ACCESSIBILITY PERCEPTION OF CHILEAN PARA-ATHLETES, ROAD TO SANTIAGO 2023

PERCEPCIÓN DE LA ACCESIBILIDAD DE PARA ATLETAS CHILENOS, RUMBO A SANTIAGO 2023

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ABSTRACT

The objective of this research is three-fold: 1) to understand Para-athletes' perceptions on accessibility regarding Santiago 2023 Parapan American games' future venues, 2) to establish differences in perception due to the origin of the disability, and 3) document alignment, if any, with athletes with high support needs (AHSN). This research is a two-phased quantitative cross-sectional study, which at the first stage developed the "Para-athletes Perception on Accessibility Survey" (PPA-D) and, at the second stage, the survey was applied to 96 Chilean Para-athletes (77.8% men, mean age = 31.0 ± 11.6 years old). The test obtained a validation coefficient of = 0.96. Regarding the sample characteristics, 16.6% corresponded to participants with visual impairment, 35.1% were AHSN, 51.5% were linked to high-level competition, and 59.3% travelled on their own to their training sessions.

A negative perception of accessibility was found, mainly concerning minibuses, elevators, and restroom spaces, affecting mostly AHSN with visual impairment (F1.101 = 14.01, p = .0003). We conclude that it is important to address gender, disability, and AHSN gaps to guarantee equitable participation under a framework of the law and social rights.

Key Words: athletes with disabilities, paralympic sport, accessibility, sports.

RESUMEN

El objetivo de esta investigación es triple: 1) comprender las percepciones de los Para-atletas sobre la accesibilidad respecto a las futuras sedes de los Juegos Parapanamericanos Santiago 2023, 2) establecer diferencias en la percepción debido al origen de la discapacidad y 3) documentar la percepción de para-atletas con grandes necesidades de apoyo (AHSN, por sus siglas en inglés). Esta investigación es cuantitativa transversal, que en su primera etapa desarrolló el instrumento denominado “Encuesta de Percepción de Accesibilidad de Para-atletas” (PPA-D, por sus siglas en inglés) y, en una segunda etapa, se aplicó a 96 Para-atletas chilenos (77.8% hombres, edad promedio = 31.0 ± 11.6 años). Para la prueba, se obtuvo un coeficiente de validación = 0.96. Respecto a las características de la muestra, 16.6% correspondió a participantes con discapacidad visual, un 35.1% eran AHSN, el 51.5% estaban vinculados a la alta competencia y el 59.3% se trasladaban por sí solos a sus entrenamientos. Se identificó una percepción negativa de la accesibilidad, principalmente en cuanto al transporte en microbús, en los elevadores y en los espacios de baños, afectando principalmente a AHSN con discapacidad visual (F1,101 = 14.01, p = .0003). Se concluye que es importante abordar las brechas de género, origen de discapacidad y AHSN para garantizar una participación equitativa bajo un marco de derecho.

Palabras clave: atletas con discapacidades, deporte paralímpico, accesibilidad, personas con discapacidad, deporte.

INTRODUCTION

Globally, Paralympic sport is not unfamiliar with accessibility issues when viewed as a barrier or a facilitator to inclusion (Fitzgerald, 2018). Due to this, it is essential to identify conditions regarding the participation of Para-athletes in sport spaces. Although the different disciplines are adapted and developed for each condition of those who practice them, it must

be ensured that the sports venues where these Para-athletes perform have the necessary characteristics to facilitate their autonomy and independence. The International Paralympic Committee established the main guidelines that sports facilities should meet based on "Equity", "Dignity", and "Functionality" (The Tokyo Organising Committee of the Olympic and Paralympic Games, 2020). The Vision of The International Paralympic Committee is "To make for an inclusive world through Para sport", and the Mission is "To lead the Paralympic Movement, oversee the delivery of the Paralympic Games and support members to enable Para athletes to achieve sporting excellence". The Paralympic Movement has adopted and follows athlete-focused values, which act as the underlying reference for all those involved in Para sport: Courage, Determination, Inspiration and Equality (International Paralympic Committe 2020).

From the perspective of participation as part of the inclusion process, there are a series of problems that must be addressed that influence whether everyone can be a part of it. There are a variety of difficulties that limit participation. For example, from the environment, infrastructure complexities of the venue in general and sports practice, where even reaching the spaces is a problem: limitations in transport and its financing (Ministerio del Deporte, 2020). In global terms, there is a lack of implementation of sports infrastructure. There are processes of discrimination, segregation, and inadequate and insufficient national policies (Muñoz Hinrichsen et al., 2020). Despite the difficulty, some facilitators support the practice of sports, among them, wanting to improve the health status, carrying out leisure or recreational activities, family support, in addition to the social interaction that sports practice provides (Jaarsma, Dijkstra, et al., 2014).

