

Striving for Global Consensus: A Systematic Review of Social Return on Investment Applied to Physical Activity and Sport

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Background: Physical activity and sport (PAS) have been related to health and social benefits, but their monetary value remains unclear. This systematic review on the social return on investment of PAS aimed to find what are the social *outcomes* measured in previous PAS literature and how are these measured and valued. **Methods:** A systematic search was conducted on WoS, PubMed, and EconLit. Articles in English, measuring the social value of any type of PAS in monetary terms and utilizing a social return on investment framework, were included. Risk of bias was evaluated using the Drummond checklist. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines were followed. **Results:** Fifty-five documents (2010–2022), from all continents except America, were included; only 8 were published in peer-reviewed journals, whereas 47 were reports. Most studies evaluated the benefits of specific programs, and 6 measured the engagement in PAS at the population level based on national or community surveys. The social *outcomes* identified were health (94.5%), crime (50.9%), education (83.6%), subjective well-being (89.1%), social capital (60%), and other (3.6%–23.6%). The valuation methods included willingness to pay, well-being valuation, the cost of an activity that could result in the same outcome, and cost databases associating outcomes with a monetary value. **Conclusions:** This study updates a previous review and widens the scope by answering the question of how social *outcomes* are measured and valued in previous PAS literature. Given the heterogeneity found in the application of the method, this review will inform a Delphi study to reach a Global Consensus Statement on the measurement of social value and PAS.

Keywords: social value, subjective well-being, education, crime,

Key Points

- The Social Return on Investment model is a widely used framework to measure the social value of physical activity and sport.
- Past literature associates physical activity and sport with the social outcomes of health, subjective wellbeing, education, social capital, and crime.
- There is need of a international agreement on the best indicators and valuation methods to evaluate the social value of physical activity and sport.

Physical activity and sport (PAS) have been related to many health and social benefits, such as disease prevention, prosocial behavior, and psychological and cognitive benefits.¹ However, the value of these wide benefits is often overlooked and still needs to be clarified to justify public and private expenditure of resources on these activities.²

Economic evaluations are a useful tool for monitoring and justifying the results of an intervention or program, but until recently, they have focused on measuring economic outcomes such as gross value added (GVA) and employment. This is the case with traditional economic evaluation tools such as cost-effectiveness analysis, cost-utility analysis, and cost-benefit analysis (CBA), in

which social and environmental benefits have often been overshadowed by the need to generate economic results, such as jobs and monetary growth.^{3,4} On the contrary, the social return on investment (SROI) model, developed by the Roberts Enterprise Development Fund in the United States and tested by the New Economics Foundation in the United Kingdom,⁵ emerged to capture a broader concept of value, including financial and nonfinancial outcomes.⁶ Although the cost-effectiveness analysis, cost-utility analysis, and CBA approaches are relevant to set priorities and decide allocation of resources, the SROI adds to these by considering the views of stakeholders and a framework for accountability.⁴ Although it was built upon the CBA,⁷ it is the only one of these methods following a “triple bottom line” approach (social, economic, and environmental) and, therefore, offers a more holistic, comprehensive tool to measure value.^{3,4,8} The model has been used globally by public agencies and third-sector organizations to evaluate their social impact, that is, understand their value to society and justify investment.⁹ However, this increased use has also led to a huge variety of applications given that almost all of these agencies and organizations used their own tools to quantify their social


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impact.⁶ In fact, Tuan's¹⁰ analysis of 8 approaches to evaluate social value creation showed that the Roberts Enterprise Development Fund was the only organization using consistent measures across its entire portfolio of investments.

The SROI Model

A previous review on the SROI applied to PAS¹¹ highlights the benefit of using this approach over traditional economic evaluations to show the contribution of PAS to create value across multiple social domains. However, authors also highlight the need to develop more robust measurement tools and standard methods for valuation. Davies et al¹² used this framework for the first time to measure the impact of sport at the population level in England. The authors used Taylor et al's¹³ systematic review on participation in culture and sport to inform the development of the model and found robust evidence on the positive impact of PAS on health (prevention and treatment of physical and mental conditions), crime (greater prosocial behavior and less antisocial behavior), and education (behavior, attendance, and achievement). However, the evidence was not clear for the domains of subjective well-being and social capital, and, with the exception of health, it was not possible to conclude a causal relationship between sport and these domains due to the methodological limitations of some studies. To date, some other population-level estimates have been calculated in Wales,¹⁴ London,¹⁵ Flanders and Wallonia,¹⁶ and the Netherlands.¹⁷ However, the lack of quality data when evaluating the creation of social value is one of the main concerns together with the lack of common measures.¹⁰

SROI is most commonly used to refer to an approach, guided by a set of principles and standards, developed by Social Value International in consultation with stakeholders across the world.¹⁸ There are 8 principles of social value,¹⁹ which give consistency and transparency to the framework and include (1) involve stakeholders, (2) understand what changes (from stakeholders and relevant literature), (3) value things that matter (to stakeholders), (4) only include what is material (in terms of scale and impact for stakeholders), (5) do not overclaim (eg, when faced with a variety of estimates, select a more conservative one), (6) be transparent (about limitations and assumptions), (7) verify the result, and (8) be responsive. Although there are other social evaluation methods (eg, social accounting and auditing and the Global Reporting Initiative), they do not embed stakeholder engagement as a requirement, which is key to understand the changes that they experience as a result of an intervention and to measure what really matters.^{3,20} Also, although the rigor of application can vary (eg, lower levels inform decision makers within organizations), high levels can be achieved with the quality assurance of an external evaluation by Social Value International.²¹ Another benefit is that the model can be applied before a program or activity has taken place to predict the value created by their outcomes (forecast SROI), or it can be used to measure and value the results of a program or activity that has already taken place (evaluative SROI). Finally, the end result of the application is highly attractive given that it gives a ratio expressing the monetary value of outcomes in relation to the initial investment, for example, a ratio of 3:1 indicates that an investment of 1 euro delivers 3 euros of social value. This makes the communication of SROI analysis attractive to stakeholders.

