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Access of Children with Special Needs to Urban Social Spaces: A Study Based on the Opinions of Parents and the Public [*]

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Abstract: Ensuring accessibility of urban life for every individual is a key component of social justice and inclusive urban planning. This study examines the current situation, deficiencies, and improvement needs regarding the access of children with disabilities in the city of Rize to urban social spaces-such as parks, playgrounds, and public socialization areas-based on the views of parents and the public. The research was designed as a descriptive field study, collecting data from 25 parents of children with disabilities and 100 adults living in Rize city center through a structured questionnaire. Quantitative data from closed-ended questions were analyzed using frequency-percentage distributions and chi-square tests, while qualitative data from open-ended questions were evaluated through thematic content analysis. Findings indicate that most participants consider the physical accessibility of urban social areas inadequate, particularly noting deficiencies in playground surfaces, equipment diversity, safety, and sensory arrangements. Chi-square analyses revealed significant relationships between perceived physical suitability and the use of these spaces by disabled individuals, emphasizing the impact of physical design on social participation. Qualitative results also highlighted lack of social awareness, safety concerns, and limited administrative continuity. The study concludes that accessibility is a multidimensional public responsibility requiring inclusive planning and institutional sustainability.

Keywords: Children with special needs, social spaces, playgrounds, accessibility, urban planning.

Özel Gereksinimli Çocukların Kentsel Sosyal Alanlara Erişimi: Ebeveynlerin ve Halkın Görüşlerine Dayalı Bir Araştırma

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Öz: Kentsel yaşamın her birey için erişilebilir olması, sosyal adaletin ve kapsayıcı kent planlamasının temel bileşenlerinden biridir. Bu çalışma, Rize kentinde engelli çocukların parklar, oyun alanları ve kamusal sosyalleşme mekânları gibi kentsel sosyal alanlara erişimine ilişkin mevcut durumu, yetersizlikleri ve iyileştirme gereksinimlerini ebeveynler ile toplumun görüşlerine dayalı olarak incelemektedir. Araştırma tanımlayıcı nitelikte bir saha çalışması olarak tasarlanmış; Rize kent merkezinde yaşayan 25 engelli çocuk ebeveyni ve 100 yetişkinden yapılandırılmış anket aracılığıyla veri toplanmıştır. Kapalı uçlu sorulardan elde edilen nicel veriler frekans–yüzde dağılımları ve ki-kare testiyle; açık uçlu sorulardan elde edilen nitel veriler ise tematik içerik analiziyle değerlendirilmiştir. Bulgular, katılımcıların büyük çoğunluğunun kentsel sosyal alanların fiziksel erişilebilirliğini yetersiz bulduğunu; özellikle oyun alanlarında zemin, donanım çeşitliliği, güvenlik ve duyusal düzenlemeler açısından eksiklikler bulunduğunu göstermektedir. Ki-kare analizleri, algılanan fiziksel uygunluk ile engelli bireylerin bu alanları kullanma durumu arasında anlamlı ilişkiler ortaya koymuş; fiziksel tasarımın toplumsal katılım üzerindeki etkisini vurgulamıştır. Nitel bulgular, toplumsal farkındalık eksikliği, güvenlik kaygıları ve yerel yönetimlerin uygulama sürekliliğindeki sınırlılıklara da işaret etmektedir. Çalışma, erişilebilirliğin kapsayıcı planlama ve kurumsal sürdürülebilirlik gerektiren çok boyutlu bir kamusal sorumluluk olduğunu ortaya koymaktadır.

Anahtar Kelimeler: Özel gereksinimli çocuklar, sosyal alanlar, çocuk parkları, erişilebilirlik, kent planlama.

INTRODUCTION

The design of the urban environment plays a decisive role in individuals' participation in physical activity, social engagement, and health outcomes; therefore, the systematic integration of accessibility, sustainability, and inclusivity principles into urban planning and architectural design is critically important for public health and social justice (Kulözü Uzunboy and Sipahi, 2020; Pineo, 2022;

Zhong et al., 2022; Bekci and Sipahi, 2023; Mohapatra et al., 2024). Playgrounds, in particular, are public focal points where play and peer interaction, which are among the fundamental developmental needs of childhood, take place; however, in many cities, design and policy limitations restrict the access and use of these areas by children with different needs (Fernelius, 2018; James et al., 2022). In this context, the concept of the "inclusive playground" involves not only physical accessibility but also evidence-based design principles that enable social participation and equivalent play experiences (Jeanes and Magee, 2012; Brown et al., 2021).

Regular physical activity in childhood produces positive effects on cardiometabolic health, bone-mineral development, psychosocial well-being, and cognitive functions (Handy et al., 2002; Zhang et al., 2024). However, children with disabilities have lower participation rates in physical activity compared to their peers, and this difference is associated with multidimensional factors such as environmental barriers, insufficient adaptation of programs, and concerns about safety and injury (James et al., 2022; Wu et al., 2022). The literature emphasizes that psychosocial determinants such as parental attitudes, self-efficacy, peer acceptance, and social climate also have significant effects on leisure and play participation (Taylor et al., 2023). Therefore, children's playgrounds should not merely be "accessible" but should also be socially and sensorially adapted to facilitate the active participation of children with different needs (Fernelius and Christensen, 2017; Bekci et al., 2022; Hurst et al., 2023).

Empirical evidence regarding inclusive/usable playgrounds shows that spatial and design barriers (inappropriate ground coverings, narrow passages/doors, limited equipment diversity, etc.), the lack of sensory arrangements, and insufficient guidance/communication components reduce participation (Prellwitz and Skär, 2007; Prellwitz et al., 2001; Moore and Lynch, 2015; Brown et al., 2021). Recent studies emphasize that even in areas constructed as "inclusive," caregivers' concerns about access and quality of use persist, highlighting the importance of safety, pictographic/alternative communication-based guidance, and equivalent options for different forms of play (James et al., 2022; Alsarawi and Murry, 2024). On the measurement–evaluation side, current tools (checklists, user experience–based protocols) have diversified; however, it is reported that standardization and field validity should be strengthened in different contexts (Taylor et al., 2023).

