Research Square

Preprints are preliminary reports that have not undergone peer review.
They should not be considered conclusive, used to inform clinical practice,
or referenced by the media as validated information.

Demographic and Functional Characterization of Individuals Engaging in Physical Activity at Gyms: Who Exercises and Who Needs It Most?

Cristian Alejandro Benitez

alebenitez3@gmail.com

Hospital Posadas

Adrian Dosil Gomez

Research Article

Keywords: physical activity, exercise, gym, chronic disease, functional capacity, HAQ-DI, exercise prescription, public health, cross-sectional study, Argentina

Posted Date: June 2nd, 2026

DOI: https://doi.org/10.21203/rs.3.rs-9695078/v1

License: This work is licensed under a Creative Commons Attribution 4.0 International License.
Read Full License

Additional Declarations: No competing interests reported.

Abstract

Background

Physical inactivity is one of the leading modifiable risk factors for non-communicable disease burden globally. Commercial gyms represent accessible settings for structured physical activity; however, little is known about the health profile of their attendees or whether individuals with the greatest clinical need for exercise effectively engage in supervised, adequate physical activity. This study aimed to characterize gym attendees by sociodemographic profile, health status, and self-reported functional capacity and to assess whether those with the highest clinical need for structured exercise are those who most effectively engage in it.

Methods

Observational, descriptive, cross-sectional study conducted via a self-administered digital questionnaire among adults aged ≥ 16 years attending commercial or community gyms in Greater Buenos Aires, Argentina (April 2026). Sociodemographic variables, chronic disease history, type and frequency of physical activity, technical supervision, primary motivation for training, and self-reported functional capacity (simplified Health Assessment Questionnaire Disability Index, HAQ-DI) were collected. Participants were classified into high clinical need (presence of ≥ 1 medical comorbidity and/or age ≥ 65 years) and low clinical need groups. Descriptive statistics and between-group comparisons (chi-square, Mann-Whitney U) were performed using Jamovi v2.x and Python (pandas/scipy).

Results

A total of 205 participants were analyzed (mean age 43.0 ± 14.9 years; 72.4% female). Sixty-eight percent reported no chronic disease; 23.5% reported chronic musculoskeletal pain. High clinical need was identified in 74 participants (36.1%). Compared to the low-need group, high-need participants trained less frequently (occasional training: 18.8% vs. 4.6%); they p = 0.002), more frequently chose low-impact modalities such as yoga/Pilates/flexibility (26.1% vs. 8.4%). p = 0.005), more often trained without any technical supervision (18.6% vs. 8.4%; p = 0.014), and more rarely cited medical prescription as their primary motivation (8.6% vs. 1.5%; p = 0.042). Supervision by a physiotherapist or health specialist was virtually absent in both groups (≤ 4.3%). The mean global HAQ-DI score was 0.049 ± 0.105; grip was the most affected functional domain (12.6% with any difficulty).

Conclusions

Despite accessing the same gym facilities as the general population, individuals with the highest clinical need for structured physical activity trained less frequently, at lower intensity, and with minimal

specialized supervision. Gym attendance does not guarantee an exercise dose or quality adequate to clinical needs. There is an urgent need for systematic exercise prescription by healthcare professionals and for stronger linkages between health services and community exercise facilities, particularly for individuals with chronic comorbidities.

Background

Physical inactivity is recognized as one of the leading modifiable risk factors for global mortality, accounting for approximately 6% of deaths worldwide, and is a major driver of non-communicable disease burden including cardiovascular disease, type 2 diabetes mellitus, and musculoskeletal conditions [1, 2]. Despite broad public health consensus and international guidelines recommending at least 150 to 300 minutes of moderate-intensity aerobic activity per week for adults, population-level adherence remains insufficient [1]. In Argentina, national surveys indicate that more than 60% of the adult population is physically inactive [18].