In spite of these benefits, the SROI framework can be demanding in its implementation. First, the full methodology requires measuring data about *inputs*, *outputs*, and *outcomes* and using an impact map as a central component of the method to understand the various pathways through which the desired outcomes are achieved, which is costly in resources and time.¹⁰ *Inputs* are the contribution of the stakeholders for the activity to develop, *outputs* are a quantitative

summary of the activity (eg, time spent in a program), and *outcomes* are the final result of the activity or the change that occurs as a result of the activity. The impact map involves the creation of a theory of change explaining how *inputs* make the *outputs* possible and how *outputs* create change in the *outcomes*. Second, to avoid overclaiming (Principle 5), the SROI involves making some adjustments to the method that are difficult to measure. These include estimating how much of an *outcome* would have happened anyway without an activity taking place (*deadweight*), which is rarely available,²² *displacement* (how much of the activity displaced other *outcomes*), *attribution* (how much of the *outcome* was caused by factors different from the activity), and *drop-off* (how much the *outcome* reduces over time).²³ Finally, and most important, one of the biggest challenges to the method is understanding what changes (Principle 2) not only from stakeholders' perspective but also from the scientific evidence available. Although there is a vast amount of evidence and information on the social impact of PAS,¹³ there is no consensus on what should be included in the model, and a causal relationship is not always established. Although stakeholders should help to identify *outcomes*, there is also a need for other stakeholders to identify what is important, especially at the population level.

Aims of the Systematic Review

Given the potential of the SROI model to enable the ability of organizations to articulate the wider impacts of PAS on society, there is a need to address the implementation challenges and adapt and standardize the SROI framework to PAS. The review updates Gosselin et al.¹¹ who conducted the first systematic review of SROI applied to PAS and identified the need to improve the robustness of the method and the challenge to compare results given the heterogeneity in its application. In addition, the present paper widens the scope with the analysis of the indicators and financial proxies, which were previously excluded. Therefore, the present systematic review aims to answer the following questions: (1) What are the social *outcomes* measured in previous PAS literature? and (2) How are these *outcomes* measured (ie, which indicators are used to quantify them) and valued (ie, which valuation methods are used to translate them into monetary terms)? Given previous evidence on the lack of standardization in the application of the method,^{6,10,11} it is expected to find a wide variety of *outcomes*, indicators, and financial proxies. Therefore, this systematic review is the first step of a bigger project to develop a Global Consensus Statement using the Delphi method to establish a PAS SROI model according to experts' opinion (see Figure 1).

Methods

Table 1 presents the main questions of the review using the PICO (participants, interventions, comparators, and outcomes) framework, following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Statement.²⁵ The present research adopted the World Health Organization definition of physical activity, that is, "any bodily movement produced by skeletal muscles that requires energy expenditure."²⁶

A glossary of terms can be found in [Supplementary Materials](#) (available online) to better understand all the concepts used in this systematic review.

Eligibility and Search Criteria

This study followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses 2020 checklist²⁷ to ensure the quality

