

Anthropometric Similarities and Differences in Children of Aymara and Non-Aymara Descent in Northern Chile: Implications for Health and Development

Similitudes y Diferencias Antropométricas en Niños de Etnia Aymara y Ascendencia No-Aymara en el Norte de Chile: Implicaciones para la Salud y el Desarrollo

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SUMMARY: This study aims to assess the nutritional status of Aymara and non-Aymara children in Arica, comparing anthropometric measurements of boys and girls aged 4-10 to inform interventions for child health and development. We conducted a non-experimental, quantitative, cross-sectional study in Arica, Chile. The sample included 458 children, with equal representation of Aymara and non-Aymara children from diverse socioeconomic backgrounds. Trained research assistants collected anthropometric data using standardized techniques. IBM SPSS statistical software was used for data analysis, including Student's t-test and the Levene test. Both Aymara and non-Aymara children showed high prevalence of overweight and obesity. Boys had a meso-endomorph somatotype, while girls had an endomorph somatotype. Among 8-year-olds, non-Aymara children had a slightly higher mean body weight (35.87, SD 4.50) compared to Aymara children (32.27, SD 4.31), but the difference was not statistically significant ($p>0.05$). However, 10-year-old Aymara girls had a significantly higher mean body mass index (22.34, SD 4.21) than non-Aymara girls (20.10, SD 3.58) ($p=0.05$). Regarding body fat percentage, 10-year-old non-Aymara girls had a slightly higher mean (31.01, SD 5.64) than Aymara girls (26.12, SD 5.63), but the difference was not statistically significant ($p>0.05$). The study found high levels of overweight and obesity in children from northern Chile, increasing with age for both Aymara and non-Aymara groups. The somatotype patterns were consistent across both groups. Although the differences between Aymara and non-Aymara children were not statistically significant, the Aymara group showed slightly higher levels of overweight and obesity. Further research with a larger sample size is needed to confirm these results and identify potential trends. Efforts should focus on promoting healthy nutrition and physical activity to address the growing problem of overweight and obesity in this region.

KEY WORDS: Body composition; Ethnicity; Children; Obesity; Overweight; Somatotype; Northern Chile; Aymara; Anthropometry.

INTRODUCTION

The Aymarás are an indigenous ethnic group from the Andes and Altiplano region of South America, with a significant population in Bolivia, Peru, and Chile. In recent years, the Aymará community in Chile has experienced an

increase in migration from rural towns to urban areas, including the city of Arica in the Andean foothills of the Arica and Parinacota region (Carreño-Calderón, 2021; Chandler, 2022). This migration has led to lifestyle changes

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that may impact their health, including their nutritional status. In Chile, there is a high prevalence of overweight and obesity, with 35 to 43 % of the population affected (Crovetto & Sepúlveda, 2022).

In Chile, in recent years there has been an important growth of the gross geographic product and a decrease in the rates of poverty and indigence. Low-income families have improved their purchasing power, especially for energy-dense foods, although it is still insufficient to achieve a healthy diet, which incorporates dairy products, fruits, vegetables, fish, and whole grains (Atalah, 2012).

The city of Arica also has high rates of overweight and obesity, but there are few studies that have investigated the anthropometric status of its child population, particularly in relation to ethnic diversity and sex (Fernández *et al.*, 2019).

Cerda *et al.* (2014) referred to the fact that a sedentary lifestyle and increased food intake caloric, contribute to the increase in body weight, emphasizing that there are other factors that trigger obesity such as the establishment of bad nutritional habits from early stages of life and the time they spend children to games that are not related to physical activity.

For their part, Cu *et al.* (2015), pointed out that the combination of the intake calories that children have today along with a sedentary lifestyle, which has increased considerably in recent times, are triggers fundamentals of obesity. The authors emphasized that games are not practiced at the outdoors and that children prefer video games and more hours in front of the television and to the computer.

Therefore, this study aims to compare the nutritional status, from an anthropometric approach, of Aymara and non-Aymara boys and girls aged 4 to 10 years in the city of Arica. This study will provide valuable information on the similarities and differences between these two groups, which can help inform interventions and policies to address overweight and obesity in the region.

The objective of this study is to assess the nutritional status of Aymara children and children without indigenous ancestry, from 4 to 10 years of age, in the city of Arica by comparing their body composition and somatotype. The research aims to provide important insights into the differences or similarities in the anthropometric profiles of these two populations and shed light on the prevalence of overweight and obesity among children in the region. By doing so, this study seeks to contribute to the development of more effective and culturally appropriate interventions to address the nutritional needs of the child population in northern Chile.

MATERIAL AND METHOD

This study was non-experimental, cross-sectional, quantitative, descriptive, comparative, and multicenter, conducted in elementary schools. The sample selection followed the inclusion and exclusion criteria previously suggested (Manzano Nunez & García Perdomo, 2016).