Commercial and community gyms represent one of the most accessible settings for structured physical activity for the general population. Yet, there is limited published evidence on the health profile, functional capacity, and exercise patterns of gym attendees, or on whether the individuals who most need supervised, adequate exercise are those who effectively access it. Identifying this distribution is essential for informing referral strategies, public health communication, and exercise prescription policies [11, 12].

Exercise has been shown to function as an effective therapeutic intervention in at least 26 chronic conditions, including type 2 diabetes mellitus, arterial hypertension, dyslipidemia, depression, chronic obstructive pulmonary disease, and musculoskeletal disorders [3, 6]. Warburton and Bredin documented significant reductions in all-cause mortality risk and in the incidence of cardiovascular and metabolic diseases associated with regular physical activity [4]. Clinical guidelines — including those of the European League Against Rheumatism (EULAR) [5] and the American College of Sports Medicine (ACSM) [16] — explicitly recommend that exercise in individuals with chronic conditions be prescribed and supervised by healthcare professionals, specifying frequency, intensity, modality, and progression.

Despite this evidence, a frequently observed paradox in clinical practice is that patients with the greatest functional impairment and the highest objective need for physical activity are, in many cases, those who least access structured exercise settings [9]. Barriers include pain, fatigue, low health literacy regarding exercise safety in the context of active disease, low socioeconomic status, and the absence of systematic referral from healthcare teams [10].

A key public health question that has received little attention is whether, among individuals who do access gym facilities, those with the greatest clinical need for exercise actually receive an adequate dose and quality of physical activity—or whether a gap exists between physical access to exercise settings and the therapeutic adequacy of the exercise performed. Characterizing this gap is the central aim of the present study.

We conducted a descriptive cross-sectional study to characterize gym attendees in the Greater Buenos Aires area in terms of their sociodemographic profile, chronic health conditions, exercise patterns, technical supervision, and self-reported functional capacity, with specific focus on the comparison between individuals with high versus low clinical need for structured physical activity.

Methods

Study design and setting

Observational, descriptive, cross-sectional study based on a self-administered digital questionnaire distributed via Google Forms. Data collection was conducted over approximately 60 calendar days following ethics approval (April 2026). Recruitment was carried out at commercial and community gym facilities in the Greater Buenos Aires (GBA) metropolitan area, Argentina, with optional digital extension (QR code and web link) to allow participation from other regions. Clinical trial number: not applicable

Study population

The target population comprised individuals aged 16 years or older attending commercial or community gym facilities. Inclusion required current gym attendance at least once per week (or at least once in the preceding 30 days), written comprehension of Spanish, and explicit provision of informed consent at the beginning of the online form. Forms with less than 70% of questions answered were excluded as incomplete. In the case of duplicate records from the same participant, the first submission in chronological order was retained, identified through internal consistency analysis of responses.

Operational definitions

Chronic pain

self-reported pain lasting more than 3 months.

Resistance/strength training

structured exercise aimed at increasing or maintaining muscular strength and mass, using free weights, resistance machines, or bodyweight, with progressive overload as the guiding principle.

Functional training / CrossFit

high-intensity training modalities combining multi-joint compound movements drawn from weightlifting, gymnastics, and aerobic exercise, performed at variable intensity and often in a group or circuit format.

High clinical need for structured physical activity

defined operationally as the presence of at least one physician-diagnosed medical comorbidity and/or age ≥ 65 years, based on established criteria for populations at elevated risk for physical inactivity-related adverse outcomes [3, 16].

Gym

private or community-based fitness facility with voluntary enrollment, offering supervised or unsupervised access to exercise equipment or group classes.

Sufficient physical activity

as per WHO recommendations, a minimum of 150 to 300 minutes per week of moderate-intensity aerobic activity for adults [1].

Data collection instrument

A self-administered anonymous digital questionnaire designed ad hoc for this study collected data across five domains: (1) sociodemographic characteristics (age, sex, educational level, occupation, area of residence); (2) health history (chronic diseases, osteoarticular conditions, cardiovascular risk factors, regular medications); (3) physical activity profile (type, weekly frequency, duration, perceived intensity, years of practice, technical supervision); (4) self-reported functional capacity; and (5) motivations and barriers for training. The questionnaire was administered in compliance with Argentine National Law No. 25,326 on Personal Data Protection [14] .