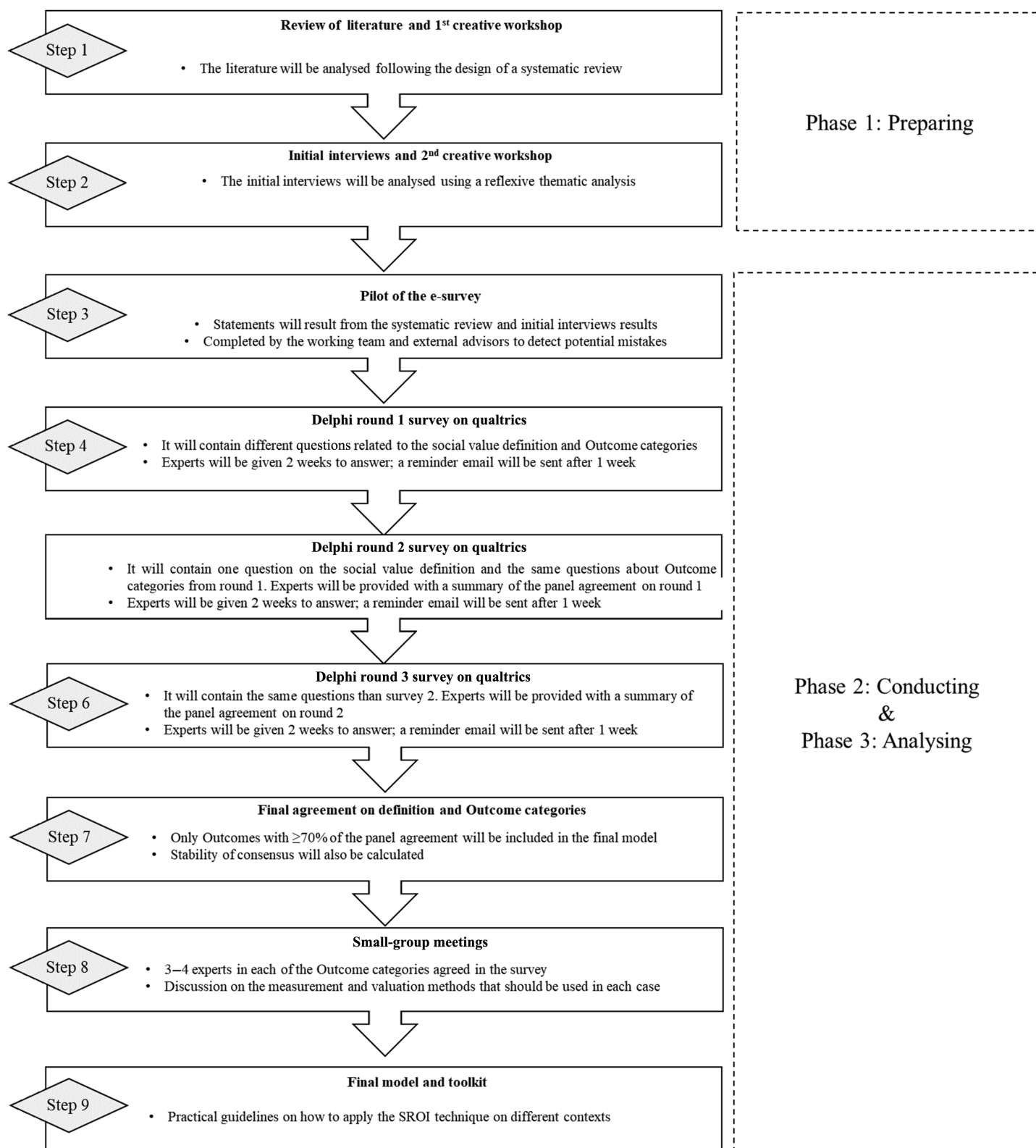


Figure 1 — Workflow of the project to develop global consensus on an SROI model of physical activity and sport.²⁴ SROI indicates social return on investment.

of the method. It can be found in the preregister in OFS Registries (osf.io/sx9cn) to ensure transparency of the process.¹

A systematic search was conducted on the databases of Web of Science, PubMed, and EconLit, combining terms related to SROI,

PAS, and positive and negative *outcomes* based on the 13 World Health Organization sustainable goals that could be supported by promoting PAS.²⁸ The list of search terms can be found in [Supplementary Materials](#) (available online). No filters were used

in any of the databases. Moreover, a secondary search was used to complete the inclusion of studies and gray literature (following Gosselin et al's¹¹ finding that 94% of SROI studies applied to PAS came from this source). Different steps were taken to be as comprehensive as possible in the inclusion of these documents. First, the bibliographies of different theoretical papers and reviews^{2,4,5,9-11,13,29-31} were inspected. Second, different web pages related to sports were screened using the term "SROI." The details of these steps are specified in [Supplementary Materials](#) (available online) to increase transparency and reproducibility of the results. Figure 2 presents the Preferred Reporting Items for Systematic Reviews and Meta-Analyses 2020 flow diagram.²⁶

The inclusion criteria were (1) articles from scientific journals and reports of reference in the area (gray literature), (2) published in English, (3) evaluating social value in monetary terms, and (4) in relation to PAS. There were no limitations regarding age of the sample (children/adolescents, adults, and older adults) or type of population (healthy, clinical ...).

Exclusion criteria included (1) documents with no measure of monetary value, (2) studies using an economic framework different to the SROI model (eg, CBA, cost effectiveness), (3) articles using SROI but not in relation to PAS, and (4) theoretical papers (abstracts, reviews, meta-analyses, pre-registers ...). There was no restriction of publishing time frame.

Data Collection Process

Two steps were taken in the selection of records by 2 independent reviewers. First, titles and abstracts were screened. Second, full texts of the records selected in the first step were reviewed. The software used for these steps was *rayyan.ai* (Rayyan Systems, Inc).³² Disagreements were solved by discussion with a third reviewer if needed. The agreement for the inclusion of the documents was excellent (kappa = 0.89). Then, the final records, selected based on the defined inclusion/exclusion criteria, were codified in an Excel file.

Table 1 Review Questions Framed by PICO (Participants, Interventions, Comparators, and Outcomes)

PICO framework	
Participants	Any group of people or organization involved in a PAS activity (intervention, program, association...)
Interventions	Any activity with PAS as the main component and evaluated under the SROI model
Comparators	None
Outcomes	Impacts of the PAS activity (health, education, crime...) translated into monetary terms

Abbreviations: PAS, physical activity and sport; SROI, social return on investment.