To understand children's participation in community and public spaces, a measurement approach that includes environmental determinants is of critical importance. At this point, the PEM-CY (Participation and Environment Measure for Children and Youth) scale based on parental report and its derivative YC-PEM for younger age groups are widely used in the literature because they jointly assess participation frequency/quality and environmental support–barrier profiles in home, school, and community domains (Coster et al., 2012; Khetani et al., 2014; Lim, 2015). These instruments have been psychometrically tested in different samples to demonstrate how design and policy interventions are reflected in child and family experience. This framework makes visible the effects of design decisions taken at the urban scale on children's daily participation patterns (Longo et al., 2013).

From the perspective of urban planning, urban studies addressing the relationship between disability and space state that the fragmented implementation of accessibility policies can reproduce spatial segregation, whereas inclusive design principles should be shaped not only by compliance with standards but also by "real experience" data based on actual use (Gleeson, 2001; Imrie, 2001; Lid, 2014). Comparative studies across multiple cities show that structural attributes such as walkability, connectivity, and land-use diversity are strongly related to physical activity (Sallis et al., 2016) and that participation increases when these findings are consistently evaluated at the intersection of policy and design (Sallis et al., 2012). Therefore, the design of playgrounds should be addressed together with transportation–sidewalk continuity, micro-accessibility, safety, and social programming (Brown et al., 2019; Bekci et al., 2022; Moore et al., 2023; Rashid and Mir, 2023).

Finally, although studies focusing on measurable outcomes regarding "for whom and how" inclusive playgrounds are inclusive and on the quality of equivalent play experiences and peer interactions are increasing, the evidence base is still limited in different socio-spatial contexts (e.g., small/medium-sized cities, coastal towns) (Brown et al., 2021; Wenger et al., 2021). In the context of Turkey and in provinces such as Rize, which have unique topography and urban texture, qualitative studies that address the experiences of parents and community members together are valuable in revealing the patterns of environmental barriers as well as design and implementation priorities (Talay et al., 2010; Van Engelen et al., 2021; Akyol, 2025). This study aims to fill this gap by thematically identifying the current situation, deficiencies, concerns, and expectations regarding accessibility to playgrounds and social spaces and by producing applicable recommendations for inclusive urban planning. In addition, the study aims to develop a guiding conceptual model that informs inclusive and accessible planning approaches at the local level, rather than proposing a detailed spatial or architectural design model.

Accordingly, the research seeks to answer the following questions:

- What is the accessibility status of children's playgrounds in Rize for individuals with disabilities?
- What are the main concerns and expectations of the public and parents regarding these spaces?
- What kind of conceptual framework or strategic model can be proposed to guide inclusive urban planning for these issues?

This study will not only provide solutions aimed at increasing the social participation of individuals with disabilities but also aims to create a guiding model for inclusive and accessible design approaches at the local level.

MATERIAL AND METHOD

Materials: This research was conducted within the borders of the province of Rize. Rize is a city located in the eastern part of the Black Sea Region and has a topographically sloped and mountainous structure. A significant portion of the urban area is situated along the coastline; this situation, in addition to natural barriers that limit physical accessibility, also brings urban planning constraints such as spatial density and the limited presence of flat areas.

Children's playgrounds, parks, walking areas, and social activity zones located in the city constituted the primary scope of this research. Since the concept of the "inclusive playground" has not yet been systematically integrated into planning processes in the case of Rize, the evaluation of the accessibility level of existing areas based on user opinions is important for understanding the city's social sustainability capacity. The major parks and playgrounds in Rize, which represent the primary urban social spaces considered within the scope of this study, are illustrated in Figure 1.

Within the scope of the research, data reflecting both the experiences of parents of individuals with special needs and the awareness and attitudes of the urban population were collected. In this way, the level of social participation of individuals with disabilities within the socio-spatial structure of Rize was addressed in two dimensions.



Figure 1. Spatial distribution of the major parks and playground areas within the province of Rize that constitute the study area.

Method: This study is a descriptive and quantitatively oriented field research. The research aimed to systematically examine the opinions of parents and the public regarding the accessibility of individuals with disabilities to social spaces and the usability of these areas. The questionnaire method was chosen as the data collection tool, and the data obtained were analyzed statistically. In addition, qualitative data obtained through open-ended questions were interpreted thematically in a supportive manner. This research was conducted with the approval of the Recep Tayyip Erdoğan University Ethics Committee (Approval Date: 01/04/2024, Decision No: 2024/15). Voluntary informed consent was obtained from all participants, and confidentiality was ensured throughout the study. The methodological and analytical workflow of the study is presented in Figure 2.

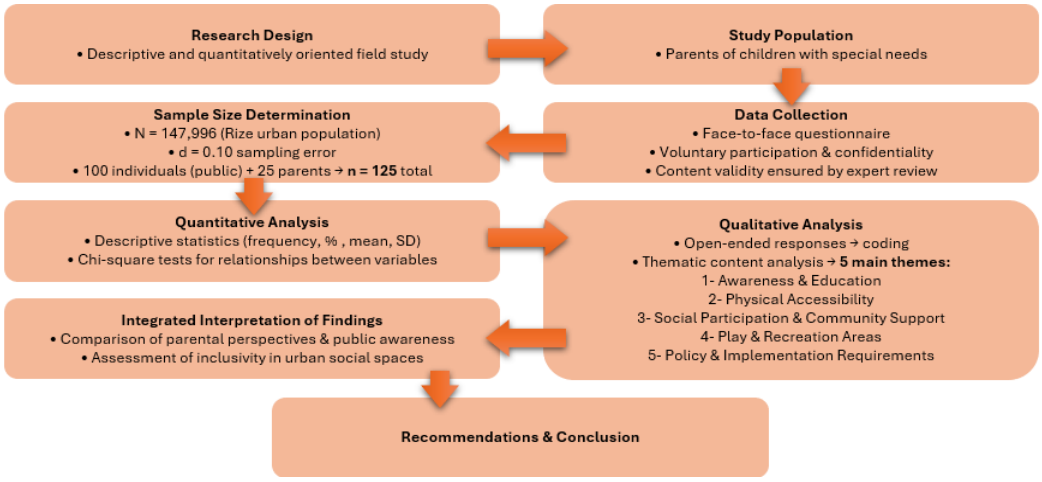

Figure 2. Flowchart illustrating the methodological steps and analysis procedures used in the study.