Functional capacity — HAQ-DI

Functional capacity was assessed using a simplified version of the Health Assessment Questionnaire Disability Index (HAQ-DI), a validated, widely used self-reported measure of functional limitation across eight domains: dressing and grooming, rising, eating, walking, personal hygiene, reaching, grip, and errands and chores [20]. While originally developed for clinical use in rheumatic diseases, the HAQ-DI has been validated and applied in general population samples as a sensitive measure of subtle functional limitations not detected by less structured instruments [20]. Its use in this study was justified by: (a) its documented sensitivity to mild functional impairment in physically active populations; (b) its relevance to the detection of grip and upper limb limitations common in individuals with undiagnosed or subclinical musculoskeletal conditions attending gyms; and (c) its brevity and ease of self-administration. Scores range from 0 (no difficulty) to 3 (unable to do), with a global score calculated as the mean of the highest score in each category. Mild disability was defined as HAQ-DI 0.01–1.00.

Sample size

Given the descriptive nature of the study, a convenience sample of at least 200 participants was targeted. This size permits estimation of prevalences in the range of 20–30% with a 95% confidence interval and a margin of error of 6%.

Statistical analysis

Descriptive statistics were performed. Continuous variables were expressed as mean ± standard deviation (SD) or median with interquartile range (IQR) according to distribution, assessed using the Shapiro-Wilk test. Categorical variables were presented as absolute frequencies and proportions with 95% confidence intervals. Between-group comparisons used Pearson's chi-square or Fisher's exact test for categorical variables, and Mann-Whitney U or Kruskal-Wallis tests for ordinal/continuous variables, with a significance threshold of $p < 0.05$. All analyses were performed using Jamovi version 2.x (The Jamovi project, 2023) [15] and Python 3.x (pandas, scipy.stats).

Ethical considerations

The study was conducted in accordance with the ethical principles of the World Medical Association Declaration of Helsinki [13]. Participation was voluntary and anonymous. The questionnaire collected no direct identifiers (name, national ID, or exact address). The protocol was submitted to the Research Ethics Committee (REC) of Hospital Nacional Profesor Alejandro Posadas for review and approval prior to data collection. Human ethics and consent to participate declarations: not applicable.

Results

A total of 206 responses were collected during the survey period. Following exclusion of one form submitted without informed consent, 205 participants were included in the analysis.

Objective 1 — Sociodemographic characterization

Table 1 summarizes the main sociodemographic characteristics. The mean age was 43.0 ± 14.9 years (range: 16–82; median: 40 years, IQR 32–54). A total of 72.4% identified as female. The majority resided in Greater Buenos Aires South (82.8%). A total of 71.1% had tertiary or higher educational attainment. The most frequent occupation was salaried employment (55.4%).

Table 1
Sociodemographic characteristics of the sample (n = 205)

Variable	n	%
AGE (years) — Mean 43.0 ± 14.9	Median 40 (IQR 32–54)	—
Range (min–max): 16–82	—	—
SEX		
Female	147	72.4%
Male	56	27.6%
AREA OF RESIDENCE		
Greater Buenos Aires South	168	82.8%
Interior of the country	15	7.4%
Autonomous City of Buenos Aires	10	4.9%
Greater Buenos Aires West	6	3.0%
Greater Buenos Aires North	4	2.0%
EDUCATIONAL LEVEL		
Tertiary / University (in progress)	72	35.3%
University degree (completed)	48	23.5%
Secondary school	58	28.4%
Postgraduate	25	12.3%
Primary school	1	0.5%
PRIMARY OCCUPATION		
Salaried employee	113	55.4%
Self-employed / Freelancer	39	19.1%
Retired / Pensioner	35	17.1%
Student	12	5.9%
Unemployed	5	2.5%

IQR: interquartile range.