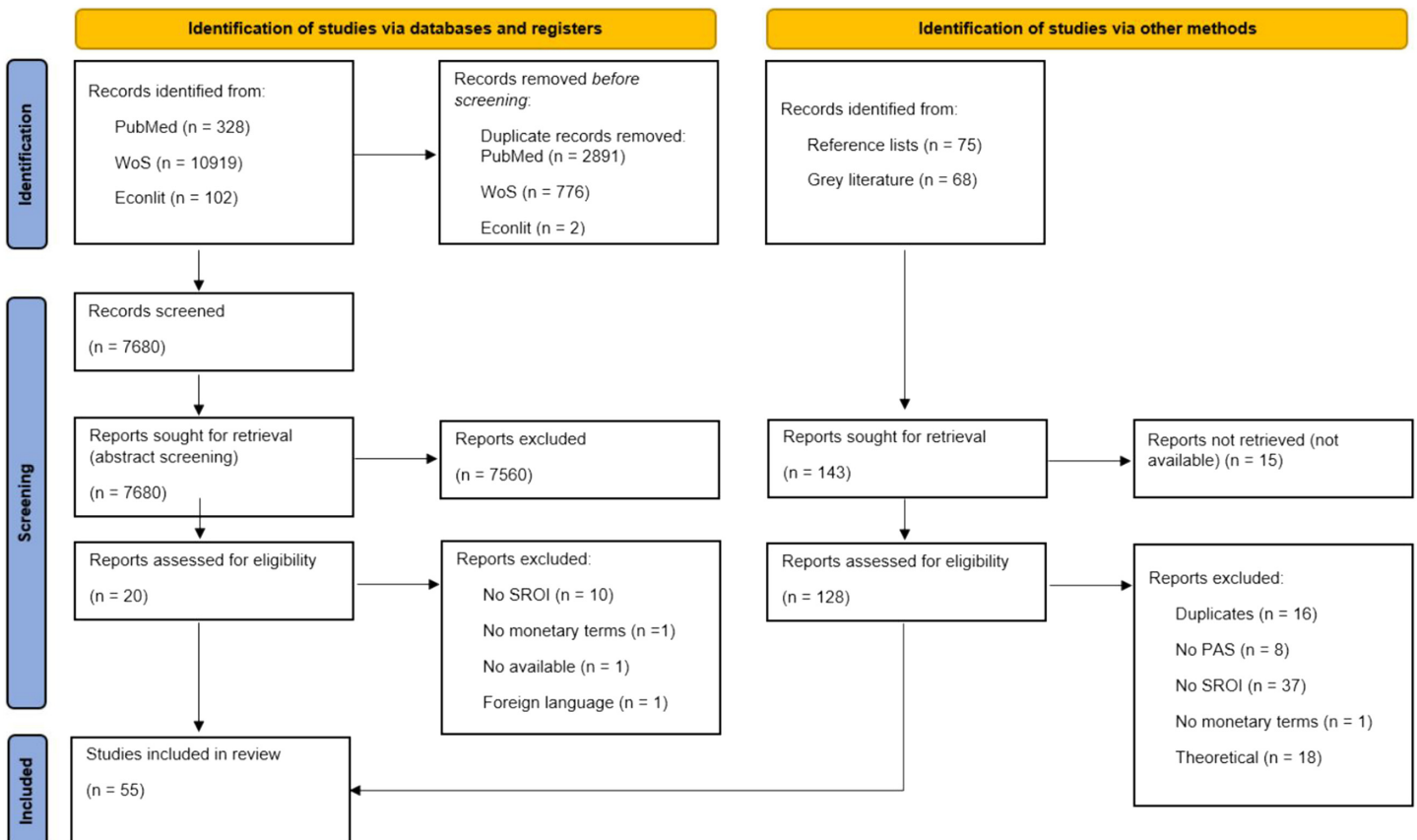


Figure 2 — PRISMA 2020 flow diagram. PAS indicates physical activity and sport; SROI, social return on investment.

The data fields extracted in the codification table were characteristics of the study (year, country, authors' organization, and type [scientific article, report]), main purpose of the study, scope (national, regional, and local), stakeholders, age of participants, activity evaluated, characteristics of the SROI evaluation (type [evaluative, forecast], time frame, *inputs*, *outputs*, *outcomes*, outcome indicators, financial proxies, adjustments [deadweight, attribution, displacement, and drop-off], and SROI ratio), and main limitations and recommendations when applying the SROI model.

Risk of Bias (Quality) Assessment

The Drummond checklist for assessing economic evaluations was used to assess the quality of the records.³³ This choice was based on the wide recognition and use of this scale for the evaluation of economic studies.³⁴ This checklist included 10 items, evaluating (1) the adequacy of the question of the study, (2) the comprehensiveness of the description of the competing alternatives (ie, Can you tell who did what to whom, where, and how often?), (3) the establishment of the effectiveness of the program, (4) whether all the important costs and consequences were identified, (5) the adequacy of the measurement of costs and consequences, (6) the credibility of the valuation of cost and consequences, (7) the adjustment of costs and consequences for differential timing, (8) whether there was an incremental analysis of costs and consequences of alternatives, (9) whether there was allowance for uncertainty in the estimates of costs and consequences, and (10) whether the presentation and discussion of study results included all issues of concern to users.

The results showed that 42.3% of studies included in the present review met 80% or more of the quality criteria, whereas 20.4% met 30% or less of the quality criteria. Specifically, it was found that 62.7% of the documents met more than 50% of the quality criteria, 13.6% of the documents met 50% of the quality criteria, and 23.7% of the documents met less than 50% of the quality criteria. None of the documents met less than 20% of the quality criteria.

Sensitivity analyses were conducted to evaluate whether high-quality documents (those meeting 80% or more of the criteria) differed from the total sample of documents. Results can be found in [Supplementary Materials](#) (available online).

Strategy for Data Synthesis

A descriptive analysis was used to present the results, relying primarily on the use of text to summarize and explain the findings and descriptive statistics. Given that the synthesis was mainly narrative, there was not a minimum number of documents to include.

Results

This section presents a summary of all the information collected in the codification table (see Table S1 in the [Supplementary Materials](#) [available online]). Study ID numbers (in brackets) are used to help identify the details in the table. Full references of the included studies can be found in [Supplementary Materials](#) (available online).

Study Characteristics

A total of 55 documents were included, covering a date range from 2010 to 2022. The studies were largely from high-income countries and included countries from all continents except the American continent: the United Kingdom ($k=30$), Australia ($k=7$), Ireland ($k=4$), the Netherlands ($k=4$), Italy ($k=3$), Taiwan ($k=3$), Belgium

($k=2$), Emirates States ($k=1$), Japan ($k=1$), Republic of South Africa ($k=1$), Sweden and Romania ($k=1$), Turkey ($k=1$), and Zimbabwe ($k=1$). Only 8 documents were scientific studies published in peer-reviewed journals, whereas 47 were reports describing SROI analyses done by a specific organization. The organizations conducting the scientific articles were all universities, whereas the organizations in charge of the reports were universities, external consultants, sports clubs, and government bodies.

Regarding the time frame of the analyses, 3 studies conducted a forecast SROI (evaluating the social value of a future activity), 5 included both a forecast and an evaluative SROI, and the remaining 47 conducted an evaluative SROI (evaluating the actual *outcomes* that have already taken place). Moreover, 27 documents evaluated the impact of 1 year of activity, 11 evaluated the impact of more than 1 year of activity (between 1.5 and 5 y), 6 documents evaluated the impact of less than 1 year of activity, and 14 documents did not report the time period.

The main purpose of all the documents included in the review was measuring the benefits of different PAS activities to better understand and show their holistic impact to wider audiences. Furthermore, 9 studies (1, 6, 19, 28, 35, 36, 42, 52, and 54) mentioned a specific interest in justifying and attracting funding and guiding the use of resources, and 6 studies (1, 2, 4, 9, 10, and 42) mentioned the goal of being an example for the evaluation and implementation of more programs in the future.