The population of the research consists of the families of individuals with disabilities and the urban population residing in the province of Rize. The sample size in the research was calculated by taking into account the formula of Özdamar (2003) and the Sample Size Table for α = 0.10 (Yazıcıoğlu and Erdoğan, 2011). The following parameters were used for the questionnaire method applied during data collection:

$$n = \frac{N.P.Q.Z_a^2}{(N-1).d^2}$$

For the study conducted in the city center of Rize, N (Population Size) was taken as 147,996, corresponding to the population of Rize city center (Rize Province 2023 population, URL-1, 2024). For d = 0.10 (sampling error), the sample size was calculated as 96 individuals. Although the minimum required sample size was calculated as 96, the sample was increased to 100 participants to mitigate potential data loss, improve data quality, and strengthen the reliability of the statistical analyses. In addition, a questionnaire group consisting of 25 parents of children with special needs was included, making a total of 125 questionnaires conducted. The opinions of these groups provided an important data source for obtaining the findings forming the basis of the research.

The first sample group consisted of 25 parents of individuals with disabilities receiving education at the Rize Barrier-Free Life Association (Rize Engelsiz Yaşam Derneği). This group provided information directly related to caregiving experiences and their children's social participation processes. The questionnaire for this group included questions on the individual's type of disability, forms of social participation, skill development processes, preferences regarding play and social spaces, and strategies for coping with negative attitudes in society.

The second sample group consisted of 100 adults residing in the city center of Rize, selected through a random sampling method. This group represented data related to the general level of public awareness and perceptions of accessibility. The questionnaire form included items on the perception of accessibility in the city, the physical adequacy of social spaces, the level of awareness, and opinions regarding inclusive design. Data obtained from a total of 125 participants provided the opportunity to evaluate the accessibility status of the city at both the level of individual experience and societal perception.

Data Collection: The data collection process was designed to establish a framework that would reliably reflect participants' experiences and perceptions regarding the accessibility of individuals with disabilities to social spaces. In this context, similar studies in the literature were comprehensively reviewed to strengthen the theoretical and methodological framework of the study. Two separate questionnaire forms were used in the research. The questionnaires were structured to reveal both the direct caregiving and observational experiences of parents and the awareness and attitude levels of the urban population.

The questionnaire applications were conducted through face-to-face interviews in the city center of Rize during the first half of 2025. The purpose of the study was explained to the participants, voluntary participation was ensured, and personal confidentiality was maintained. The data obtained were analyzed to determine the level of inclusivity of social spaces in the city and the state of public awareness. Similarly, in the literature, there are numerous studies examining the accessibility of individuals with disabilities to public spaces, parental attitudes, and the level of public awareness; this research aims to contribute to these studies by presenting a local example and a contemporary context. The data obtained were analyzed to determine the level of inclusivity of urban social spaces and the state of social awareness. The questionnaire forms were prepared based on similar studies in the literature (Prellwitz and Skär, 2007; Brown et al., 2021; Taylor et al., 2023), and content validity was ensured through expert opinion.

Data Analysis: The data obtained in this research were analyzed using a mixed evaluation approach combining quantitative and qualitative analysis methods. The collected data were evaluated using a statistical analysis program (SPSS 29) in a computer environment. For quantitative data, descriptive statistics (frequency, percentage, mean, standard deviation) were used.

The study included two independent samples: (i) a public sample (n=100) and (ii) a parent sample of children with disabilities (n=25). Inferential statistical analyses (chi-square/exact tests) were conducted only on the public sample because the parent questionnaire contained different items and response formats; parent data were analyzed descriptively and through thematic content analysis. As the variables in the dataset were categorical, the chi-square test was selected as the appropriate statistical method to evaluate associations between participants' perceptions of accessibility, awareness, and usage.

Responses obtained from open-ended questions were coded through the thematic content analysis method. The coding process was conducted independently by two researchers, and discrepancies were resolved through discussion to enhance reliability. The codes were then grouped under five main themes:

(1) Awareness and Education,
(2) Physical Accessibility,
(3) Social Participation and Community Support,
(4) Play and Recreation Areas,
(5) Policy and Implementation Requirements.

In addition to the findings obtained, the current situation, concerns, and expectations were also evaluated to reveal the level of inclusivity of urban social spaces and to provide guidance for future design and policy recommendations.

RESULTS

The research findings were evaluated under three main headings. First, under the title "Parents' Evaluations Regarding the Participation of Children with Disabilities in Social, Educational, and Urban Spaces," the social participation patterns of children, their levels of independence, their access to educational support, and their habits of using social spaces were examined based on parental assessments. Second, within the scope of the title "Public Awareness and Attitudes Regarding the Accessibility of Individuals with Disabilities to Urban Social Spaces," the level of public awareness on accessibility, perceptions of social participation, and evaluations concerning the physical environment were analyzed through both qualitative and quantitative data. Finally, under the title "Perceptions of Accessibility, Concerns, and Expectations," participants' concerns and future expectations related to the physical environment, safety, social awareness, and institutional policies were addressed using a thematic approach. In this way, the research findings were evaluated holistically within the framework of the physical, social, and administrative dimensions that affect the participation of individuals with disabilities in social life.

Parents' Evaluations Regarding the Participation of Children with Disabilities in Social, Educational, and Urban Spaces: The parent questionnaires evaluated through content analysis generally indicate that children's opportunities for social participation are limited, that most existing spaces lack adequate physical or sensory equipment, and that the lack of public awareness negatively affects such participation. The majority of parents stated that their children had gained some degree of independence in daily life activities but still needed adult support in most situations. This situation demonstrates that individuals with disabilities participate in daily life within a semi-dependent model. In the questionnaires, expressions such as "by helping," "I am always with them," and "I take care of them" were frequently repeated. These findings show that families participate directly and continuously in their children's lives with active support.

A significant proportion of parents reported that their children received educational support through institutions or organizations; however, they stated that this support was not sufficient in terms of individual development and socialization. It was observed that individuals receiving educational support participated in social life more regularly and that institutional support increased public awareness. In contrast, some parents emphasized that children who did not receive such support were more hesitant to engage in social environments.

Among socialization spaces, the most frequently mentioned venues were parks, schools, kindergartens, and indoor play areas. Most participants stated that they tried to take their children outdoors and to areas where they could be in contact with nature as much as possible; however, they noted that these areas were not always suitable in terms of physical accessibility. Particularly in playgrounds, surface irregularities, lack of safety, and inappropriate play equipment were among the most frequently reported problems.