Objective 2 — Health profile and comorbidities

A total of 68.6% of respondents (n = 140) reported no chronic diseases. Among those with comorbidities, the most frequent conditions were endocrine diseases (7.4% in isolation), cardiovascular

diseases (4.4%), and rheumatic diseases (2.5%). Chronic musculoskeletal pain (> 3 months) was reported by 23.5% (48/204). Among those reporting pain (n = 49), 49.0% rated intensity ≥ 5/10, indicating a moderate to significant pain burden. A total of 59.6% were not taking regular pain medication; 29.8% used NSAIDs regularly (Table 2).

Table 2
Health profile: chronic pain and regular treatment

Variable	**n**	**%**
CHRONIC JOINT/MUSCULAR PAIN (> 3 months; n = 204)		
No	156	76.5%
Yes	48	23.5%
CURRENT PAIN INTENSITY (among those reporting pain; n = 49)		
Mean ± SD: 4.33 ± 2.13	—	—
Median (IQR): 4 (3–6)	—	—
Range (min–max): 0–8	—	—
REGULAR PAIN MEDICATION (n = 47)		
No chronic pain medication	28	59.6%
Analgesics / NSAIDs	14	29.8%
Other	5	10.6%

NSAIDs: non-steroidal anti-inflammatory drugs. SD: standard deviation. IQR: interquartile range.

Objective 3 — Type, frequency, and intensity of physical activity

Physical activity characteristics were assessed in 200 participants (Table 3). A total of 86.9% trained at least twice per week. Resistance/strength training was the most prevalent modality (42.0%), followed by functional training or CrossFit (23.9%). A total of 59.4% had been practicing for more than 3 years. Supervision by a physiotherapist or health specialist was reported in only 1.5% of cases.

Table 3
Characteristics of physical activity practice (n = 200–205)

Variable	n	%
TRAINING FREQUENCY (n = 200)		
Occasional (1 session/week)	19	9.3%
Regular (2–3 sessions/week)	125	61.0%
Intensive (4–6 sessions/week)	53	25.9%
Athlete (daily / twice daily)	3	1.5%
PREDOMINANT TRAINING MODALITY (n = 200)		
Resistance / Conventional strength training	86	42.0%
Functional training / CrossFit	49	23.9%
Cardio (running, cycling, elliptical trainer)	33	16.1%
Yoga / Pilates / Flexibility	29	14.1%
Combat sports / Boxing	3	1.5%
DURATION OF PRACTICE (n = 128)		
Less than 1 year	28	21.9%
Between 1 and 3 years	24	18.8%
More than 3 years	76	59.4%
TECHNICAL SUPERVISION (n = 201)		
Gym floor instructor / Coach	162	79.0%
Trains independently	24	11.7%
Private personal trainer	12	5.9%
Physiotherapist / Health specialist	3	1.5%

Objective 4 — Self-reported functional capacity (Simplified HAQ-DI)

The mean global HAQ-DI score was 0.049 ± 0.105 (median 0.000; range 0–0.750). A total of 76.4% (n = 155) reported no functional difficulty. The remaining 23.6% (n = 48) exhibited mild disability (HAQ-DI 0.01–1.00). No cases of moderate or severe disability were recorded. Participants with chronic pain showed a higher mean HAQ-DI score than those without (0.083 ± 0.157 vs. 0.039 ± 0.082; Mann-Whitney p = 0.084). The grip domain (opening jars) was the most frequently affected (12.6%), followed by reaching overhead objects (7.0%) and errands/stair climbing (6.4%) (Table 4).