Regarding scope, studies were categorized into those measuring the impact of PAS in the general population (meeting specific guidelines) based on national or community surveys and studies measuring the impact of participating in specific activities with different population groups. At the population level, most were undertaken at the national level. Studies 11 and 15 looked at the social impact of PAS in England in different years, study 14 looked at the value of PAS in the Wallonia-Brussels Federation, and studies 40 and 41 looked at the impact of PAS in the Netherlands in different years. Only study 12 measured the impact of PAS across the general population at the subnational level, examining the SROI of 12 community sport and leisure facilities in Sheffield. The rest of the studies limited their goal to the evaluation of the benefits generated by specific companies, clubs, or programs.

The studies included in the review were categorized based on the type of activity, with studies focusing on physical activity ($k=9$), sport ($k=29$), or both types of activity ($k=17$). Physical activity programs included walking ($k=5$), biking ($k=2$), and varied PAS activities ($k=2$). Sports SROI studies included football clubs ($k=10$), football participation at the national level ($k=2$), football programs ($k=7$), varied sports ($k=4$), baseball team/competition ($k=2$), athletic associations ($k=2$), and rugby league/union ($k=2$).

In the context of SROI, stakeholders are defined as "people or organizations that influence, or experience change because of participation in sport and physical activity in the researched facilities."³¹ Studies included diverse stakeholders, which were classified into 4 different groups: (1) individual/consumer sector (direct participants of the activity; sport volunteers; coaches, professionals, and administrators; fans and supporters of a team; and family, carers, and peers of participants), (2) private/commercial sector (commercial PAS providers, employers with PAS facilities, office staff, sales agents, local shopkeepers during sport events, sponsors and partners of the activities, and the sport and recreation industry in general), (3) charities/third sector (voluntary sport and exercise clubs, sport and leisure trusts, national governing bodies, and charities delivering sport and physical activities), and (4) public/government sector (national health systems, emergency services,

general practitioners (GP), social services, councils, secondary schools and higher education, government departments such as transport, police, and judicial system). Within the direct participants group, most of the PAS activities were designed for a healthy sample (eg, study 1, 6, or 9), although some of the interventions targeted subgroups with health conditions, for example, patients with chronic obstructive pulmonary disease (study 4) or patients with spinal cord injury (study 37).

Although stakeholders' mean age was one of the variables to be coded, it was given in only a few documents. Studies 1, 14, 15, and 33 focused on adult populations (mean age 44 y old, adults aged 16+, adults aged 16+, 43% between 25 and 34 y old, respectively, for each study). Studies 8, 25, and 26 targeted older adults (2/3 over 55 y old, mean age 72.4 y old, and mean age 76 y for patients and 68 y for carers, respectively, for each study). Finally, studies 24 and 35 focused on children and adolescents (mean age of 7.4 y old and 10–12 y old, respectively, for each study).

Social Outcomes and Indicators

The social *outcomes* identified in the studies were categorized into one of the following domains: health, crime, education, subjective well-being, social capital, and other *outcomes*. Moreover, these were divided into subcategories (see Table 2). These categories were created based on the Davies et al¹² model and the authors' expertise and are not necessarily the same as the categorization by the authors of the original studies or reports.

Table 2 Outcome Categories and Subcategories Included in the Studies of the Systematic Review

Category	Subcategory
Health	Physical health
	Mental health
	Other impacts from improved health
Crime	No subcategories specified
Education	Improved educational attainment
	School absenteeism
	Skills acquisition
	Other impacts from improved education
Subjective well-being	General well-being
	Quality of life
	Life satisfaction
	Happiness
	Motivation
	Confidence and self-esteem
Social capital	Other
	Networks and relationships
	Sense of identity and belonging
	Community engagement
	Inclusion, integration, and equality
Other	Trust
	Environment
	Community benefits
	Leisure
	Image improvement
	New partnerships

In some studies, “physical activity” and “volunteering” were considered *outcomes*, but for the purposes of this review, neither was a *social outcome*, and they were, instead, considered *outputs*. Moreover, the pure economic benefits of the PAS activities were also out of the scope of the present research, focused on social impact defined as “both social benefits and costs, and specifically those which are nontraded, ie, not part of the market system.”¹²

Finally, *outcomes* related to the change in mental health and subjective well-being can be difficult to differentiate in some cases. The present research used the following criterion for their classification: *Outcomes* indicating the decrement of psychological symptoms (depression, anxiety, stress . . .) were categorized as “mental health” *outcomes*, whereas those indicating the increment of positive emotions or feelings (self-reported subjective well-being, feeling better, more positive, well-being scales . . .) were classified as “subjective well-being” *outcomes*.

Health

Health *outcomes* were measured in 52 documents and could be classified into 4 subcategories: impact in overall good health, physical health, mental health, and other impacts from improved health.

Nine studies measured “overall good health” using the indicators of self-reported good overall health (11, 12, 13, 15, 17, 25, 39, and 42) or feeling better (46).

Forty-six studies measured “physical health,” but only 25 specified the conditions that were improved by PAS participation, that is, reduction of CVD/stroke, breast/colon cancer and type II diabetes (4, 11, 12, 13, 14, 15, 17, 39, and 48–56), reduction of dementia (11, 12, 13, 14, 15, 17, 39, 48–51, 53, 54, and 56), reduction of hip fracture and back pain (14, 15, and 39), reduction of osteoporosis (4, 48, 49, 50, 53, 54, and 56), reduced obesity/weight (4, 24, 29, and 51), fewer bike accidents/injuries (9 and 10), decreased drownings and near drownings (21), reduced consumption of alcohol and drugs (22), balance and mobility (26), and reduced use of wheelchair-accessible taxis (37). The rest of the physical health *outcomes* were defined as improved physical fitness (8 and 33), better physical health (19), fewer illnesses (36), or reduced mortality (47), among others. Interestingly, only one document (24) reported the use of objective measurements (food intake, height, and weight). The impact on physical health also included the negative *outcome* of injuries (6, 14, 15, 39, 40, and 48–56).