This constant process of change, in terms of accessibility, has generated a growth in Paralympic sport towards inclusion, both in the number of athletes and participating countries. There is an important evolution from the 1960 Paralympic Games in Rome, where 23 countries and 400 Para-athletes participated, to the 160 countries and 4,328 Para-athletes participating in the Paralympic Games in Rio de Janeiro 2016 (Muñoz et al., 2019), and 4,400 para-athletes in the Paralympic Games in Tokyo 2021. This suggests that Paralympic sport has started a movement that must be adequately considered given its unique needs and relations to conventional sport. A relevant issue regarding accessibility matters is related to athletes with high support needs (AHSN), who have been relegated due to the difficulties encountered when working with them and generating training venues and models (International Paralympic Committee, 2016), and in turn, the various origins of

disability that have become important aspects when developing policies that allow them to be effectively included in events over the years (Brittain, 2016).

In Chile, there is low participation in physical activity and sport of people with disabilities (PWD). This is reflected in the following: 14% describe themselves as physically active and 23% as partially active, while 63% declare themselves as inactive. If we compare this with the Chilean national data, we can observe that they are similar to the population without disabilities, where a total of 86.7% is physically inactive (Ministerio de Salud, 2017). For the last group, they state that not having time is an important barrier, which goes up to 31%, while their disability, accounting for 28%, is another factor that prevents them from sport involvement (Ministerio del Deporte, 2020). However, the Para-South American games that were organized in 2014 allowed for athlete involvement in sports practices across the country, spear-heading the development of Santiago 2023 Panamerican and Parapan American games currently being organized, with the purpose "to promote healthy living as an agent of social transformation through excellence, perseverance, and inclusion that sports competition provides" (Ministerio del Deporte, 2017).

The legacy left by mega-events is highly relevant since they facilitate inclusion from various angles such as accessibility and give the possibility of observing tangible progress in sports venues, noting the attitudes and perceptions of community members (Pappous & Brown, 2018). The relevance of social perception and the accessibility model from an ecological perspective is clear (Hutzler, 2007), but little is known about the participants' perception of the current conditions of spaces and venues in Chile. It is relevant to identify critical points where accessibility and inclusion are insufficient to dimension beforehand the guidelines to be followed regarding the policies and actions by the organizing committee.

As a first objective, this study seeks to descriptively understand the accessibility perception of Para-athletes regarding the spaces where the Parapan American games of Santiago 2023 will take place, with the intention of developing a questionnaire that will reveal the opinion of the participants about the venue of this upcoming mega-event from their experiences and participation, and to delineate which guidelines to follow in order to optimize a significant development based on the tangible and intangible legacy that these types of regional and national commitments attempt to explore. Secondly, the study is meant to establish if there are differences in the participants' perceptions due to the origin of their disability, and the third to know the behavior of athletes with high support needs (AHSN).

METHODOLOGY

Study design and procedures

This research is quantitative and cross-sectional in scope. For participation, authorization was requested from the Paralympic Committee of Chile that agreed to facilitate the process through the administration of the questionnaire to the Para-athletes, using a Google form sent by email. The sampling method corresponds to a non-probabilistic convenience sampling model. The inclusion criteria of the participants were 1) to be over 18 years of age, 2) have their sports classification updated, and 3) provide informed consent. The entire procedure was approved by the Ethics Committee of the University of Santiago de Chile, No. 025,032 / 2021.

Regarding the selection and design of the accessibility instrument, five experts from the Paralympic sports field were contacted to participate in the first online group interview, where the content validation mechanism was explained. Consequently, the instruments were delivered by email to be completed, followed by calculating the results where the modifications and adjustments requested by the experts were made for the second round of evaluation, concluding with the final instrument. From that time forward, through the Paralympic Committee of Chile, para-athletes were contacted via email requesting their participation to answer the questionnaire. The final assessment instrument along with the consent form were sent by the same means to those who voluntarily accepted to participate. The sampling process took place between January and March 2021. Participants were reminded every 15 days that they had to answer the questionnaire. All participants provided informed consent. Finally, each of them was contacted, the information of their responses was collected, and then moving to the data analysis procedures.

For the selection of the participants, the inclusion criteria were 1) to be a Paralympic athlete affiliated with the Chilean Paralympic Committee, 2) to have a current sports / functional classification, and 3) to sign the informed consent. The exclusion criteria were that the athlete did not want to participate, and that they had not participated in the venues that are part of the Santiago 2023 event. The questionnaire was sent to athletes listed on the database of the Paralympic Committee of Chile through those in charge of the technical area. A total of 627 emails were sent by the Paralympic Committee of Chile to the athletes on their database, 123 replied to the survey, and 27 were excluded due to duplication or because they refused to participate.