Procedures. The National Institute of Statistics (INE) provided the age group forecast information for 2018, which helped determine the sample size (n) and ensure its representativeness (Instituto Nacional de Estadística, 2018). A representative sample of 458 children between 4 and 10 years of age was selected, of which 258 were girls and 200 boys. The sample consisted of 227 Aymara children (49.5 %) and 231 non-Aymara children (50.4 %). The sample was selected for convenience, with inclusion criteria of children officially enrolled in selected schools, aged between 4 and 10 years, and residing in the city of Arica. The exclusion criteria were children and parents/guardians who did not sign the informed consent and assent, those who did not attend the evaluation day, and those whose chronological age did not match their school grade.

Variables. The investigated variables were age, ethnicity, sex, academic year, weight, height, seated height, wingspan, head circumference, chest circumference, waist circumference, hip circumference, relaxed arm perimeter, contracted arm perimeter, wrist perimeter, mid-thigh circumference, leg circumference, biacromial diameter, anteroposterior thorax diameter, humeral biepicondylar diameter, bistyloid diameter, biiliac diameter, femur bicondylar diameter, biceps skinfold, tricipital skinfold, subscapularis skinfold, suprailiac skinfold, abdominal skinfold, thigh crease, and leg crease. Additionally, the active body mass, percentage of fat mass, active body substance index, and somatotype were evaluated.

Evaluation criteria. The measurements were taken in the morning, before physical exercises, and preferably after bodily waste had been evacuated. The premises were illuminated and ventilated, and appropriate clothing was worn. Certified equipment was used, and an experienced evaluator conducted the measurements. Stewart *et al.* (2011) recommendations were followed for the evaluations. Overweight and obesity were evaluated using internationally accepted curves or percentiles reviewed by the Center for Disease Control and Prevention (CDC) and used by other authors with national samples, with specific BMI values for age and sex in children (Kuczmarski, 2002; Gómez-Campos *et al.*, 2015). The classification was as follows: Low weight: < P3 for girls and < P5 for boys. Normal weight: ≤

P85 in both sexes. Overweight: >P85 and ≤P95 in both sexes. Obese: > P95 in both sexes.

The percentage of fat mass (%fat) was calculated using the Weststrate and Deurenberg equation (Deurenberg *et al.*, 1991; Bertapelli *et al.*, 2022; Seidell, 2022). The somatotype calculation used the protocol recommended by Heath and Carter (Heath & Carter, 1967; Pastuszak *et al.*, 2019). The technical error of measurement (TEM) and the percentage of the technical measurement error (%TEM) were calculated. The quality of the anthropometric measurements ensured reliable results to validate the research.

Instruments. The following instruments were used: anthropometric drawer, digital scale with Omron HBF-514C Fitness analyzer, ADE Germany MZ 10042 portable heights (range: 60 to 200 cm), tape measure: ADE Germany, panniculus adiposus meter (Holtain) (range: 0mm to 48mm), Holtain Harpender anthropometer (set) (range: 50mm to 570mm), Mitutoyo caliper (range: 0mm to 250mm), background sheets, body marking pens, and disinfectant wipes.

Bioethical considerations. The research adhered to the principles of the Declaration of Helsinki (World Medical Association, 2013), as well as those of the World Medical Association related to Human Rights and Biomedicine. The

study was approved by the ethics committee of the University of Tarapacá, and informed consent was obtained from both the children and their parents/guardians. The collected data is kept confidential.

Statistical analysis. The IBM SPSS statistical program, version 25.0, was used to generate a comparison between the Aymara and non-Aymara populations through the independent samples Student's T-parametric test, considering age groups and sex (Morgan *et al.*, 2019). The significance level was set at $\alpha=0.05$. The homoscedasticity of the variance was studied using the Levene test, and the following criteria were used to determine the results:

- If P-value $\leq \alpha$, it is accepted that H1= There are significant differences in the means.
- If P-value $\geq \alpha$, H0 is accepted = There are no significant differences in the means.

RESULTS

The study results on body composition in Aymara and non-Aymara children showed no significant differences in body weight (kg) between the two ethnic groups (p-value

Table I. Body Weight (kg) of Aymara and Non-Aymara children

Ethnicity	n	Mean	Standard deviation	average error	t	gl	Sig. (bilateral)
weight (kg)	Aymaras	227	31,08	10,92	0,72	0,58	456
	No-Aymaras	231	30,52	9,61	0,63		

Table II. Body Weight (kg) of children according to sex and age in Aymaras and Non-Aymaras.