Table 4
Simplified HAQ-DI: proportion with any degree of difficulty by domain

Domain	No difficulty n (%)	Any difficulty n (%)	% with difficulty
Grip (opening jars)	174 (87.4%)	25 (12.6%)	12.6%
Reaching (high shelves)	187 (93.0%)	14 (7.0%)	7.0%
Errands and stair climbing	189 (93.6%)	13 (6.4%)	6.4%
Rising (from chair / bed)	194 (96.0%)	8 (4.0%)	4.0%
Walking on level ground	194 (96.5%)	7 (3.5%)	3.5%
Dressing and grooming	196 (97.0%)	6 (3.0%)	3.0%
Personal hygiene	199 (98.5%)	3 (1.5%)	1.5%
Eating (cutting meat, opening containers)	199 (99.5%)	1 (0.5%)	0.5%
GLOBAL HAQ-DI SCORE (n = 203)	Mean 0.049 ± 0.105	Median 0.000	Range 0–0.75

HAQ-DI: Health Assessment Questionnaire Disability Index. Any response above "No difficulty" (levels 1–3) is included. Percentage calculated over total valid respondents per item.

Objective 5 — Clinical need for physical activity and practice characteristics

Under the high clinical need criterion, 74 participants (36.1%) were classified in the high-need group and 131 (63.9%) in the low-need group. High-need participants differed significantly from the low-need group across four key dimensions (Table 5):

- Training frequency: The proportion of occasional training (once per week) was four times higher in the high-need group (18.8% vs. 4.6%; p = 0.002); intensive training (≥ 4 sessions/week) was significantly more common in the low-need group (31.3% vs. 17.4%).
- Training modality: Yoga, Pilates, and flexibility activities were more frequently chosen by the high-need group (26.1% vs. 8.4%; p = 0.005), while functional training or CrossFit was less common (15.9% vs. 29.0%).
- Technical supervision: A higher proportion of the high-need group trained without any supervision (18.6% vs. 8.4%; p = 0.014). Supervision by a health professional was virtually absent in both groups (≤ 4.3%).
- Primary motivation: Medical prescription was cited as the main reason for training by only 8.6% of the high-need group vs. 1.5% of the low-need group (p = 0.042), and remained a minority motivation in absolute terms.

Table 5
Comparative analysis by group of clinical need for structured physical activity

Variable	High need (n = 74)	Low need (n = 131)	p-value
BASELINE CHARACTERISTICS			
Age (years), mean ± SD	51.8 ± 16.6	37.9 ± 10.8	< 0.001
Female sex, n (%)	60 (83.3%)	86 (66.2%)	0.014
Chronic pain, n (%)	23 (31.9%)	25 (19.1%)	0.059
HAQ-DI, mean ± SD	0.087 ± 0.142	0.028 ± 0.071	0.0001
HAQ-DI > 0 (any limitation), n (%)	28 (38.9%)	20 (15.3%)	< 0.001
TRAINING FREQUENCY			0.002
Occasional (1×/week)	13 (18.8%)	6 (4.6%)	
Regular (2–3×/week)	44 (63.8%)	81 (61.8%)	
Intensive (4–6×/week)	12 (17.4%)	41 (31.3%)	
Athlete (daily / twice daily)	0 (0.0%)	3 (2.3%)	
TRAINING MODALITY			0.005
Resistance / Strength training	30 (43.5%)	56 (42.7%)	
Functional / CrossFit	11 (15.9%)	38 (29.0%)	
Cardio	10 (14.5%)	23 (17.6%)	
Yoga / Pilates / Flexibility	18 (26.1%)	11 (8.4%)	
Combat sports / Boxing	0 (0.0%)	3 (2.3%)	
TECHNICAL SUPERVISION			0.014
Gym floor instructor / Coach	50 (71.4%)	112 (85.5%)	
Trains independently	13 (18.6%)	11 (8.4%)	
Personal trainer	4 (5.7%)	8 (6.1%)	
Physiotherapist / Health specialist	3 (4.3%)	0 (0.0%)	
PRIMARY MOTIVATION			0.042
Physical health (mobility / pain)	44 (62.9%)	72 (55.0%)	
Mental health / Stress relief	9 (12.9%)	28 (21.4%)	
Aesthetics / Body composition	7 (10.0%)	13 (9.9%)	
Athletic performance	4 (5.7%)	16 (12.2%)	

Variable	High need (n = 74)	Low need (n = 131)	p-value
Medical prescription	6 (8.6%)	2 (1.5%)	

p-values: Pearson's chi-square for categorical variables; Mann-Whitney U for continuous variables. High need: ≥1 comorbidity and/or age ≥ 65 years. SD: standard deviation.