In the questionnaires, the lack of social attitudes and awareness was also highlighted as one of the most significant problems encountered by parents when including their children in social environments. Some parents reported that they faced prejudiced behaviors from people around them and that they usually coped with this situation by "explaining the condition" or "politely warning" others. This indicates that the level of public

awareness is still insufficient; however, families actively take on a role in raising awareness.

Activities that children enjoyed most included playing games, spending time in the park, walking, dancing, drawing, and listening to music. Most of these activities are dynamic, rhythmic, and based on sensory experiences. This finding supports the notion that children have a strong need for physical activity and outdoor exposure.

Public Awareness and Attitudes Regarding the Accessibility of Individuals with Disabilities to Urban Social Spaces: According to the responses of 100 participants, a significant portion of the society (68%) stated that they did not have a relative with special needs. This indicates that most participants observe disability indirectly, yet their level of direct contact may be limited. Nevertheless, the rate of participation in a project together with individuals with disabilities was only 13%. This finding indicates that the level of social awareness and voluntary participation in the community is low.

When the frequency of encountering individuals with disabilities in urban life was examined, 34% of participants stated that they encountered them once a week, 28% once a month, and 21% every day. These rates suggest that the level of visibility in society is moderate; however, individuals with disabilities still have limited presence in public life. While 62% of participants stated that individuals with disabilities were "partially" integrated into society, only 24% believed that this integration was complete. These data indicate the inadequacy of the perception of social inclusion.

When the accessibility of urban social spaces was evaluated, only 16% of participants thought that social activity areas complied with ergonomic standards. Fifty-nine percent stated that these areas were "partially suitable," while 25% stated that they were "not suitable." Similarly, 41% of participants stated that parks did not contain designs suitable for individuals with disabilities, whereas only 19% found these areas accessible. Forty percent of participants considered the parks "partially suitable."

The opinion that practices for individuals with disabilities were sufficient was quite low (7%). Sixty-five percent of participants stated that the implementations were inadequate, while 28% described them as "partially sufficient." Similarly, when asked about the suitability of newly developed urban spaces for individuals with disabilities, only 13% responded positively, 41% stated "not suitable," and 46% stated "partially suitable." These findings indicate that even new urban developments do not fully meet the principles of accessibility.

Perceptions regarding playgrounds were similarly negative. Forty-six percent of participants stated that individuals with disabilities "did not use" playgrounds, while 43% said they "partially used" them. Only 11% thought that these areas were used effectively. In addition, the rate of those who considered nearby playgrounds suitable for the use of individuals with disabilities was only 3%. Sixty-one percent of participants described these areas as "not suitable," and 36% as "partially suitable." These results clearly show that inclusive playground designs are not yet widespread in the city.

One of the notable findings of the research is that the vast majority of participants (90%) agreed with the statement "the city should be planned for everyone." This high rate shows that the level of awareness is increasing; however, this awareness has not yet been fully reflected in practice and spatial transformation. Indeed, in the open-ended questions, participants also made suggestions such as "more projects," "awareness-raising activities," and "revision of existing areas" regarding accessibility.

The responses to the open-ended questions in the public questionnaire were analyzed using the thematic analysis method and grouped under five main themes: (1) Awareness and Education, (2) Physical Accessibility, (3) Social Participation and Community Support, (4) Play and Recreation Areas, (5) Policy and Implementation Requirements.

Awareness and Education Theme: The majority of participants emphasized that the level of public awareness should be increased to facilitate the inclusion of individuals with disabilities in society. Frequently repeated expressions among the responses included "providing awareness education in schools," "conducting informative campaigns in the media," and "organizing empathy-based activities." Some participants stated that "disability should be seen as a natural part of daily life." This demonstrates that although awareness in society is increasing, lack of knowledge and persistent stereotypes still continue.

Physical Accessibility Theme: Many participants stated that individuals with disabilities experience the greatest difficulties in physical areas such as transportation, sidewalk layout, stairs, elevators, ramps, and public transportation. The responses emphasized concrete problems such as "irregular sidewalks," "ramps with insufficient slope," and "frequent malfunction of elevators." Some participants noted that these issues negatively affect not only individuals with disabilities but also other user groups such as the elderly and families with children. These findings indicate that the public has begun to associate accessibility not only with disability but also with the principles of universal design.

Social Participation and Community Support Theme: Participants stated that the integration of individuals with disabilities into society cannot be achieved solely through physical arrangements but also

requires the strengthening of social support mechanisms. The most frequently mentioned suggestions in the comments included "increasing volunteer projects," "organizing mixed social activities," and "creating employment opportunities in cooperation with municipalities." These suggestions indicate that a participation- and productivity-based understanding of inclusivity is developing in society.

Play and Recreation Areas Theme: A significant portion of participants stated that playgrounds for children with disabilities should be accessible, safe, sensorially rich, and supportive of social interaction. When the responses were examined, concrete suggestions such as "suitable ground surfaces for wheelchair users," "play equipment that enhances sensory awareness," and "colorful, simple wayfinding signs" came to the forefront. Some participants emphasized that "every child should be able to play together in the same area," indicating that inclusive playgrounds should serve as shared spaces for learning and interaction for all children, not only those with disabilities.

Policy and Implementation Requirements Theme: A portion of the participants stated that the issue of accessibility should be more strongly integrated into "municipal routine inspections" and "urban design standards." Some participants expressed that "accessibility projects are not sustainable" and that "there is a lack of inspection even in newly developed areas." These opinions reveal that the public perceives deficiencies in accessibility policies not only at the implementation level but also in terms of supervision and continuity.

Statistical Analysis: A statistically significant and strong relationship was found between the public's evaluation of the suitability of social activity areas in the city for individuals with disabilities and their perception of the suitability of newly developed urban areas ($\chi^2(4, N=100)=37.62$, $p<0.001$). Forty-one percent of participants evaluated both existing social areas and newly developed areas as "not suitable." The percentage of participants who found the areas "partially suitable" was approximately 40% for both variables. Only a small portion (13%) considered the areas adequate in both cases (Table 1).