Sex	Age	Ethnicity								t-test for equality of means		
		Aymaras				No-Aymaras				They assume equal variances		
		n	Mean	Standard deviation	Average error	n	Mean	Standard deviation	Average error	t	gl	Sig. bilateral
Male	4	10	22,08	4,04	1,27	10	19,97	5,35	1,69	0,99	18	0,33
	5	12	22,74	3,94	1,13	11	21,36	2,27	0,68	1,01	21	0,32
	6	11	28,50	8,93	2,69	10	27,23	4,31	1,36	0,41	19	0,68
	7	14	27,43	5,64	1,50	20	26,44	4,08	0,91	0,59	32	0,55
	8	19	32,27	4,31	0,99	15	35,87	4,50	1,16	-2,36	32	0,02
	9	21	34,07	8,47	1,84	9	34,36	5,84	1,94	-0,09	28	0,92
Female	10	15	47,14	14,76	3,81	23	41,29	9,42	1,96	1,49	36	0,14
	4	14	21,32	4,62	1,23	23	21,53	5,15	1,07	-0,12	35	0,89
	5	20	21,61	3,15	0,70	13	23,53	4,69	1,30	-1,41	31	0,16
	6	12	22,39	2,57	0,74	21	26,09	4,42	0,96	-2,64	31	0,11
	7	21	29,75	7,95	1,73	16	25,93	4,34	1,08	1,73	35	0,09
	8	15	33,97	4,10	1,05	13	33,58	6,32	1,75	0,19	26	0,84
	9	23	34,65	7,91	1,64	21	37,30	8,37	1,82	-1,07	42	0,28
	10	20	44,92	12,33	2,75	26	39,79	9,55	1,87	1,59	44	0,11

≥0.05), according to Table I. However, Aymara boys in age groups 4, 5, 6, 7, and 10, and Aymara girls in age groups 7, 8, and 10 had slightly higher body weight than non-Aymaras. (Table II) Moreover, non-Aymara children were taller than Aymaras, but the differences were not statistically significant (p-value >0.05), as also shown in Table III. When examining height (cm) by sex and age, Aymará boys of age 6, 7, 8, and 9 and Aymará girls of age 4, 5, 6, 7, and 9 were taller than non-Aymaras (Table IV).

Table V displays the results of BMI (kg/m²), indicating that Aymaras had higher values than non-Aymaras, but there were no statistically significant differences (p-value >0.05). The same was observed in Table VI, which showed higher BMI in Aymara boys and girls in age groups 4, 5, 6, 7, 9, and 10, but none of the differences were statistically significant.

Figures 1 and 2 show the location of Aymara and non-Aymara children by age and percentile. Aymara children of 4, 6, and 10 years old were located above the

P95 percentile, those of 5, 7, and 8 years old between the P90 and P95 percentile, and those of 9 years old in the P90 percentile. In contrast, non-Aymara girls of 4 and 5 years old were located above P95, those of 6, 8, and 9 years between P90 and P95, and those of 7 years in the P75 percentile.

The percentage of body fat (%fat) did not show statistically significant differences (p-value >0.05) between Aymaras and non-Aymaras, as indicated in Table VII. In the Table VIII shows that the percentage of body fat (%fat) increased as age increased in both groups studied.

Finally, the results of the study on somatotype revealed a tendency to endomorphism parallel to the increase in age in both ethnic groups, with Aymara girls aged 8, 9, and 10 presenting an endomorph somatotype, while those aged 4, 5, 6, and 7 presented a mesoendomorph somatotype. Both Aymara and non-Aymara children presented a mesomorphic somatotype with a tendency to endomorphism.

Table III. Height (cm) of children in Aymara and non-Aymara.

	Ethnicity	N	Mean	Standard deviation	average error	t	gl	Sig. (bilateral)
Height (cm)	Aymaras	227	124,41	12,49	0,82	-0,65	456	0,51
	Non-Aymaras	231	125,17	12,36	0,81			

Table IV. Height (cm) of children according to sex and age in Aymara and non-Aymara.

Sex	Age	Ethnicity								t-test for equality of means		
		Aymaras				Non-Aymaras				They assume equal variances		
		n	Mean	Standard deviation	Average error	n	Mean	Standard deviation	Average error	t	gl	Sig. (bilateral)
Male	4	10	109,09	3,53	1,11	10	107,29	5,55	1,75	0,86	18	0,39
	5	12	112,50	4,24	1,22	11	111,99	4,09	1,23	0,29	21	0,77
	6	11	118,96	7,35	2,21	10	121,66	5,23	1,65	-0,95	19	0,35
	7	14	122,80	5,73	1,53	20	123,28	4,58	1,02	-0,27	32	0,78
	8	19	129,82	1,61	0,37	15	129,85	2,53	0,65	-0,04	32	0,96
	9	21	131,99	6,04	1,31	9	133,44	3,05	1,01	-0,68	28	0,50
Female	10	15	141,00	9,58	2,47	23	140,49	5,94	1,23	0,20	36	0,84
	4	14	107,08	7,24	1,93	23	107,96	6,53	1,36	-0,38	35	0,70
	5	20	109,43	4,44	0,99	13	113,38	6,64	1,84	-2,05	31	0,14
	6	12	114,07	3,87	1,11	21	119,15	5,67	1,23	-2,74	31	0,06
	7	21	123,45	5,73	1,25	16	123,75	4,96	1,24	-0,16	35	0,86
	8	15	128,64	5,04	1,30	13	128,17	4,84	1,34	0,25	26	0,80
	9	23	131,57	8,59	1,79	21	133,34	5,74	1,25	-0,79	42	0,43
	10	20	140,67	7,52	1,68	26	140,06	7,38	1,44	0,27	44	0,78

Table V. Body mass index (kg/m²) of children in Aymara and non-Aymara.