Survey Development

The "Para-athletes Perception on Accessibility Survey" (PPA-D) aimed to assess the opinion of para-athletes who participate in sports venues related to the tangible and intangible accessibility processes that they present (Pappous & Brown, 2018). The design of the questionnaire was developed from an accessibility model that allows para-athletes to complete it autonomously with audio description for blind people, and with a self-completion system for persons with physical disabilities. The questionnaire comprised two sections. First, the sample of participants is characterized by their demographic data, the origin of their disability, the type of impairment, the level of competence, and the transportation they use considering their independence. These variables are based on the work developed by Jaarsma, Geertzen, et al. (2014). Regarding the demographic data, participants were asked about age, gender, the origin of their disability, the level of competence, and their independence concerning transportation. The deficiency was operationalized as a categorical variable with the following levels: DE [Limb deficiency], DF [Strength deficiency], V [Visual deficiency], ROM [Musculoskeletal range deficiency], and HAA [Hypertonia, Ataxia, Athetosis]. The variables referring to the use of Technical Assistance, disability and AHSN were operationalized as dichotomous categorical variables (Yes/No), and the classification of physical, visual, and intellectual disabilities was used (International Paralympic Committee, 2015).

The second section of the PPA-D corresponds to the evaluation of the athlete's perception on accessibility. The evaluation of accessibility addressed six domains based on the International Paralympic Committee's accessibility guide for the Tokyo (2020). The guide corresponds to current universal accessibility regulations for the inclusion of people with disabilities, divided into 1) Transportation by public transport (15 items), 2) Locations (9 items), 3) Parking lots (5 items), 4) Bathrooms (13 items), 5) Dressing rooms (11 items), and 6) Sports Field (11 items). The assessment scale of the survey is a 5-point Likert-type scale, where 1: Totally disagree, 2: Disagree, 3: Neutral, 4: Agree, and 5: Totally agree.

Statistical analysis

The first objective of our research was primarily descriptive. Due to that, we began by characterizing the sample in terms of age (mean and standard deviation) and the frequencies of gender, disability, competitive level, and AHSN. Then, we proceeded to a characterization of the survey response profile. For this, graphs were generated indicating the percentages per Likert score of responses obtained in each item. Items were graphically ordered from those with the best perception to those with the worst perception and then

grouped for a better understanding of where the domains of transportation, location, sports field, parking lots and bathrooms, and changing rooms met. The process was done through the Content Validity Coefficient (CVC) methodology which, according to Hernández-Nieto, allows for assessing the degree of agreement of the experts regarding each of the items and the instrument in general (Pedrosa et al., 2013).

For the second objective on establishing if the differences in the participants' perceptions were due to their type of disability or AHSN, we averaged the perception values evaluated with a Likert scale for each domain. These averages were contrasted utilizing a two-way (2x2) independent measures ANOVA (type of disability x AHSN). Specifically, the means of the Likert questions for each domain were used as dependent variables. Each ANOVA encompasses a Disability factor (Physical, Visual) and another for AHSN (dichotomized as Yes or No), for this comparative analysis, all domain items were considered. Normality assumptions of the dependent variables were confirmed using the Shapiro-Wilk test. Homoscedasticity was evaluated using Levene's Test for Homogeneity of Variance. In case of not meeting the normality assumptions, the ANOVA was maintained, considering its robustness to the violation of normality (Schmider et al., 2010). Non-parametric Levene's tests were only carried out if homoscedasticity was not present. In case of significant interactions, the Tukey post hoc test was used. People with both physical and visual disabilities were removed when performing the ANOVAs (i.e., people who belonged to both groups). All statistical analysis were performed using R project (R Core Team, 2021).

RESULTS

Participants and Questionnaire validation

The sample of this study consisted of a total of 96 Chilean para-athletes (22.2% women and 77.8% men, mean age = 31.0 ± 11.6 years old), who agreed to be part of the study (Table 1).

The questionnaire was content validated by five experts from the area of inclusion, disability, and physical activity. A validation coefficient = 0.96 was obtained. which represents excellent validity and agreement. Regarding the sample description and the origin of the disability, it can be observed that 81.2% corresponds to physical disability and 19.8% to visual disability, while 35.1% are AHSN, and 51.5% is linked to high competition. It was also found that 59.3% goes on their own to the training sessions, while 40.7% needs to be accompanied. The results are shown in Table 1.