This distribution indicates that there is consistency between existing and newly developed areas in the public's general perception of accessibility; evaluations of satisfaction or inadequacy are reflected similarly across both dimensions.

This finding shows that public perception regarding existing and new urban spaces is consistent, that is, a general evaluation of satisfaction or inadequacy toward accessibility is similarly reflected in both contexts. In other words, when the public perceives existing social spaces as inadequate, they tend to evaluate newly developed parks and areas in the same way.

Table 1. Relationship between the suitability of social activity areas and the suitability of newly developed areas (Chi-Square Test).

Chi-Square Tests	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	37,620[a]	4	,000
Likelihood Ratio	36,934	4	,000
Linear-by-Linear Association	6,439	1	,011
N of Valid Cases	100		

a. 1 cells (11,1%) have expected count less than 5. The minimum expected count is 2,47.

A statistically significant relationship was found between whether social activity areas (parks) include designs suitable for individuals with disabilities and the perception of the use of playgrounds by individuals with disabilities ($\chi^2(4, N=100)=11.11$, $p=0.025$). The chi-square test of independence also indicated a statistically significant association between the variables ($\chi^2(4)=11.110$, $p=0.025$). However, 33.3% of the cells had expected counts below 5, indicating that the assumption of the chi-square test was not fully satisfied. Therefore, the findings were interpreted with caution, taking this limitation into account. As participants' positive opinions regarding the suitability of park areas increased, the perception that individuals with disabilities used playgrounds more frequently also increased. Among participants who found parks "suitable," 57% stated that individuals with disabilities used playgrounds, whereas 65% of those who considered parks "not suitable" stated that these areas were not used at all.

This finding demonstrates that physical accessibility is not merely a spatial attribute but a factor that directly influences both the frequency of use and social participation. Therefore, designing playgrounds in an accessible manner can be considered a key element in increasing the participation of individuals with disabilities in social life (Table 2).

Table 2. Relationship between the suitability of social activity areas and the use of playgrounds by individuals with disabilities.

Chi-Square Tests	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	11,110[a]	4	,025
Likelihood Ratio	12,349	4	,015
Linear-by-Linear Association	,307	1	,580
N of Valid Cases	100		

a. 3 cells (33,3%) have expected count less than 5. The minimum expected count is 2,09.

A significant relationship was identified between the perception of whether individuals with disabilities use playgrounds and the perceived suitability of these areas for their use ($\chi^2(4, N=100)=29.55, p<0.001$).This finding indicates that participants' evaluations regarding accessibility are directly connected to their perceptions of use. In other words, individuals who perceive playgrounds as physically accessible and suitable are more likely to believe that individuals with disabilities use these spaces more frequently. Among participants who found the playgrounds "suitable," 61% stated that individuals with disabilities used these areas, whereas 72% of those who considered the areas "not suitable" reported that they were not used or were used very little.This demonstrates a direct connection between participants' assessments of accessibility and their perception of use, supporting the notion that accessible design enhances social participation. The result reveals that accessible design is not merely a physical requirement but also a factor that directly influences social inclusion.The findings suggest that the implementation of accessibility principles in urban public spaces plays a decisive role in increasing the participation of individuals with disabilities in social life (Table 3).

Table 3. Relationship between the use of playgrounds by individuals with disabilities and the suitability of these areas for their use.

Chi-Square Tests	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	29,546[a]	4	,000
Likelihood Ratio	28,074	4	,000
Linear-by-Linear Association	2,382	1	,123
N of Valid Cases	100		

a. 4 cells (44,4%) have expected count less than 5. The minimum expected count is ,33.

A significant relationship was also found between the adequacy of practices implemented for individuals with disabilities and the perceived suitability of newly developed urban areas for these individuals ($\chi^2(4, N=100)=26.87, p<0.001$).

According to the findings, participants who considered the practices for individuals with disabilities "adequate" also perceived newly developed urban spaces as more accessible. Among participants who evaluated the practices as "adequate," 71% also found the new areas sufficient. Conversely, 64% of those who considered the practices "inadequate" also viewed the new areas as inadequate. Among those who responded "partially adequate," 55% evaluated the new areas as "partially suitable."

This parallelism indicates that the public evaluates urban spaces and services in a holistic manner, suggesting that not only physical arrangements but also policy and implementation levels are decisive factors in shaping perceptions of accessibility.

Table 4. Relationship between the adequacy of practices for individuals with disabilities and the suitability of newly developed urban areas for individuals with disabilities.

Chi-Square Tests	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	26,872[a]	4	,000
Likelihood Ratio	23,608	4	,000
Linear-by-Linear Association	8,244	1	,004
N of Valid Cases	100		

a. 4 cells (44,4%) have expected count less than 5. The minimum expected count is ,91.

When the research findings are evaluated holistically, it is observed that the participation of individuals with disabilities in urban, social, and educational spaces is limited due to both physical and social barriers. The results obtained from quantitative analyses indicate that public perception of accessibility largely remains at a "partially adequate" level; in particular, there is a consistent perception of inadequacy regarding the accessibility of parks, playgrounds, and newly developed urban spaces. This suggests that accessibility principles are not systematically integrated into urban planning, design, and implementation processes at the city scale.

Qualitative findings, on the other hand, reveal that beyond physical accessibility, the dimensions of social awareness, education, and social participation are also integral components of accessible living. Most participants emphasized the need to strengthen the themes of awareness and education and stated that the inclusive design of playgrounds represents an important opportunity for both social integration and social empathy.

When all findings are considered together, it is concluded that accessibility should not be limited to the removal of physical barriers but must also be supported by social awareness, policy sustainability, and participatory planning processes. In this context, the strong social consensus on the idea that cities should be "planned for everyone" presents significant potential for the future transformation of accessibility policies.

Perceptions of Accessibility, Concerns, and Expectations: An examination of participants' responses revealed that the most prominent concerns regarding the access of individuals with disabilities to social and physical spaces were grouped under four sub-themes: physical environment, personal safety, social awareness, and institutional support. In addition, the majority of

participants emphasized the need for a more inclusive, safe, and accessible urban design for the future.