	Ethnicity	n	Mean	Standard deviation	average error	t	gl	Sig. (bilateral)
BMI	Aymaras	227	19,56	3,48	0,23	1,59	456	0,11
	Non-Aymaras	231	19,06	3,27	0,21			

Table VI. Body mass index (kg/m²) of children according to sex and age in Aymara and non-Aymara.

Sex	Age	Ethnicity									t-test for equality of means		
		Aymaras			Non-Aymaras			They assume equal variances					
		n	Mean	Standard	Average	n	Mean	Standard	Average	t	gl	Sig. (bilateral)	
Male	4	10	18,47	2,49	0,78	10	17,20	3,17	1,00	0,99	18	0,33	
	5	12	17,88	2,34	0,67	11	17,00	1,31	0,39	1,09	21	0,28	
	6	11	19,80	3,69	1,11	10	18,34	2,26	0,71	1,08	19	0,29	
	7	14	18,03	2,37	0,63	20	17,32	1,83	0,41	0,97	32	0,33	
	8	19	19,19	2,41	0,55	15	21,24	2,06	0,53	-2,62	32	0,06	
	9	21	19,33	3,18	0,69	9	19,21	2,59	0,86	0,09	28	0,92	
Female	10	15	23,22	4,73	1,22	23	20,79	3,90	0,81	1,72	36	0,09	
	4	14	18,45	2,70	0,72	23	18,42	3,60	0,75	0,02	35	0,98	
	5	20	18,11	2,72	0,60	13	18,38	2,43	0,67	-0,29	31	0,77	
	6	12	17,19	1,66	0,47	21	18,45	2,74	0,59	-1,43	31	0,16	
	7	21	19,55	3,68	0,80	16	16,88	2,25	0,56	2,55	35	0,21	
	8	15	20,67	1,92	0,49	13	20,28	2,90	0,80	0,42	26	0,67	
	9	23	19,91	3,55	0,74	21	20,81	3,85	0,84	-0,80	42	0,42	
	10	20	22,34	4,21	0,94	26	20,10	3,58	0,70	1,95	44	0,05	