Table 1

Description of the participating para-athletes

Variable	Characteristic	Percentage (%)
Gender	Female	22.2
	Male	77.8
Disability	Physical	81.2
	Visual	19.8
Competition level	High performance	51.1
	Competitive	42.4
	Formative	6.06
AHSN	Yes	35.1
	No	64.9
Independent mobility	Alone	59.3
	With someone	40.7

Source: the authors

Regarding the objective related to the opinion on accessibility perception of the participants, the main findings when administering the questionnaire showed trends of poor perception in dressing rooms; where showers, doors, and bar supports in changing rooms tended to be 33%. Considering a proper perception, it corresponds to the sports field in terms of ground, autonomy in its practice, and accessibility, with results between 69% - 75% (Figure 1).

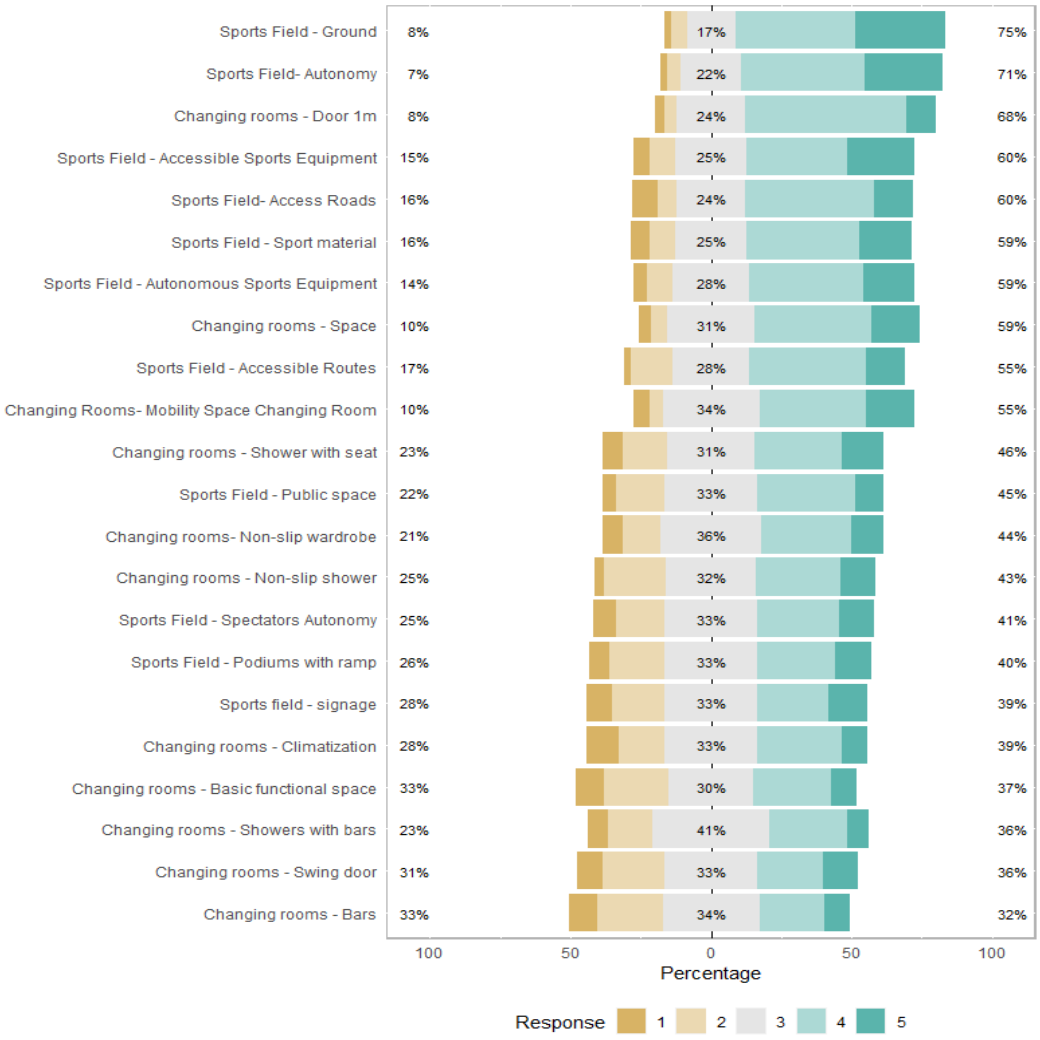

Figure 1. Accessibility perception trends in changing rooms and playing fields. The data are presented in percentages of answers and scores per item, where 1-2 corresponds to poor perception (left percentages) and 4-5 to adequate perception (right percentages). Central percentages correspond to Likert score of 3, being a neutral answer. Source: the authors.