Twenty-five documents measured “mental health,” including the indicators of reduced depression (12, 14, 15, 22, 26, 39, 48–56), reduced anxiety (22, 26, 48–56), reduced schizophrenia (48–56), reduced stress (19, 28, 26, 44), carers' respite (4, 44), reduced anger, alcohol use, and problem gambling (22), and suicide prevention (22, 38, 47). Other studies measured the generic improvement in mental health (1, 2, 20, 23, 38, 44, 47) and one negative *outcome*, that is, increased stress (19).

Twenty-two studies reported “other impacts from improved health,” including health care cost savings (1, 2, 3, 4, 5, 6, 7, 8, 12, 24, 25, 26, 29, 31, 36, 37, 38, 40, 41, 44, 46, and 47), such as reduction of medication use or reduction of GP visits, reduced sick leave (2, 3, 4, 5, 24, 40, 41, and 44), and increased productivity (31, 38, 40, 41, 44, and 47). It is important to note that improved productivity, reduced sick leave, and health care savings were included as *outcomes* in these studies, although they could be used as financial proxies in some other documents.

Crime

Crime was measured by 28 documents. The indicators included reduced criminal incidences (2, 10, 11, 12, 13, 15, 17, 22, 28, 39,

40, 41, and 48–56), fewer callouts (2 and 10), reduced antisocial behavior (5, 9, 10, and 30), reduced substance misuse (22 and 28), safer places (1, 9, 28, and 38), and reduced rates of recidivism (33 and 47). Study 28 included a wider heterogeneity of crime *outcomes* (see Table S1 in the [Supplementary Materials](#) [available online]), and there was one negative impact of PAS related to crime, that is, number of additional incidents reported (9).

Education

Education *outcomes* were included in 46 documents and were classified in 4 subcategories: impact on educational attainment, school absenteeism, skills acquisition, and other impacts from improved education.

Twenty-one studies measured “improved educational attainment” (11, 12, 13, 15, 17, 23, 24, 28, 39, 40, 41, 44, and 48–56), and 10 documents (24, 40, 48–54, and 56) measured the “reduction of school absenteeism.” Twenty-one documents (1, 4, 6, 7, 9, 10, 19, 20, 21, 22, 23, 24, 28, 29, 35, 38, 39, 42, 43, 44, and 45) measured “skills acquisition” with indicators such as learning new skills and gaining personal development (6) or skills in public speaking (20). Finally, “other impacts from improved education” were measured in 35 documents and referred to those *outcomes* making participants more employable. Specifically, 6 studies (11, 12, 13, 15, 17, and 39) measured the enhancement in human capital (ie, the higher starting salary of graduates who participated in sport in comparison with their nonsporting counterparts), 9 studies (48–56) measured the reduced risk of becoming a NEET (not in education, employment, or training), and the rest of documents (1, 7, 8, 9, 18, 20, 21, 22, 27, 28, 30–35, 43, 44, 45, and 47) used a variety of indicators to measure the improvement in employment capacity, for example, increased professional competitiveness (18). There was one negative *outcome* within this subcategory, that is, spending working hours for the project (35).

Subjective Well-Being

Subjective well-being *outcomes* were included in 49 documents and were classified into 7 subcategories: general well-being, quality of life, life satisfaction, happiness, motivation, confidence and self-esteem, and “other outcomes.”

The “general well-being” subcategory was included in 17 documents with the indicator of self-reported improvement in subjective/personal/physical/mental well-being (1, 7, 20, 28, 38, 44, and 46–55). “Quality of life” was included in 9 documents as increased quality of life (18, 24, 40, 41, 44, and 47) and health-related quality of life measured with some version of the EQ5D questionnaires by the EuroQol Group (24, 25, 26, and 38). “Life satisfaction” was measured in 7 studies (11, 12, 13, 14, 15, 17, and 39) based on previous literature showing an association between sports participation and higher subjective well-being (life satisfaction) and in 3 documents (18, 22, and 29) with a variety of indicators, such as it provided their life with meaning and hope (22). “Happiness” was included in 8 documents measured as self-reported feelings of being happier/better/more positive (6, 7, 8, 9, 12, 14, 28, and 37). Finally, “motivation” was included in 4 documents (6, 18, 27, and 35). There was one negative *outcome* in this subcategory, named negative impact on team morale (18). The “confidence and self-esteem” subcategory was the most frequent one, included in 24 documents (4, 7, 8, 9, 10, 12, 14, 18, 22–26, 29, 30, 32, 33, 34, 36, 37, 39, 43, 44, and 46), with the indicators of increased confidence ($k=17$) and improved self-esteem ($k=7$). Finally, 15 studies (7, 8, 18, 19, 22, 23, 24, 28,

29, 36, 37, 41, 42, 43, and 44) measured “other outcomes” relating to subjective well-being, for example, increased loyalty (18) or improved job satisfaction (19).

Social Capital

Social capital *outcomes* were included in 33 documents and were classified into 5 subcategories: networks and relationships; sense of identity and belonging; community engagement; inclusion, integration, and equality; and trust.