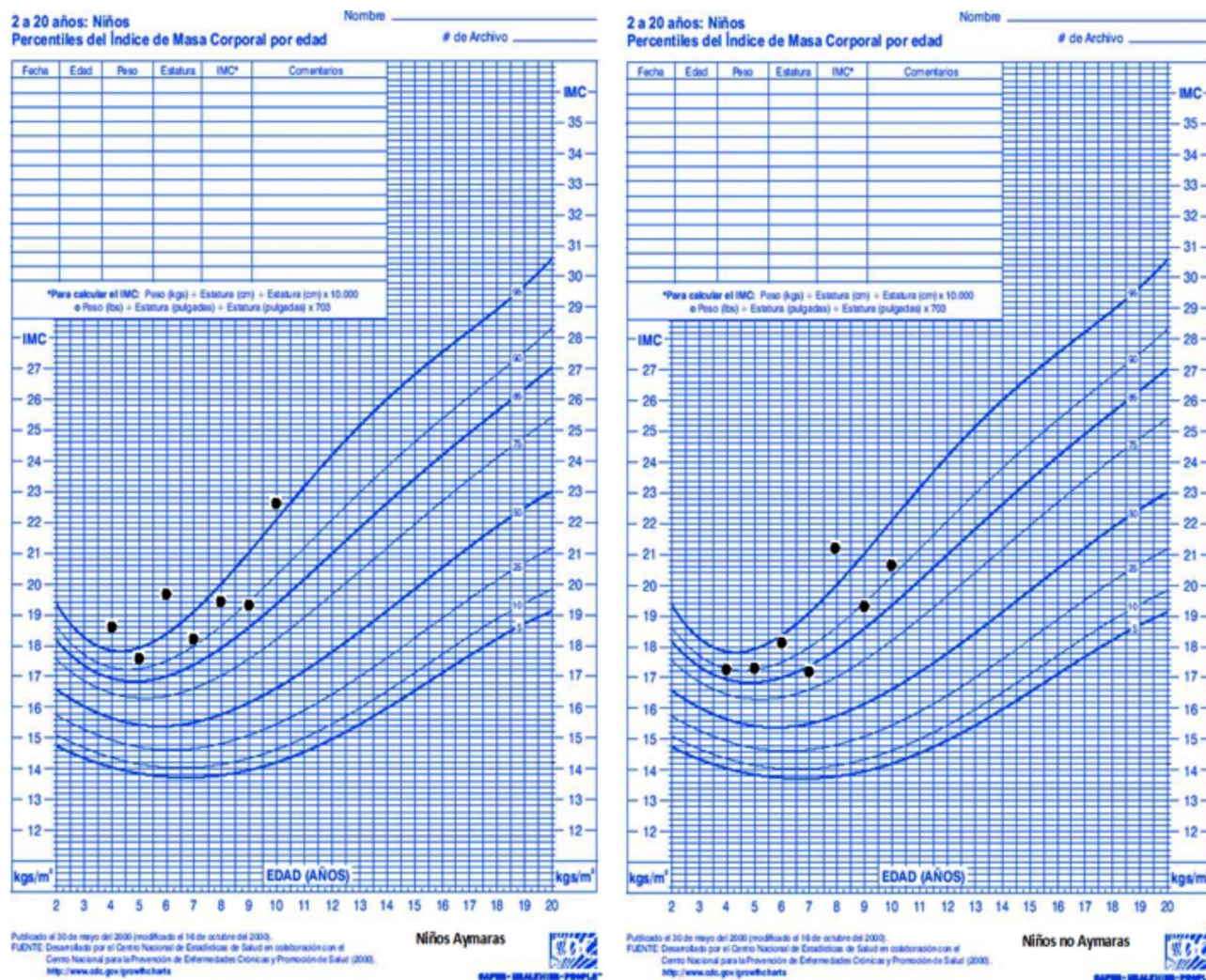


Fig. 1. Center for Disease Control and Prevention (C.D.C) percentile curves, for the male Aymara and non-Aymara sex. BMI and age.