Regarding bathrooms, most of them scored a perception of adequate accessibility, highlighting the internal spaces at 67%, their accessories, and the use of space at 66%. Regarding parking, we can see similar behaviour, highlighting the reserved use at 62%, but with a decrease in trend to 43% (Figure 2).

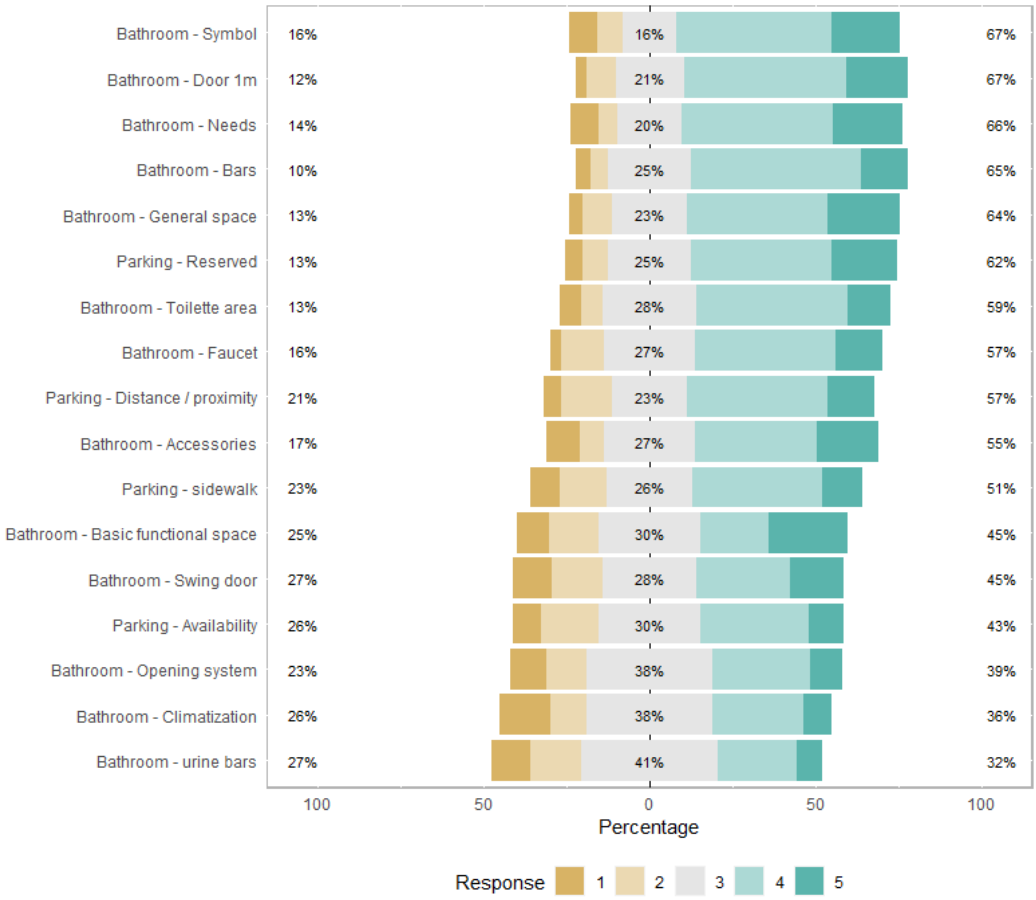

Figure 2. Accessibility perception trends in restrooms and parking lots. The data are presented in percentages of answers and scores per item, where 1-2 corresponds to poor perception (left percentages) and 4-5 to adequate perception (right percentages). Central percentages correspond to Likert score of 3, being a neutral answer. Source: the authors.

Concerning transport, it is observed that the lowest accessibility perceptions where the use of microbus transfer times, and their spaces fluctuates between 46-48% of deficiency. Between 18-14% are considered adequate. Also noteworthy in terms of location is the inadequacy of the elevators at 25% (Figure 3).