Discussion

This cross-sectional study examined whether the individuals with the greatest clinical need for structured physical activity are those who effectively access and engage in it at community gym facilities — a question with direct implications for public health policy, exercise prescription practice, and the design of community-based health promotion interventions.

The central finding is that more than one third of gym attendees (36.1%) met criteria for high clinical need for structured physical activity based on the presence of a medical comorbidity and/or age ≥ 65 years. Despite accessing the same gym facilities as their peers, these individuals trained significantly less frequently, chose lower-intensity modalities, exercised with less technical guidance, and rarely received formal medical referral for exercise. These differences were statistically significant across four key dimensions: training frequency ($p = 0.002$), training modality ($p = 0.005$), technical supervision ($p = 0.014$), and primary motivation ($p = 0.042$).

The sample was predominantly female (72.4%), with a mean age of 43 years and a high educational level (71.1% with tertiary or higher education). This sociodemographic profile is consistent with that reported in previous studies on commercial gym attendees in middle-to-high income countries, where access to private physical activity settings is associated with higher socioeconomic and educational status [16]. The female predominance in the high-need group (83.3%) may reflect both a greater health awareness and higher prevalence of chronic conditions — particularly endocrine and musculoskeletal diseases — in this demographic.

One third of participants reported at least one medical comorbidity, and nearly one in four reported chronic musculoskeletal pain. These figures are relevant in the context of a population that, by definition, already accesses exercise settings. Physical inactivity affects more than 60% of Argentine adults [18] and is independently associated with increased risk of cardiovascular, metabolic, and musculoskeletal diseases [3]. The observation that a substantial proportion of gym attendees carry chronic conditions reinforces the public health importance of ensuring that the exercise being performed is not only regular but therapeutically appropriate.

The high-need group trained less frequently and at lower intensity than those without comorbidities. The proportion of occasional training (once per week) was four times higher in the high-need group (18.8% vs. 4.6%), a level clearly insufficient to meet the WHO minimum of 150 minutes of moderate-intensity activity per week [1]. These patterns are consistent with systematic reviews documenting that pain,

fatigue, and fear of injury are the principal behavioral determinants of lower physical activity doses in individuals with chronic musculoskeletal conditions [9, 10, 17].

The differential choice of exercise modality is also noteworthy. High-need participants more frequently chose yoga, Pilates, and flexibility activities (26.1% vs. 8.4%), and less frequently selected functional training or CrossFit (15.9% vs. 29.0%). This likely reflects a spontaneous, self-managed adaptation toward modalities perceived as gentler or safer. While yoga and Pilates confer documented benefits for flexibility and psychological well-being [19], aerobic exercise and progressive resistance training remain the modalities with the strongest evidence for managing chronic pain [7, 8], improving functional capacity, and reducing cardiovascular risk in chronic disease [4]. Choosing low-impact modalities exclusively may not be sufficient to meet therapeutic exercise goals in individuals with high comorbidity burden.

Perhaps the most relevant public health finding is the near-total absence of supervision by health professionals in both groups. Only 4.3% of the high-need group and 0.0% of the low-need group were supervised by a physiotherapist or health specialist. More than one in six high-need participants (18.6%) trained without any guidance whatsoever. International guidelines for physical activity in chronic conditions consistently recommend that exercise be professionally prescribed and supervised [5, 16]. The gap between these recommendations and observed practice points to a systemic failure in the articulation between the healthcare system and community exercise settings. This finding aligns with the broader evidence base identifying lack of professional referral and insufficient integration between health services and community exercise facilities as key structural barriers to adequate exercise adoption [10, 12].