Concerns Regarding the Physical Environment: A large portion of participants stated that existing parks and social spaces are not physically suitable for use by individuals with disabilities. Parents specifically reported that the equipment in playgrounds is not designed to accommodate their children's mobility limitations and that the surfaces are not suitable for wheelchair use. Public participants similarly pointed out that ramps, elevators, and sidewalks are often nonstandard or incomplete. Example statements:

• "More suitable environmental arrangements can be made for individuals with disabilities."

• "The equipment used in parks should be arranged according to their needs."

• "Sidewalks are uneven and not suitable for wheelchairs."

These findings indicate that the physical arrangements in the city do not meet accessibility standards and that spatial inadequacies limit social participation.

Concerns Regarding Personal Safety: Some participants stated that individuals with disabilities remain unprotected in social areas and may face risks such as falling or injury in playgrounds or public spaces. This situation has increased expectations for protective measures among both parents and the general public. Example statements:

• "Individuals with disabilities should be continuously protected in park areas."

• "Safety measures should be strengthened."

These concerns highlight that safety, alongside accessibility, is an inseparable component of inclusive design.

Concerns Regarding Social Awareness: A significant portion of participants emphasized that society's sensitivity and empathy toward disability are insufficient. Parents reported that their children sometimes face exclusion or misunderstanding in social settings, while public participants stated that the lack of social awareness negatively affects the use of accessible spaces. Example statements:

• "Developing empathy in society will increase awareness toward individuals with disabilities."

• "Awareness should be created so that everyone can share the same space."

This demonstrates that social attitudes, along with physical arrangements, are determining factors in achieving social inclusion.

Expectations at the Institutional and Policy Level: Participants emphasized that local governments and public institutions should strengthen accessibility policies. The high proportion of responses indicating that "newly developed urban areas are not sufficiently suitable for individuals with disabilities" supports the perception of shortcomings in implementation and inspection processes. Example statements:

• "Municipalities should develop more projects on this issue."

• "Existing areas should be revised, and new ones should be supervised."

These views show that public expectations are directed not only toward the construction of new areas but also toward sustainable and monitorable accessibility policies.

The data obtained reveal that the main concerns of both parents and the general public regarding the participation of individuals with disabilities in social life range from physical inadequacies to multidimensional awareness deficiencies. Participants' expectations were shaped by concrete suggestions aimed at addressing these concerns. In this context, it was concluded that creating a more accessible environment requires not only technical adjustments but also social and administrative transformation.

DISCUSSION

The findings of this research reveal that in Rize, the accessibility and usability of social spaces for individuals with disabilities (particularly children) constitute a multidimensional problem area. The statistically significant relationships obtained in the quantitative analyses demonstrate that physical environmental conditions, levels of public awareness, and institutional planning processes are interrelated factors determining accessibility. The strong relationship between the suitability of parks and playgrounds and that of newly developed urban areas (χ^2=37.620; $p<0.001$) provides evidence that spatial arrangements in the city play a decisive role in the participation of individuals with disabilities. This result aligns with the findings of Sallis et al. (2016), which emphasize the positive relationship between physical environmental qualities (accessibility, walkability, land-use diversity) and individual physical activity. Similarly, in the study by Prellwitz and Skär (2007), it was found that design deficiencies in playgrounds limit children's social interactions, while Jeanes and Magee (2012) highlighted that the "inclusive experience" rather than mere accessibility is of primary importance. This study, within the context of Rize, also revealed the significance of equivalent use and social integration rather than solely physical access.

The findings related to the use of playgrounds (χ^2=11.110; p=0.025) concretely reflect the impact of physical arrangements on user behavior. Parents' statements indicated that due to surfaces unsuitable for

wheelchair use, limited equipment diversity, and safety deficiencies, their children could participate only to a limited extent in playgrounds. This situation parallels the "equitable play" approach proposed by Brown et al. (2021), supporting the argument that accessibility should be measured not only by physical entry but also by the quality of play and interaction. Furthermore, these findings are consistent with the studies of Handy et al. (2002) and Zhang et al. (2024), which examined the influence of environmental arrangements on regular physical activity; indeed, parents' observations of semi-dependent participation demonstrate that spatial inadequacies produce direct behavioral consequences.

The data regarding public awareness are also consistent with the findings of Taylor et al. (2023), who examined attitudinal differences between accessibility and social inclusion. A large proportion of Rize residents stated that practices implemented for individuals with disabilities are "inadequate," indicating that accessibility policies have not been fully internalized at the societal level. Although local governments focus on technical standards in the development of new areas, deficiencies appear in monitoring and sustainable maintenance processes. This finding supports the critical analyses of Imrie (2001) and Gleeson (2001), who argued that the "rhetoric of accessibility" in urban planning often fails to be realized in practice. In the case of Rize, the fact that even newly developed areas were evaluated by participants as only "partially suitable" indicates a lack of user-centered feedback mechanisms in planning processes.

These findings show that urban environmental arrangements must integrate not only physical design but also social and administrative processes. Considering that instruments such as the PEM-CY developed by Coster et al. (2012) allow for the monitoring of environmental supports and barriers across home–school–community contexts, the adaptation of local measurement tools becomes important for topographically distinctive cities like Rize. Moreover, Rize's sloped topography, limited flat areas, and spatial density along the coastline indicate that micro-accessibility, safety, and circulation solutions require specialized planning at the city scale.

Overall, the findings suggest that accessibility in Rize needs to be reconsidered not only at the physical level but also at social and institutional levels. This conclusion aligns closely with the increasingly emphasized cncept of the "inclusive city" in contemporary urban planning literature.

CONCLUSION AND ACKNOWLEDGEMENTS

The findings of this research reveal that in Rize, the accessibility of social spaces for individuals with disabilities remains limited due to deficiencies in physical infrastructure, social awareness, and institutional sustainability. Most participants stated that newly developed areas in the city are not sufficiently suitable for individuals with disabilities, indicating that accessibility policies need to be strengthened not only during the planning stage but also in implementation and supervision phases. Parents' observations showed that playgrounds are inadequate in terms of equipment, safety, and sensory stimulation, and that children can use these areas mostly with parental assistance. The "partially suitable" evaluations observed in public survey data indicate that the inclusiveness of urban spaces does not fully meet the principle of equitable use.

In conclusion, the evaluation of social spaces in Rize from an accessibility perspective requires not merely technical adjustments but a spatial, social, and administrative transformation. This transformation necessitates the institutionalization of inclusive urban planning at the local level, supported by measurable and monitorable indicators. In light of these findings, an accessible and inclusive urban planning model for individuals with special needs has been developed, inspired by the case of Rize.