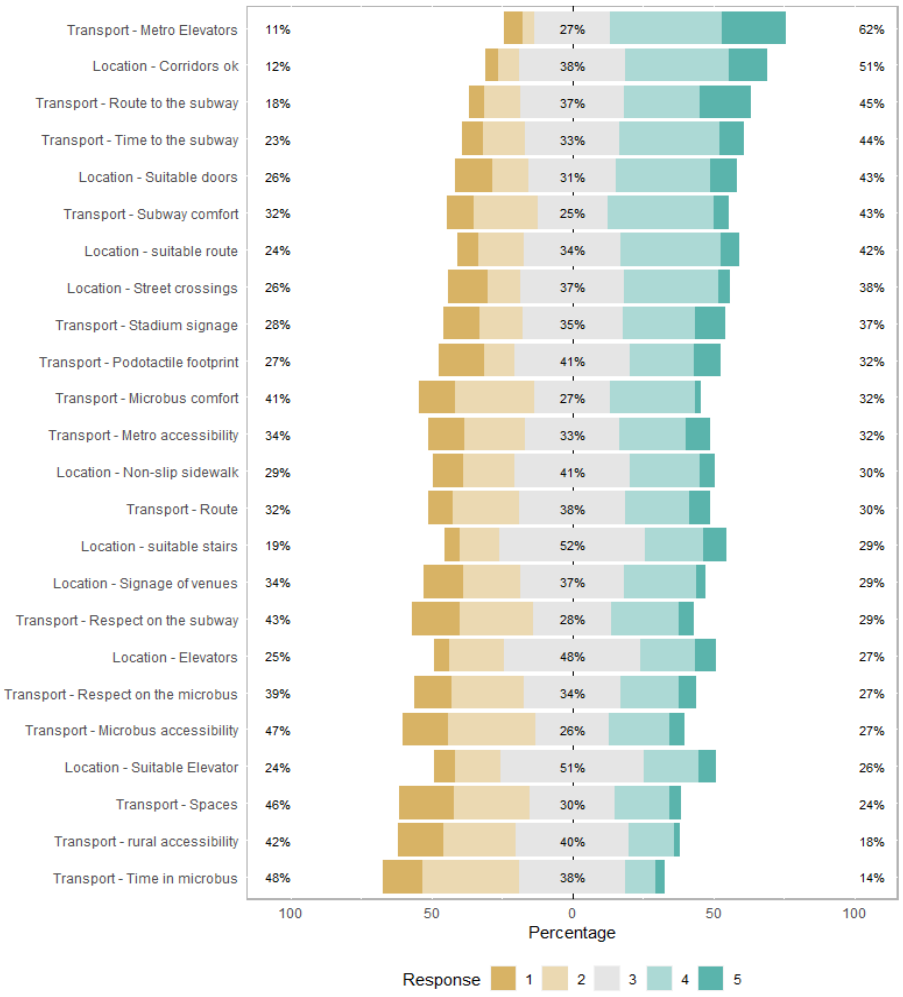

Figure 3. Accessibility perception trends in Transportation and Locations. The data are presented in percentages of answers and scores per item, where 1-2 corresponds to poor perception (left percentages) and 4-5 to adequate perception (right percentages). Central percentages correspond to Likert score of 3, being a neutral answer. Source: the authors.

Regarding our second objective, for “Transportation”, AHSN and Disability did not present significant results (AHSN: $F(1,101) = 0.54$, $p = 0.46$; Disability: $F(1,101) = 2.03$, $p = 0.15$). However, a significant interaction was found ($F(1,101) = 14.01$, $p < 0.001$) (Figure 4). The group with AHSN and visual impairment presented a significantly worse perception than the group with physical disability both with AHSN ($p = 0.002$) and without AHSN ($p = 0.027$). A significant difference is also shown with the visually impaired group without AHSN ($p = 0.004$). In other words, there is no significant difference in the perception of para-athletes regarding transportation, except for the para-athletes with visual disabilities and AHSN.

As for the "Sport" domain, we found the same pattern, where the main effects of the ANOVA were not significant except for the interaction (Disability: $F(1,94) = 0.08$, $p = 0.77$; AHSN: $F(1,94) = 1.84$, $p = 0.17$, Interaction: $F(1,94) = 4.29$, $p = 0.04$). While the difference between the physical disability group without AHSN presents a trend difference with the group with visual impairment and AHSN ($p = 0.07$).

Finally, no main effect of AHSN was found for “Services” either ($F(1,98) = 0.65$, $p = 0.42$), but it was found that Disability did present differences ($F(1, 98) = 5.57$, $p = 0.02$). In addition, a significant interaction was found between both variables ($F(1.98) = 11.23$, $p = 0.001$). When looking at Figure 4, it is possible to appreciate the same pattern, but with even lower scores in the perception of the group with AHSN and visual impairment compared to physical impairment. When examining the results of the post hoc, the same pattern observed in Transportation was found. The group with AHSN and visual impairment (2.50 ± 0.59; $M \pm SD$) presented a significantly lower perception than the other three groups (AHSN: Yes & Physical disability: 3.22 ± 0.63, $p = 0.005$, AHSN: No & Physical disability: 3.00 ± 0.55, $p = 0.002$, AHSN: No & Visual disability: 3.39 ± 0.47, $p = 0.01$). In general, the results suggest consistently that athletes with AHSN and visual impairment have the worst perception, being significantly lower than the other three groups.