Medical prescription as the primary motivation for training was cited by only 8.6% of high-need participants. In a context where exercise has demonstrated therapeutic benefits in at least 26 chronic conditions [3], this low rate of formal prescription reflects a well-documented clinical paradox: exercise is among the interventions with the highest level of evidence and among the lowest rates of formal prescription in daily practice [12]. Integrating structured exercise prescription into clinical consultations — specifying modality, frequency, intensity, and supervision — remains an unmet priority in primary care and specialist settings alike.

The HAQ-DI results support the clinical relevance of the high-need group's profile: 38.9% of high-need participants presented some functional limitation (HAQ-DI > 0), compared with 15.3% of low-need participants ($p < 0.001$). The grip domain was most affected (12.6%), followed by reaching and stair climbing. Functional limitations in an active population suggest that current exercise practice does not specifically target the deficits present, further reinforcing the need for individualized functional assessment and tailored prescription.

Several limitations merit consideration. The cross-sectional design precludes causal inference. The convenience sample from GBA South limits geographic generalizability. All variables were self-reported, introducing potential social desirability and recall bias. The "duration of practice" variable had a high rate

of missing data (37.6%), limiting conclusions from that dimension. The high clinical need criterion (comorbidity and/or age ≥ 65) is an operational proxy that may not capture all individuals who would benefit from supervised exercise, and does not incorporate disease activity or severity.

Conclusions

In a sample of 205 gym attendees in the Greater Buenos Aires area, more than one third presented a high clinical need for structured physical activity. Despite accessing the same gym facilities as the general public, this group trained less frequently, chose lower-impact modalities, and received minimal supervision from health professionals. Gym attendance does not guarantee an exercise dose or quality adequate to the individual's clinical condition.

These findings carry concrete implications for public health practice. Healthcare professionals — particularly primary care physicians, internists, and rheumatologists — should systematically incorporate exercise prescription as a component of the therapeutic plan for patients with chronic diseases, specifying type, frequency, intensity, and recommended supervision. Community gym facilities have the potential to serve as strategic partners for health promotion, contingent on integration with healthcare systems through physiotherapy referral networks and condition-specific supervised exercise programs. Longitudinal studies are needed to determine whether optimized exercise prescription and supervision in this population translates into improvements in functional outcomes, pain burden, and healthcare resource utilization.

The paradox identified in this study — that those who most need supervised therapeutic exercise are precisely those who least receive it in a structured, adequate form — represents an actionable public health gap. Closing it requires coordinated effort between healthcare systems, community exercise settings, and health policy.

Abbreviations

ACSM
American College of Sports Medicine
APC
article processing charge
CI
confidence interval
EULAR
European League Against Rheumatism
GBA
Greater Buenos Aires
HAQ-DI
Health Assessment Questionnaire Disability Index

IQR
interquartile range
NSAIDs
non-steroidal anti-inflammatory drugs
OA
osteoarthritis
PA
physical activity
RA
rheumatoid arthritis
REC
Research Ethics Committee
SD
standard deviation
STROBE
Strengthening the Reporting of Observational Studies in Epidemiology
WHO
World Health Organization.

Declarations

Ethics approval and consent to participate

The study was conducted in accordance with the ethical principles of the World Medical Association Declaration of Helsinki. The protocol was submitted for review and approval by the Research Ethics Committee (REC) of Hospital Nacional Profesor Alejandro Posadas prior to data collection. Informed consent was obtained electronically from all participants at the beginning of the questionnaire. No identifying data were collected.

Consent for publication

Not applicable. The manuscript contains no individual personal data.

Availability of data and materials

The dataset supporting the conclusions of this article is included within the article and its additional files. The anonymized dataset will be made available upon reasonable request to the corresponding author.

Competing interests

The authors declare that they have no competing interests.

Funding

This study received no specific funding from any public, commercial, or not-for-profit funding agencies.