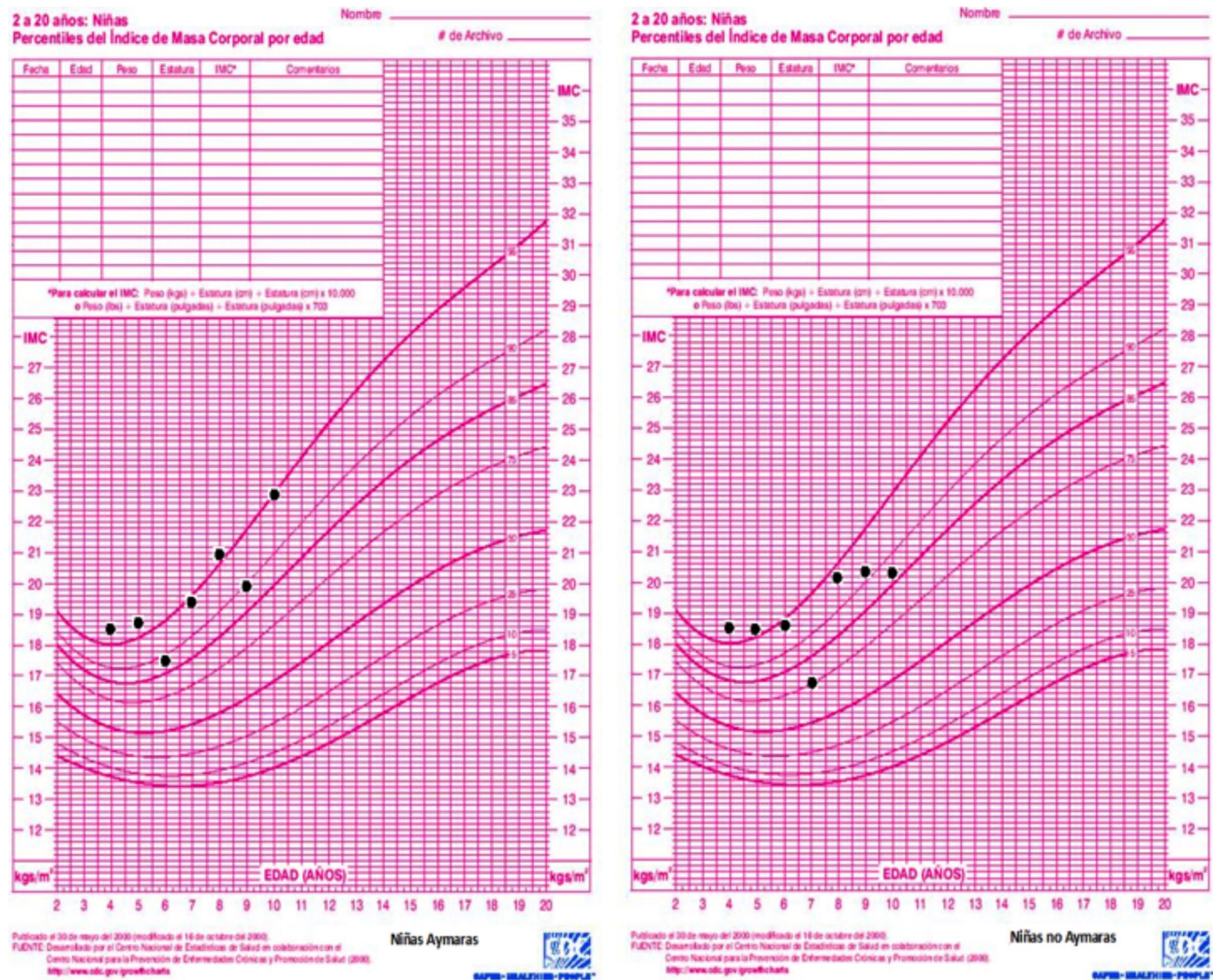


Fig. 2. Percentile curves of the Center for Disease Control and Prevention (C.D.C), for the Aymara and non-Aymara female sex. BMI and age.

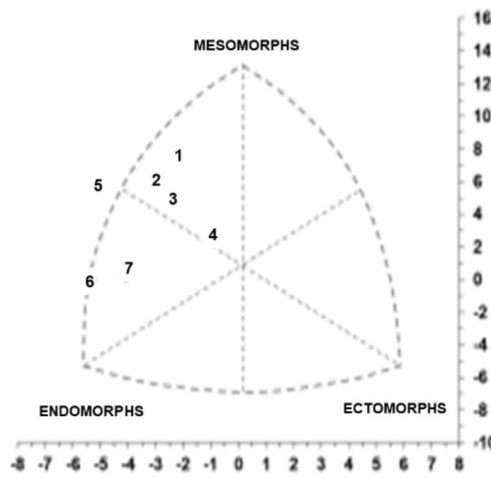
Table VII. Percentage of body fat (% fat) of children in Aymara and non-Aymara.

	Ethnicity	n	Mean	Standard deviation	average error	t	gl	Sig. (bilateral)
BMI	Aymaras	227	20,57	8,11	0,23	1,07	456	0,28
	Non-Aymaras	231	19,76	7,920	0,21			

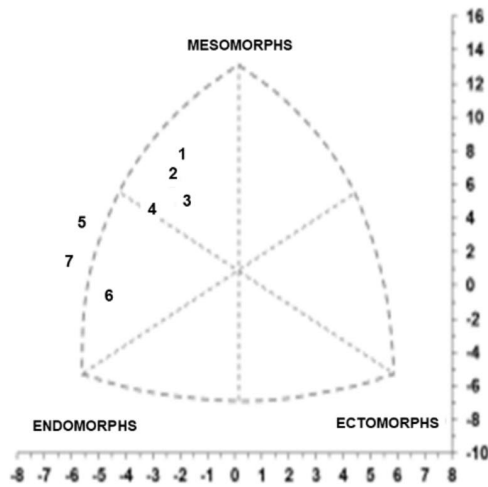
DISCUSSION

In a national context, Lagos-Hernández *et al.* (2021) conducted a study to evaluate the body composition and somatotype of Mapuche and non-Mapuche schoolchildren from the Commune of Temuco in Chile. The study highlighted significant differences in the nutritional status between the two ethnic groups, with a higher percentage of normal-weight Mapuches and overweight non-Mapuches. However, these findings did not align with the results of the present investigation.

Barrio Mateu (2021) evaluated 170 prepubescent Aymara and non-Aymara children from the commune of Arica and concluded that there were no significant differences in body weight between the two ethnic groups, although there was an increase in body weight in Aymara children compared to non-Aymaras. However, these results were not statistically significant, which aligns with the results presented in the present investigation.



n	Somatotype	Coordinates	
	Name	x	y
1	4-year-old non-aymara girls	-2.3	7.4
2	5-year-old non-aymara girls	-3.0	6.3
3	6-year-old non-aymara girls	-2.5	5.1
4	7-year-old non-aymara girls	-1.0	2.6
5	8-year-old non-aymara girls	-5.2	5.5
6	9-year-old non-aymara girls	-5.4	0.1
7	10-year-old non-aymara girls	-4.1	0.4

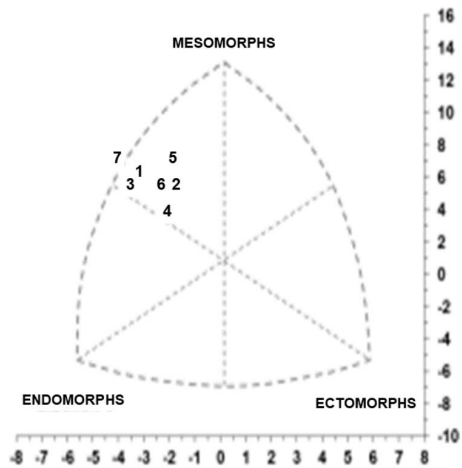


n	Somatotype	Coordinates	
	Name	x	y
1	4-year-old aymara girls	-2.0	7.8
2	5-year-old aymara girls	-2.3	6.4
3	6-year-old aymara girls	-1.9	4.9
4	7-year-old aymara girls	-3.2	4.4
5	8-year-old aymara girls	-5.7	3.8
6	9-year-old aymara girls	-4.7	-0.5
7	10-year-old aymara girls	-6.2	1.5