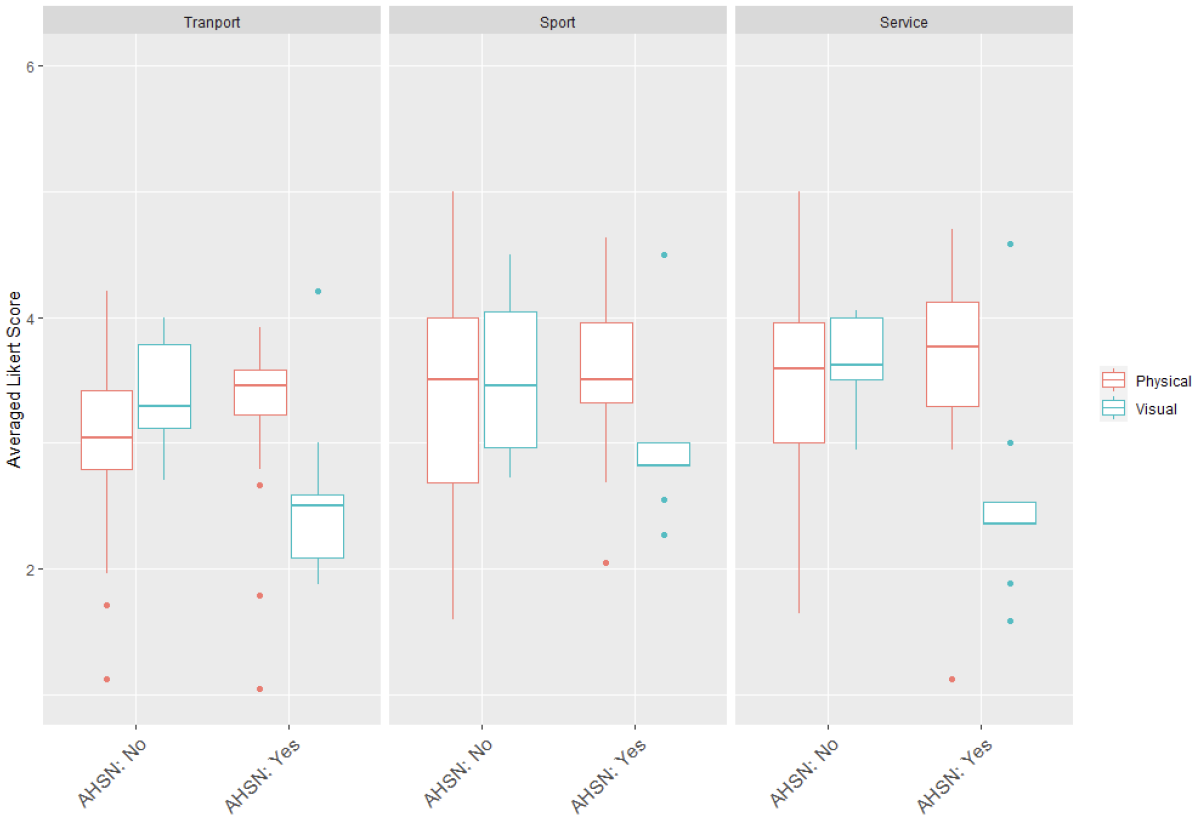

Figure 4. Boxplots of the averaged Likert scores of each domain of the survey. Scores are divided by AHSN condition and Disability.

DISCUSSION

This research aimed to understand para-athletes' perceptions on accessibility regarding Santiago 2023 Parapan American games' future venues. For this, we created a questionnaire that will provide information about the accessibility perception of para-athletes concerning the spaces where the Parapan American games of Santiago 2023 will take place. Additionally, this study aimed to establish if there are differences in the participants' perceptions due to the origin of their disability or AHSN.

Regarding the development and validation of the questionnaire, it is observed that there is a validation coefficient of 0.96, which is excellent (Pedrosa et al., 2013), making it a good quality questionnaire and a relevant instrument that can provide valuable information when making decisions about accessibility, which in the process of conducting a scientific investigation takes on great relevance compared to the measurement of variables that require valid and reliable instruments (Villavicencio Caparó, 2018; Boparai et al., 2019). From the technical point of view, Parapan American games are aligned with the

development needs that fully comply with the safeguarding and respecting dignity, functionality, and equity of their participants as a premise for such type of mega-events (Pappous & Brown, 2018).