Acknowledgements

The authors thank the gym staff and participants who contributed their time to this study.

Use of artificial intelligence tools

An artificial intelligence language model (Claude, Anthropic) was used to assist with the translation of the manuscript from Spanish into English and with the editing of the English-language text for clarity and academic style. All scientific content, data, analyses, interpretations, and conclusions are the sole responsibility of the authors. The authors reviewed and approved the final version of the manuscript and take full responsibility for its accuracy and integrity.

References

1. World Health Organization. WHO guidelines on physical activity and sedentary behaviour. Geneva: WHO; 2020.
2. Lee IM, Shiroma EJ, Lobelo F, et al. Effect of physical inactivity on major non-communicable diseases worldwide. Lancet. 2012;380(9838):219–29.
3. Pedersen BK, Saltin B. Exercise as medicine — evidence for prescribing exercise as therapy in 26 different chronic diseases. Scand J Med Sci Sports. 2015;25(Suppl 3):1–72.
4. Warburton DER, Bredin SSD. Health benefits of physical activity: a systematic review of current systematic reviews. Curr Opin Cardiol. 2017;32(5):541–56.
5. Rausch Osthoff AK, Niedermann K, Braun J, et al. 2018 EULAR recommendations for physical activity in people with inflammatory arthritis and osteoporosis. Ann Rheum Dis. 2018;77(9):1251–60.
6. Cooney GM, Dwan K, Greig CA et al. Exercise for depression. Cochrane Database Syst Rev. 2013; (9):CD004366.
7. Häuser W, Klose P, Langhorst J, et al. Efficacy of different types of aerobic exercise in fibromyalgia syndrome. Arthritis Res Ther. 2010;12(3):R79.

8. Geneen LJ, Moore RA, Clarke C, et al. Physical activity and exercise for chronic pain in adults. Cochrane Database Syst Rev. 2017;4(4):CD011279.
9. Linde LD, Reneman MF, Kerst AJM, et al. Barriers and facilitators to exercise participation in people with musculoskeletal conditions. Arthritis Care Res. 2022;74(10):1667–80.
10. van Veldhuijzen JJCS, Rouse PC, Hale ED, et al. Perceived barriers, facilitators and benefits for regular physical activity and exercise in patients with rheumatoid arthritis. Sports Med. 2015;45(10):1401–12.
11. Schoenfeld BJ, Fisher JP, Vigotsky AD, et al. Muscle fiber hypertrophy and strength adaptations: considerations for gym-based populations. J Strength Cond Res. 2021;35(Suppl 1):S1–10.
12. Booth FW, Roberts CK, Laye MJ. Lack of exercise is a major cause of chronic diseases. Compr Physiol. 2012;2(2):1143–211.
13. World Medical Association. WMA Declaration of Helsinki. JAMA. 2013;310(20):2191–4.
14. National Law No. 25,326 — Personal Data Protection. Argentine National Congress; 2000.
15. The jamovi project. jamovi (version 2.3). Open-source statistical software. 2023. Available at: https://www.jamovi.org
16. Chodzko-Zajko WJ, Proctor DN, Fiatarone Singh MA, et al. ACSM position stand: exercise and physical activity for older adults. Med Sci Sports Exerc. 2009;41(7):1510–30.
17. Katz P, Pedro S, Michaud K. Patterns and associations of physical activity and sedentary behavior in patients with rheumatoid arthritis. Arthritis Care Res. 2019;71(9):1224–31.
18. Argentine Ministry of Health. 4th National Survey of Risk Factors. Buenos Aires: Ministry of Health; 2019.
19. Cramer H, Lauche R, Langhorst J, Dobos G. Yoga for rheumatic diseases: a systematic review. Rheumatology (Oxford). 2013;52(11):2025–30.
20. Smolen JS, Aletaha D, McInnes IB. Rheumatoid arthritis. Lancet. 2016;388(10055):2023–38.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- AdditionalFileslegend.docx