; Guo, Z.; Liu, X. Assessing spatial configuration of barrier-free facilities from the perspective of age-friendliness: A case Study of Beijing, China. *Appl. Geogr.* **2024**, *172*, 103426. [CrossRef]
31. Yu, Y.P.; Jia, X.L. Research on Home Barrier-free Conversion Policy in China: Based on the Comparative Analysis of Five Provinces and Cities. *Disabil. Studies.* **2022**, 67–76. Available online: https://kns.cnki.net/kcms2/article/abstract?v=H1ADs8FciQ8wKplZPc6jFd2BYwWrV_I_mOuaXJgIpcQgK_JU0BWibRZZgZ7bsDO9bU-{}-{}AKquak1DgOodSP9T5rU-9qEkbsX7UY068i2e2EZkniycWnMWMoULnvGAm84zMAGKpBRQ8d7EMDnjyqPfxK8ya1trCva6N-ML7gKklj-uLrBrDP1e7A==&uniplatform=NZKPT&language=CHS (accessed on 9 October 2025). (In Chinese)
32. Tan, S.Y.; Taihagh, A. Smart city governance in developing countries: A systematic literature review. *Sustainability* **2020**, *12*, 899. [CrossRef]
33. Huang, C.; Feng, Y.; Wei, Y.; Sun, D.; Li, X.; Zhong, F. Assessing regional public service facility accessibility using multisource geospatial data: A case study of underdeveloped areas in China. *Remote Sens.* **2024**, *16*, 409. [CrossRef]
34. Dai, R.; Lin, Z. How can information be ‘barrier-free’? A critical reading of china’s web accessibility policies in the 21st century. *Disabil. Soc.* **2024**, *39*, 2488–2510. [CrossRef]
35. Zhang, W.F.; Shi, K.B.; Tian, X.Z.; Yang, Y.C. Research on the satisfaction of Lanzhou’s barrier-free facilities. *World Geogr. Res.* **2017**, *26*, 56–68. Available online: https://kns.cnki.net/kcms2/article/abstract?v=H1ADs8FciQ-pGo8fiupc7A7r3OcbZYqLKVxnjZjjQW_5dL8U7Fjt8Za7sylv3mW_Um3YVKiG0jGjgUVGdKN6xzfng15HZFqHi3kS7bEhfPU488SatklPxWc0-KjEr8dmxxu9Idkk5vGXOxZwqr8XefXwVXTyXA1gnov6hYmvKh9yaLYLhG2Mew==&uniplatform=NZKPT&language=CHSCHS (accessed on 9 October 2025). (In Chinese)
36. Guo, J.; Lv, J.; Xie, H. Public Cognition, Behavioral Intention and Its Influencing Factors of Barrier-free Environment Under the Background of Healthy China. *Med. Soc.* **2021**, *34*, 22–25. (In Chinese) [CrossRef]
37. Ganzeboom, H.B. International standard classification of occupations ISCO-08 with ISEI-08 scores. *Version July* **2010**, *27*, 2010.

38. Hair, J.F.; Black, W.C.; Babin, B.J.; Anderson, R.E. *Multivariate Data 38 Analysis: Pearson New International Edition*; Pearson Education Limited: Essex, UK, 2013; pp. 112–134.
39. He, X.M.; Yang, Y. Review of Barrier-free Design Methods and Research Status. *Packag. Eng.* **2023**, *6*, 60–73. (In Chinese) [[CrossRef](#)]
40. Huskinson, M.; Serrano-Estrada, L.; Martí, P. Perceived accessibility matters: Unveiling key urban parameters through traditional and technology-driven participation methods. *Environ. Sustain. Indic.* **2024**, *24*, 100523. [[CrossRef](#)]
41. Zhang, J.; Zhang, Z.; Liang, Y. Exploring the Impact of Accessibility on Place Attachment in Urban Public Open Spaces: A Case Study of Jiamusi City, China. *Buildings* **2024**, *14*, 957. [[CrossRef](#)]
42. Liebwald, D. On transparent law, good legislation and accessibility to legal information: Towards an integrated legal information system. *Artif. Intell. Law* **2015**, *23*, 301–314. [[CrossRef](#)]
43. Joseph, K.A. Implementing the social model of disability: Theory and research. *Int. Sociol.* **2007**, *22*, 247–250. [[CrossRef](#)]
44. Andrew, S.; Tigwell, G.W. Accessible design is mediated by job support structures and knowledge gained through design career pathways. In *IOP Conference Series: Proceedings of the ACM on Human-Computer Interaction*; Association for Computing Machinery Publishing: New York, USA, 2022; pp. 1–24.