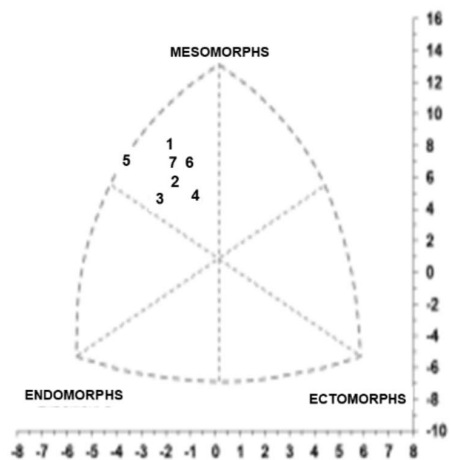
Fig. 3. Somatocarta Aymaras and non-Aymaras girls.

Table VIII. Percentage of body fat (% fat) of children according to sex and age in Aymara and non-Aymara.

Sex	Age	Ethnicity								t-test for equality of means		
		Aymaras			Non-Aymaras					They assume equal variances		
		n	Mean	Standard deviation	Average error	n	Mean	Standard deviation	Average error	t	gl	Sig. (bilateral)
Male	4	10	17,59	5,60	1,77	10	14,02	4,72	1,49	1,53	17,50	0,14
	5	12	15,11	3,70	1,07	11	14,99	4,01	1,21	0,07	20,40	0,94
	6	11	19,36	7,48	2,25	10	17,47	7,42	2,34	0,58	18,83	0,56
	7	14	17,96	6,13	1,63	20	14,20	5,95	1,33	1,78	27,58	0,08
	8	19	16,71	6,76	1,55	15	20,48	4,94	1,27	-1,87	31,85	0,07
	9	21	18,97	7,30	1,59	9	15,28	7,64	2,54	1,22	14,59	0,23
Female	10	15	22,36	8,24	2,12	23	18,96	7,91	1,65	1,26	29,18	0,21
	4	14	14,14	5,30	1,41	23	15,80	7,82	1,63	-0,76	34,49	0,44
	5	20	15,78	6,01	1,34	13	19,20	5,50	1,52	-1,68	27,40	0,10
	6	12	16,43	5,40	1,56	21	19,06	6,39	1,39	-1,25	26,34	0,22
	7	21	20,67	8,44	1,84	16	16,63	6,17	1,54	1,67	34,96	0,10
	8	15	28,47	5,63	1,45	13	27,97	4,71	1,30	0,25	25,97	0,80
	9	23	27,13	6,09	1,27	21	28,50	7,17	1,56	-0,67	39,44	0,50
	10	20	30,01	5,64	1,26	26	26,12	5,63	1,10	2,31	40,99	0,02



Somatotype		Coordinates	
n	Name	x	y
1	4-year-old non-aymara boys	-3.3	6.5
2	5-year-old non-aymara boys	-1.9	6.0
3	6-year-old non-aymara boys	-3.6	5.9
4	7-year-old non-aymara boys	-2.2	4.0
5	8-year-old non-aymara boys	-1.9	6.3
6	9-year-old non-aymara boys	-2.3	5.3
7	10-year-old non-aymara boys	-4.1	7.1



Somatotype		Coordinates	
n	Name	x	y
1	4-year-old aymara boys	-1.7	6.7
2	5-year-old aymara boys	-1.7	6.0
3	6-year-old aymara boys	-2.4	4.7
4	7-year-old aymara boys	-0.8	4.6
5	8-year-old aymara boys	-3.7	7.0
6	9-year-old aymara boys	-1.4	6.7
7	10-year-old aymara boys	-2.3	5.0

Fig. 4. Somatocarta Aymaras and non-Aymaras boys.

Avella Chaparro *et al.* (2014) conducted a study in children from the community of Macedonia in the department of Amazonas, Colombia, analyzing populations of different Amazonian ethnic groups, including Ticunas, Yaguas, Cocamas, and Mestizos. The study included 47 boys, girls, and adolescents, as well as 23 men and 24 women between 7 and 17 years of age. One of the main findings was the heights of primary school girls, with mean values of 135.69 ± 5.43 cm and 132.38 ± 7.04 cm in boys. Although the study did not provide detailed results of height by age, only the average for primary school children, it coincided with the mean height observed in the current investigation.