“Network and relationships” was included in 29 documents (1, 4, 6, 7, 8, 10, 12, 15, 18–23, 25, 28, 29, and 35–46), with indicators related to the enhancement of relationships with family and friends, the creation of new relationships, and to a lesser extent ($k=4$), the reduction of isolation. “Sense of identity and belonging” was measured in 10 documents as sense of belonging (18, 29, 41, 42, and 43), sense of identity and belonging (18 and 37), creation of role models (20 and 21), and feeling proud of being in a group (9 and 20). Moreover, “sense of identity and belonging” included several indicators related to cultural impacts, that is, promoting cultural awareness (7), improved cultural awareness (21), and Gaelic games and culture are preserved and grown (42). “Community engagement” was measured in 8 documents (1, 5, 7, 14, 24, 28, 43, and 44) with indicators referring to higher engagement or cohesion. “Inclusion, integration, and equality” were measured in 12 documents with a variety of indicators related to diversity, mixing, or reduction in stigma and racism (1, 4, 7, 14, 21, 35, 36, 39, and 44) and a subgroup of indicators related to support (20, 21, 22, and 46). Finally, “trust” was measured in 5 documents (14, 15, 22, 29, and 39).

Other

Some categories of *outcomes* were measured in fewer than 15 documents each. These were the impact in environment (7, 9, 10, and 44), community benefits (1, 9, 10, 20, 21, 27, 31, 35, 37, 42, 44, and 45), leisure (7, 8, 9, 21, 22, 25, 37, 44, and 45), image improvement (9, 10, 19, 23, 28, 31, 37, 43, and 45), and new partnerships (10 and 45). See Table S1 in the [Supplementary Materials](#) (available online) for details.

Valuation Methods

An explanation of the different valuation methods can be found in the Glossary in [Supplementary Materials](#) (available online).

Health

Forty-two out of 52 documents (80.8%) specified the valuation method for all their health *outcomes*. First, “overall good health” was most frequently valued using the annual National Health System (NHS) cost saving per person associated with improvements in self-reported good health (11, 12, 13, 15, 17, and 39).^{35,36}

Second, for valuing “physical health,” most studies used the cost of treatment per condition (including injuries) as the financial proxy. Seven documents (2, 6, 8, 9, 10, 18, and 28) used the “cost of activity that could result in same outcome” approach, mostly using the cost of performing some type of physical activity as a proxy (6 and 8: swimming; 9 and 10: biking, 2, 10, and 28: gym membership or trainer). Six documents used external sources (25, 26, and 33: Social Value Bank; 30: the SQW report; 34: Global Value Exchange; and 41: the Ecorys study). Interestingly, two studies using the Social Value Bank specified using the proxy “value of frequent mild exercise,” which is consistent with the

previous method. Three documents (18, 19, and 43) used the “willingness to pay” (WTP) approach, and 2 documents used an approximation from other organizations (29: lower NICE (National Institute for Health and Care Excellence) threshold of £20,000 as the value of a quality-adjusted life year [QALY]; and 47: Australian Government’s Value of a Statistical Year of Life).

Third, for valuing *mental health*, most studies also used the cost of treatment per condition as the financial proxy, 2 documents used the “cost of activity that could result in same outcome” approach (with no agreement in the activity chosen: 2: cost of membership, 28: cost of stress and anger management course), another 2 documents used external sources (26: value of “able to rely on family” from the Social Value Bank, 38: ACIL Allen’s SROI framework), one document used the WTP (19), and another one (47) used the Australian Government’s Value of a Statistical Life.

Finally, regarding the “*other impacts from health improvement*,” health care-related *outcomes* were valued with cost saving per person (2, 3, 12, and 47), direct NHS costs (4 and 29), cost of a GP visit (6, 25, 26, and 46), cost of medication (6, 8, 24, and 37), and the cost of a hospital stay (37). Reduced sick-leave *outcomes* were valued with GVA estimations (2: average GVA/day/worker; 3: GVA impact due to the early return to employment), the national cost of a disease (4), friction cost method (24), and values from another study (41: Ecorys study). Finally, productivity was valued as the gross state product per hour and the average weekly earnings (47) and with estimations from other studies (38: ACIL Allen’s SROI framework; 41: Ecorys study). Table 3 shows the valuation methods of the different health *outcomes*.

Crime

Twenty-two out of 28 documents (78.6%) gave the details on the valuation methods for their crime *outcomes* (see Table 4). Most documents used as the financial proxy the cost of criminal incidents (2 and 10: cost per call out; 10, 11, 12, 13, 15, 17, 28, 30, 39, 48, and 49–56: average cost savings to the magistrates court, to the NHS as a result of a reduction in drug use, from preventing antisocial behavior . . . ; 28: value of the reduction of one police officer post; 47: cost per day of prison). Four documents (1, 9, 10, and 28) used the “cost of activity that could result in same outcome” approach with no homogeneity between them (see Table 4), 3 documents used external sources (33: Social Value Bank, 38: ACIL Allen’s SROI framework; 41: Ecorys study), and one study (9) used the WTP approach.

Education

Thirty-one out of 46 documents (67.4%) gave the details on the valuation methods for all the education *outcomes* they included (see Table 5). First, “*improved educational attainment*” was mostly valued based on education-driven gross domestic product growth (48–56), followed by the estimation of the annual average of lifetime productivity returns due to PAS (11, 12, 13, 15, 17, and 39). Only one document used the “cost of an activity that could result in the same outcome” approach (23), and one document used an external source (41: Ecorys study).

Second, “*school absenteeism*” was valued estimating the cost of absence in all documents (24, and 48–56).

Third, for valuing “*skills acquisition*,” most documents used the “cost of activity that could result in same outcome” approach (9, 19, 23, 28, 35, and 45). All these proxies were the cost of different types of courses teaching similar skills to the ones acquired in PAS. Also, 2 studies used the WTP approach (42 and 43), and 2 documents used an

external source (29: lower NICE threshold of £20,000 as the value of a QALY; 38: ACIL Allen’s SROI framework).

Finally, “*other impacts from improved education*” were mostly with the cost of educational underachievement (48–56) and using the “cost of activity that could result in same outcome” approach (9, 18, 27, 28, 30, 32, 35, and 45). The activities chosen were mostly those providing the employment qualifications obtained in the PAS activities (eg, cost of a beginner’s mountain bike skills course, average cost of obtaining a coaching qualification). Also, some documents estimated the increase in salary for graduates who were sports participants (11, 12, 13, 15, 17, 39, and 47), used external sources (33: Social Value Bank and 34: Global Value Exchange), and applied the WTP method (43).