Concerning the demographic data of the participants, it is observed that there is a lower number of female participants, which given international and national guidelines, is an issue that must be addressed promptly to ensure timely participation and under a legal framework, to mitigate discrimination and abuses that are not conditional on the final objective of sports practice (DePauw, 1999; Wanneberg, 2018). Additionally, it is appropriate to develop policies to contextualize gender and disability to guide future research. These policies can positively impact the idiosyncrasy and demographics of Chile (Organization of United Nations, 2006; Servicio Nacional de la Discapacidad, 2015). This matter is crucial to International Paralympic Committee (2019), since it purports the use of an equitable model of participation, while responding to its strategic development plan that raises, within its guidelines, the view that women must be leading actors in the Paralympic movement globally.

We discovered that a large group of para-athletes have a physical disability (81.2%), while visual disability is 16.6%. Information that contrasted with the indicators of the national population with disabilities, where the main group corresponds to 70.8% of vision loss and 72.7% of eye diseases (Servicio Nacional de la Discapacidad, 2015). Therefore, this finding may lead to infer that some barriers are preventing the latter population from actively participating in Paralympic sport. This may be due, to some extent, to the fact that no policies exist to facilitate the adequate distribution of resources that guarantee equitable access. A point that arises from international actions is that accessibility depends on intersectoral work and regulations that go hand in hand with social needs (De Bosscher et al., 2009). It can also be related to the fact that there is a scarce supply, and centralization of actions at the national level in large cities that reduces the possibility of people to learn about Paralympic sport (Muñoz Hinrichsen et al., 2021). Previous research indicates some gaps which may undermine the process of including para-athletes in the development spaces of this event. Historically, PWD have been subject to multiple rejection and discrimination, which has caused them to live relegated to the background within society. Even making a historical review of our culture, under the eyes of society, these people were considered debtors of the community (Purdue & Howe, 2015; Monforte et al., 2020).

As revealed by the results about the perception of para-athletes who are part of the initial objective, low levels of accessibility were found for transport by minibus and dressing

rooms, and in some services such as elevators. Bearing that in mind, we can say that it highlights the infrastructure as a barrier when practicing sports, which can be understood from an ecological model, where the environment serves as a space for the interaction of the characteristics of the para-athletes and for completion of the tasks they must perform (Hutzler, 2007; Jaarsma, Geertzen, et al., 2014). These spaces become part of the legacy that an event of this magnitude may start in a city and its country. Thus, intervening para-athletes in these situations allows for a development of a future where more PWD become familiar with the practice of physical activity and Paralympic sports (Legg & Steadward, 2011; Pappous & Brown, 2018).

Regarding the objective of knowing the differences that can be established in the study participants, the research results reveal that some gaps still need to be overcome in reference to para-athletes who are limited in their autonomy related to AHSN. This group is named in the International Paralympic Committee Mission Statement as an objective that needs to be met through development of opportunities for effective inclusion (International Paralympic Committee, 2019). It is highly relevant to find accessible spaces for groups that require great support since it is the ultimate objective of PWD sports. Furthermore, resources should be directed to those who most need them (Vanlandewijck & Thompson 2011). In addition, it is highly important for PWD sports to be covered in the media in order to expose that there are various requirements that communities and political entities must undertake (Howe, 2008). Accessibility depends on the environment where PWD interacts. From an ecological model, is related to the conceptualization of disability as it corresponds to the relationship of the deficiencies or limitations that a person presents by their condition of health, as well as its relationship in participation with the environment plus its facilitators and barriers (United Nations, 2006; Ministerio de Desarrollo Social, 2010).

This research has some limitations, mainly related to the number of participating athletes that can lead to results that cannot be generalized. This study involved an exploratory process that did not register similar precedents but can help give guidance on these topics that are relevant to Paralympic sport and its development. Self-application questionnaire can reduce the accuracy of the answers because of unfamiliarity with such type of instrument, but once validated by experts, it becomes a suitable tool for its application. It is proposed that future research studies should consider research from a qualitative perspective as to deepen on the opinions and perceptions, and to apply the instruments during and after the event to compare the advances in the aspects related to

the legacy. Additionally, it is recommended to send this work to the organizing entities to provide more information to this type of evidence-based initiatives.

CONCLUSIONS

It is observed that AHSN para-athletes with visual disabilities are the ones who present the lowest accessibility perception indicators, with a trend towards inadequacy regarding services, transportation, and sports fields. Furthermore, from a global perspective, transport by minibus, elevators, and dressing rooms present major deficiencies in terms of accessibility perception. The latter is crucial since most athletes travel by themselves, so their participation may be conditioned by transportation accessibility. Also, it is a limitation to those who must travel accompanied. It is of utmost importance to address gender and disability origin gaps to ensure that everyone can participate on equal terms under a framework of social rights.

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