Practical Recommendations for Accessible and Inclusive Urban Planning (Model Approach): The proposed "Accessible and Inclusive Play and Social Space Model" for Rize offers a framework that integrates the axes of physical accessibility, social participation, and institutional sustainability. This model aims to strengthen local governments' accessibility policies by addressing the dimensions of design, governance, and social awareness simultaneously.

First, to enhance physical accessibility, it is recommended to implement micro-accessibility interventions in existing parks and playgrounds across the city. These include non-slip surface materials, ramp systems with landings, transfer-station-equipped play units, and sensory play panels. Such design interventions will support inclusive play experiences that allow children with varying abilities to participate independently at different levels. In areas with sloped topography, terraced play zones and multi-level circulation systems should be established to ensure continuity of access.

Second, strengthening social awareness will reinforce the social dimension of inclusive design. Accessibility awareness programs, empathy workshops, and mixed play events should be organized in schools, municipal centers, and public gatherings. These activities will normalize interaction between individuals with disabilities and the wider community, thereby fostering social acceptance and inclusion.

From a management and supervision perspective, annual accessibility evaluations should be conducted to

measure the condition of parks and social spaces, and open-data monitoring systems should be established. Municipalities can utilize these systems to collect user feedback and develop regular maintenance and repair plans. Furthermore, independent auditing practices and usability tests should become standardized procedures during the completion phase of urban projects.

Finally, to achieve a sustainable inclusive city approach, collaborative design processes should be developed among local governments, universities, and non-governmental organizations, ensuring the participation of parents, children, and designers. In doing so, the city's social spaces will become not only accessible but also sensory-rich, aesthetically coherent, and socially integrated. In the long term, this model is expected to establish a "local inclusivity standard" aligned with Rize's unique topographical and cultural characteristics. The conclusions of the results obtained from the research in question are given in this section. Here, one can provide readers with suggestions and personal comments.

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REFERENCES

Akyol, T. (2025). Voices of parents in Turkey on participation rights of children with disabilities: Voices of parents in Turkey on participation rights of children. *Child and Adolescent Social Work Journal*, 1-12. https://doi.org/10.1007/s10560-025-01050-w

Alsarawi, A.A., & Murry, F.R. (2024). Inclusive playgrounds: Caregiver perceptions of accessibility and use. *Children and Youth Services Review*, ***164***, 107861. https://doi.org/10.1016/j.childyouth.2024.107861

Bekci, B., & Sipahi, M. (2023). Investigation of spatial accessibility on the scale of pedestrian areas. *Journal of the Faculty of Engineering and Architecture of Gazi University*, ***38***(4), 2155-2165. https://doi.org/10.17341/gazimmfd.812513

Bekci, B., Üçok, M., & Oğuztürk, G.E. (2022). Ulaşım aksı üzerinde yer alan çocuk oyun alanlarının peyzaj karakter analizinin rize kent ölçeğinde irdelenmesi: Fener mahallesi örneği. *Bayburt Üniversitesi Fen Bilimleri Dergisi*, ***5***(1), 8-18. https://doi.org/10.55117/bufbd.1004325

Brown, C., de Lannoy, A., McCracken, D., Gill, T., Grant, M., Wright, H., & Williams, S. (2019). Child-friendly cities. *Cities & Health*, ***3***(1-2), 1-7. https://doi.org/10.1080/23748834.2019.1682836

Brown, D.M., Ross, T., Leo, J., Buliung, R.N., Shirazipour, C.H., Latimer-Cheung, A.E., & Arbour-Nicitopoulos, K.P. (2021). A scoping review of evidence-informed recommendations for designing inclusive playgrounds. *Frontiers in Rehabilitation Sciences*, ***2***, 664595. https://doi.org/10.3389/fresc.2021.664595

Coster, W., Law, M., Bedell, G., Khetani, M., Cousins, M., & Teplicky, R. (2012). Development of the participation and environment measure for children and youth: Conceptual basis. *Disability and Rehabilitation*, ***34***(3), 238-246. https://doi.org/10.3109/09638288.2011.603017

Fernelius, C.L. (2018). *Evidence-based practices for the design of inclusive playgrounds that support peer interactions among children with all abilities*. Master's Thesis, Utah State University, Logan, United States. https://doi.org/10.26076/625c-82c9

Fernelius, C.L., & Christensen, K.M. (2017). Systematic review of evidence-based practices for inclusive playground design. Children, Youth and Environments, ***27***(3), 78-102. https://doi.org/10.7721/chilyoutenvi.27.3.0078

Gleeson, B. (2001). Disability and the open city. *Urban Studies*, ***38***(2), 251-265. https://doi.org/10.1080/00420980123531

Handy, S.L., Boarnet, M.G., Ewing, R., & Killingsworth, R.E. (2002). How the built environment affects physical activity: Views from urban planning. *American Journal of Preventive Medicine*, ***23***(2), 64-73. https://doi.org/10.1016/S0749-3797(02)00475-0

Hurst, K., Lee, C., & Ndubisi, F. (2023). Universal design in playground environments: A place-based evaluation of amenities, use, and physical activity. *Landscape Journal*, ***42***(2), 55-80. https://doi.org/10.3368/lj.42.2.55

Imrie, R. (2001). Barriered and bounded places and the spatialities of disability. *Urban Studies*, ***38***(2), 231-237. https://doi.org/10.1080/00420980124639

James, M.E., Jianopoulos, E., Ross, T., Buliung, R., & Arbour-Nicitopoulos, K.P. (2022). Children's usage of inclusive playgrounds: A naturalistic observation study of play. *International Journal of Environmental Research and Public Health*, ***19***(20), 13648. https://doi.org/10.3390/ijerph192013648

Jeanes, R., & Magee, J. (2012). "Can we play on the swings and roundabouts?": Creating inclusive play spaces for disabled young people and their families. *Leisure Studies*, ***31***(2), 193-210. https://doi.org/10.1080/02614367.2011.589864