Hernandez-Vásquez *et al.* (2016) analyzed 2,336,791 children under five years of age in Peru, finding a prevalence of obesity in these age groups. In contrast, Fradkin *et al.* (2018) verified greater obesity and

overweight in students aged 10 to 13 years in three geographical regions of Brazil, which aligns with the results of the present research. Sánchez *et al.* (2017) also reported a high prevalence of obese children from an early age and showed a significant presence of greater obesity in girls than in boys aged 5 to 6 years, which corresponds with the results found in the present study. Oliván (Oliván Gonzalvo, 2018) analyzed the prevalence of overweight and obesity in 274 immigrant adolescents in Aragon and found that girls were classified as more overweight and obese than boys, which aligns with the results of the current study, despite being different age groups.

Furthermore, Shamah-Levy *et al.* (2018) conducted a nationally representative survey of a population under 20 years of age in Mexico, reporting that the prevalence of overweight and obesity in adolescent women in rural areas showed a significant increase in a short period of

time, while in men, this behavior was lower, which aligns with the findings of the present investigation.

Regarding specific variables, Lagos-Hernández *et al.* (2021) found no statistically significant differences in the BMI variable between Mapuches and non-Mapuches, except in 10-year-old children, where Mapuches had lower values than non-Mapuches. Martínez *et al.* (2018) compared different methods of calculating the percentage of body fat (% BF) by anthropometry and bioimpedance in a juvenile population of Jujuy, evaluating 232 schoolchildren. They showed average results in girls of 21.8 % GC, like non-Aymara girls from Arica (21.89 %). Jijeños men presented 12.2 % GC. In both studies, different methodologies were utilized, and therefore, comparisons should not be made.

Regarding somatotype, Lagos-Hernández *et al.* (2021) evaluated 122 Mapuche children and 146 non-Mapuche children aged between 10 and 13 years from municipal schools in the city of Temuco. They concluded that both Mapuche and non-Mapuche children presented an endo-mesomorphic somatotype at the age of 10, which is like the findings of the present study.

CONCLUSION

Based on a comparative analysis of the nutritional status, particularly from an anthropometric standpoint, among Aymara and non-Aymara children aged 4 to 10 in the city of Arica, this study concludes that there were no statistically significant differences between the two groups (p -value >0.05). This implies that both groups had similar rates of obesity and overweight, with several age groups exceeding the P95 percentile. Regarding body composition, the study found increases in body weight, % fat mass, and body mass index in both groups, with higher values observed among Aymaras. However, these differences were not statistically significant. The somatotype analysis classified all the boys in both groups as mesomorphic, while all the girls were classified as meso-endomorphic, indicating a greater presence of adipose tissue that is proportional to age.

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RESUMEN: Este estudio tiene como objetivo evaluar el estado nutricional de los niños Aymaras y no Aymaras en Arica, comparando las medidas antropométricas de niños y niñas de 4 a 10 años para informar las intervenciones para la salud y el desarrollo infantil. Realizamos un estudio no experimental, cuantitativo, de corte transversal en Arica, Chile. La muestra incluyó a 458 niños, con igual representación de niños Aymaras y no Aymaras de diversos estratos socioeconómicos. Asistentes de investigación capacitados recolectaron datos antropométricos utilizando técnicas estandarizadas. Se utilizó el software estadístico IBM SPSS para el análisis de datos, incluyendo la prueba t de Student y la prueba de Levene. Tanto los niños Aymaras como los no Aymaras presentaron una alta prevalencia de sobrepeso y obesidad. Los niños tenían un somatotipo meso-endomorfo, mientras que las niñas tenían un somatotipo endomorfo. Entre los niños de 8 años, los niños no Aymaras tenían un peso corporal medio ligeramente superior (35,87, DE 4,50) en comparación con los niños Aymaras (32,27, DE 4,31), pero la diferencia no fue estadísticamente significativa ($p>0,05$). Sin embargo, las niñas Aymaras de 10 años tenían un índice de masa corporal medio significativamente mayor (22,34, SD 4,21) que las niñas no Aymaras (20,10, SD 3,58) ($p=0,05$). En cuanto al porcentaje de grasa corporal, las niñas no Aymaras de 10 años tuvieron una media ligeramente superior (31,01, DE 5,64) que las niñas Aymaras (26,12, DE 5,63), pero la diferencia no fue estadísticamente significativa ($p>0,05$). El estudio encontró altos niveles de sobrepeso y obesidad en niños del norte de Chile, aumentando con la edad tanto para los grupos Aymaras como para los no Aymaras. Los patrones de somatotipo fueron consistentes en ambos grupos. Aunque las diferencias entre los niños Aymaras y no Aymaras no fueron estadísticamente significativas, el grupo Aymara mostró niveles ligeramente más altos de sobrepeso y obesidad. Se necesita más investigación con un tamaño de muestra más grande para confirmar estos resultados e identificar tendencias potenciales. Los esfuerzos deben centrarse en promover una nutrición saludable y la actividad física para abordar el creciente problema del sobrepeso y la obesidad en esta región.

PALABRAS CLAVE: Composición corporal; Etnicidad; Niños; Obesidad; Exceso de peso; Somatotipo; Norte de Chile; Aymara; Antropometría.

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