45. Grant, K.A. Developing MBA students' management consulting skills through experiential learning. In *Practical Applications of Experiential and Community-Engaged Learning Methods in Business: High-Impact Teaching Practices in Business Education*; Eklund, M.A., Aldogan, M., Graham, K.W., Eds.; Edward Elgar Publishing Limited: Cheltenham, UK, 2025; pp. 91–110.
46. Pettigrew, T.F.; Tropp, L.R.; Wagner, U.; Christ, O. Recent advances in intergroup contact theory. *Int. J. Intercult. Relat.* **2011**, *35*, 271–280. [[CrossRef](#)]
47. Kapsalis, E.; Jaeger, N.; Hale, J. Disabled-by-design: Effects of inaccessible urban public spaces on users of mobility assistive devices—a systematic review. *Disabil. Rehabil. Assist. Technol.* **2024**, *19*, 604–622. [[CrossRef](#)] [[PubMed](#)]
48. Gifford, R. Environmental psychology matters. *Annu. Rev. Psychol.* **2014**, *65*, 541–579. [[CrossRef](#)]
49. Persson, H.; Åhman, H.; Yngling, A.A.; Gulliksen, J. Universal design, inclusive design, accessible design, design for all: Different concepts—one goal? On the concept of accessibility—historical, methodological and philosophical aspects. *Univers. Access Inf. Soc.* **2015**, *14*, 505–526. [[CrossRef](#)]
50. Rowel, R.; Sheikhattari, P.; Barber, T.M.; Evans-Holland, M. A guide to enhance grassroots risk communication among low-income populations. Baltimore. *Morgan State Univ. Sch. Community Health Policy* **2009**, *1*, 88–93.
51. Janevic, M.R.; M Connell, C. Racial, ethnic, and cultural differences in the dementia caregiving experience. *Recent Find. Gerontol.* **2001**, *41*, 334–347. [[CrossRef](#)]
52. Oyserman, D.; Lee, S.W. Does culture influence what and how we think? Effects of priming individualism and collectivism. *Psychol. Bull.* **2008**, *134*, 311. [[CrossRef](#)]
53. Watchorn, V.; Hitch, D.; Tucker, R.; Frawley, P.; Aedy, K.; Grant, C. Evaluating universal design of built environments: An empirical study of stakeholder practice and perceptions. *J. Hous. Built Environ.* **2023**, *38*, 1491–1510. [[CrossRef](#)]
54. Jung, N.M.; de Baires, F.S.; Pattussi, M.P.; Pauli, S.; Neutzling, M.B. Gender differences in the prevalence of household food insecurity: A systematic review and meta-analysis. *Public Health Nutr.* **2017**, *20*, 902–916. [[CrossRef](#)]
55. Ballard, J.; Richmond, A.; van den Hoogenhof, S.; Borden, L.; Perkins, D.F. Missing data in research on youth and family programs. *Psychol. Rep.* **2022**, *125*, 2664–2687. [[CrossRef](#)] [[PubMed](#)]
56. Caputo, A. Social desirability bias in self-reported well-being measures: Evidence from an online survey. *Univ. Psychol.* **2017**, *16*, 245–255. [[CrossRef](#)]
57. Liu, O.L.; Wilson, M. Causal inferences with large scale assessment data: Using a validity framework. *Large-Scale Assess. Educ.* **2016**, *4*, 1–15.
58. Zhang, Z.; Yang, X.; Jiang, C.; Lu, L.; Li, X.; Rong, X.; Huang, Z. Improving equity through barrier-free transportation: An evaluation of Shanghai metro stations. *Front. Public Health* **2025**, *12*, 1463824. [[CrossRef](#)] [[PubMed](#)]
59. Kurbatova, S.M.; Aisner, L.Y.; Naumkina, V.V. Accessible environment as a means of ensuring the rights of persons with disabilities and as a task of the modern social state. In *IOP Conference Series: Materials Science and Engineering*; IOP Publishing: Bristol, UK, 2020.
60. Cazenave, E.; Bellantoni, A. *Accessible and Inclusive Public Communication: Panorama of Practices from OECD Countries*; OECD Working Papers on Public Governance; OECD Publishing: Paris, France, 2022; Volume 54, pp. 1–85.

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