Khetani, M., Marley, J., Baker, M., Albrecht, E., Bedell, G., Coster, W., ... & Law, M. (2014). Validity of the Participation and Environment Measure for Children and Youth (PEM-CY) for Health Impact Assessment (HIA) in sustainable development projects. *Disability and health journal*, ***7***(2), 226-235. https://doi.org/10.1016/j.dhjo.2013.11.003

Kulözü Uzunboy, N., & Sipahi, S. (2020). Mimaride karbon ayak izini azaltmaya yönelik uygulamalı bir ders deneyimi. *Journal of International Social Research*, ***13***(73). https://doi.org/10.17719/jisr.11019

Lid, I.M. (2014). Universal design and disability: An interdisciplinary perspective. *Disability and*

Rehabilitation, ***36***(16), 1344-1349. https://doi.org/10.3109/09638288.2014.931472

Lim, C.Y., (2015). *Young children's participation and environment measure (YC-PEM): Cross-cultural adaptation and psychometric evaluation in children with and without developmental needs in Singapore* Doctoral Dissertation, McMaster University, Hamilton, Canada. http://hdl.handle.net/11375/18351

Longo, E., Badia, M., & Orgaz, B.M. (2013). Patterns and predictors of participation in leisure activities outside of school in children and adolescents with cerebral palsy. *Research in Developmental Disabilities*, ***34***(1), 266-275. https://doi.org/10.1016/j.ridd.2012.08.017

Mohapatra, S., Maiya, G.A., Nayak, U.U., Benny, L., Watson, J., Kinjawadekar, A., & Nandineni, R.D. (2024). Centering social justice and equity in research on accessibility to public buildings for individuals with mobility disabilities: A scoping review. *F1000Research*, ***13***, 930. https://doi.org/10.12688/f1000research.153797.2

Moore, A., & Lynch, H. (2015). Accessibility and usability of playground environments for children under 12: A scoping review. *Scandinavian Journal of Occupational Therapy*, 22(5), 331-344. https://doi.org/10.3109/11038128.2015.1049549

Moore, A., Boyle, B., & Lynch, H. (2023). Designing for inclusion in public playgrounds: A scoping review of definitions, and utilization of universal design. Disability and Rehabilitation: *Assistive Technology*, ***18***(8), 1453-1465. https://doi.org/10.1080/17483107.2021.2022788

Özdamar, K. (2003). *Modern bilimsel araştırma yöntemleri: araştırma planlama, toplum ve örnek seçimi, güç analizi, proje hazırlama, veri toplama, veri analizi, bilimsel rapor yazımı. Kaan Kitabevi.*

Pineo, H. (2022). Towards healthy urbanism: Inclusive, equitable and sustainable (THRIVES) - an urban design and planning framework from theory to praxis. *Cities & Health*, ***6***(5), 974-992. https://doi.org/10.1080/23748834.2020.1769527

Prellwitz, M., Tamm, M., & Lindqvist, R. (2001). Are playgrounds in Norrland (northern Sweden) accessible to children with restricted mobility? *Scandinavian Journal of Disability Research*, ***3***(1), 56-68. https://doi.org/10.1080/15017410109510768

Prellwitz, M., & Skär, L. (2007). Usability of playgrounds for children with different abilities. Occupational *Therapy International*, ***14***(3), 144-155. https://doi.org/10.1002/oti.230

Rashid, J., & Mir, I.H. (2023). Perspectives of children and youth in urban planning: Emerging evidence. *Urban India*, 43(2), 196-211.

Sallis, J.F., Cerin, E., Conway, T.L., Adams, M.A., Frank, L. D., Pratt, M., ... & Owen, N. (2016). Physical activity in relation to urban environments in 14 cities worldwide: A cross-sectional study. *The Lancet*, ***387***(10034), 2207-2217. http://dx.doi.org/10.1016/S0140-6736(15)01284-2

Sallis, J.F., Floyd, M.F., Rodríguez, D.A., & Saelens, B.E. (2012). Role of built environments in physical activity, obesity, and cardiovascular disease. *Circulation*, ***125***(5), 729-737. https://doi.org/10.1161/CIRCULATIONAHA.110.969 02

Talay, L., Akpinar, N., & Belkayali, N. (2010). Barriers to playground use for children with disabilities: A case from Ankara, Turkey. *African Journal of Agricultural Research*, ***5***(9), 848-855. https://doi.org/10.5897/AJAR09.779

Taylor, L.G., Primucci, M., Vanderloo, L.M., Arbour-Nicitopoulos, K.P., Leo, J., Gilliland, J., & Tucker, P. (2023). A scoping review of tools to evaluate existing playgrounds for inclusivity of children with disabilities. *Frontiers in Rehabilitation Sciences*, 4, 1102490. https://doi.org/10.3389/fresc.2023.1102490

Van Engelen, L., Ebbers, M., Boonzaaijer, M., Bolster, E.A.M., Van Der Put, E.A.H., & Bloemen, M.A.T. (2021). Barriers, facilitators and solutions for active inclusive play for children with a physical disability in the Netherlands: A qualitative study. *BMC Pediatrics*, ***21***(1), 369. https://doi.org/10.1186/s12887-021-02827-5

Wenger, I., Schulze, C., Lundström, U., & Prellwitz, M. (2021). Children's perceptions of playing on inclusive playgrounds: A qualitative study. *Scandinavian Journal of Occupational Therapy*, ***28***(2), 136-146. https://doi.org/10.1080/11038128.2020.1810768

Wu, S., Pan, C., Yao, L., & Wu, X. (2022). The impact of the urban built environment on the play behavior of children with ASD. *International Journal of Environmental Research and Public Health*, ***19***(22), 14752. https://doi.org/10.3390/ijerph192214752

Yazıcıoğlu, Y., & Erdoğan, S. (2011). *SPSS uygulamalı bilimsel araştırma yöntemleri*. Detay Yayıncılık.

Zhang, Y., Koene, M., Chen, C., Wagenaar, C., & Reijneveld, S.A. (2024). Associations between the built environment and physical activity in children, adults and older people: A narrative review of reviews. *Preventive Medicine*, ***180***, 107856. https://doi.org/10.1016/j.ypmed.2024.107856

Zhong, J., Liu, W., Niu, B., Lin, X., & Deng, Y. (2022). Role of built environments on physical activity and health promotion: A review and policy insights. *Frontiers in Public Health*, ***10***, 950348. https://doi.org/10.3389/fpubh.2022.950348