Subjective Well-Being

Thirty-eight out of 49 documents (77.6%) specified the valuation method for all their subjective well-being *outcomes* (see Table 6). First, “*general well-being*” was mostly valued using the WTP approach (48–55), 1 study (28) used the “income compensation”/“well-being valuation” approach (see Glossary in [Supplementary Materials](#) [available online]), and 3 documents used proxies from external sources (1: Global Value Exchange proxy; 38: ACIL Allen’s SROI framework; 47: UK Culture and Sport Evidence program).

Second, “*quality of life*” was valued using the “cost of activity that could result in the same outcome” approach (18), QALYs (24), the Social Value Bank proxies (25 and 26), and external sources (38 and 41).

Third, “*life satisfaction*” was mostly valued using the “income compensation”/“well-being valuation” approach (11, 12, 13, 14, 15, 17, and 39). Also, one study used the “cost of activity that could result in same outcome” and the WTP approaches (18), and another study used QALYs (29).

Fourth, “*happiness*” was valued using the “cost of activity that could result in same outcome” approach (8, 37), specifically, the value of a holiday/trip out as a financial proxy. Also, one document used the “income compensation”/“well-being valuation” approach (14).

Fifth, “*motivation*” was valued using only the “cost of activity that could result in same outcome” approach (6, 27, and 35), with no similarity between the activities chosen.

Finally, “*confidence and self-esteem*” were predominantly valued using the “cost of activity that could result in same outcome” approach. There were 3 main groups of activities equated to a boost in confidence and self-esteem: cost of a course for empowerment, psychological growth, assertiveness, or confidence (9, 10, 18, and 30); cost of a professional psychologist or counselor (23, 36, and 37); and a donation to charity (8 and 18). The “income compensation”/“well-being valuation” approach was used in 3 documents (14, 39, and 43), external proxies were used in 4 documents (Social Value Bank proxies: 25, 26, and 33; Global Value Exchange proxies: 34), with the Social Value Bank having a specific value for high confidence in adults (Housing Associations’ Charitable Trust [HACT] Social Value Calculator v4), and one document used QALYs (29).

Social Capital

Twenty-three out of 33 documents (69.7%) gave details on the valuation methods for all their social capital *outcomes* (see Table 7). First, the *outcomes* related to “*networks and relationships*” were mostly valued using the “cost of an activity that could result in the same outcome” approach. Six documents chose the cost of varied social activities (8: cost of a sports social club; 10: average spent on

Table 3 Valuation Methods of the Different Health Outcomes

Health outcome	Valuation methods	Study ID
Overall	<p>“Good health” = number of sports participants × annual NHS cost saving/person associated with improvements in self-reported good health, based on Fujiwara et al.^{35,36} Quantifying the social impacts of culture and sport</p> <p>Social Value Bank (based on the well-being valuation approach, Trotter et al³⁷)</p> <p>NICE method to measure the cost effectiveness of new drugs</p> <p>Cost of treatment/condition × number of sports for participants with reduced risk of developing the health condition due to sport</p> <p>Cost of treatment/medication/GP visit</p> <p>Cost of activity that could result in same outcome, eg, improved physical fitness = cost of a swimming session × duration of activity</p> <p>Willingness to pay approach</p> <p>Social Value Bank</p> <p>Global Value Exchange</p> <p>SQW report</p> <p>NICE method to measure the cost effectiveness of new drugs</p> <p>Australian Government’s Value of a Statistical Year of Life</p> <p>Ecorys study</p> <p>Cost of treatment, eg, depression = number of potential cases averted among the physically active population × average annual cost per person diagnosed</p> <p>Cost of activity that could result in same outcome, eg, reduced stress = personal stress and anger management short study course</p> <p>Willingness to pay approach</p> <p>Social Value Bank</p> <p>ACIL Allen’s SROI framework</p> <p>Australian Government’s Value of a Statistical Year of Life</p>	<p>11, 12, 13, 15, 17, 39</p> <p>25, 42</p> <p>46</p> <p>11, 12, 13, 14, 15, 17, 39, 48–56</p> <p>1, 2, 6</p> <p>2, 6, 8, 9, 10, 18, 19, 28, 36, 37</p> <p>18, 43</p> <p>26, 33</p> <p>34</p> <p>30</p> <p>29</p> <p>47</p> <p>41</p> <p>1, 14, 15, 39, 48–56</p> <p>2, 19, 23, 28</p> <p>12, 19</p> <p>26</p> <p>38</p> <p>47</p>
Physical		
Mental		

(continued)

Table 3 (continued)

Health outcome	Valuation methods	Study ID
Other impacts from improved health	Reduced sick leave outcomes: Average GVA per day per worker; average cost of membership GVA impact due to the early return to employment; alternative or cheaper sourcing method Friction cost method Ecorys study	2 3 24 41
	Productivity outcomes: ACIL Allen's in-house input-output modeling framework Ecorys study	38 41 47
	Gross state product per hours worked; value of employment set at the rate of average weekly earnings for the relevant year	
	Health care-related outcomes: Unit cost of ASW for community social care Annual savings per beneficiary or intervention and average cost of membership	1 2 3 4 6 8 12 24
	Cost saving per patient Direct NHS costs of treating COPD and the lost days of productivity Average cost of a visit to a GP surgery; cost of an average generic prescription medication to the NHS Cost of drugs and average cost of home care per annum Average NHS cost per person multiplied by the percentage reduction in medical service usage reported by people in good health Costs of medication Unit cost of a GP appointment Costs per visit Direct costs of obesity to the NHS Average cost of medication reduced; cost of a hospital stay (one night) ACIL Allen's in-house input-output modeling framework Ecorys study Unit cost of GP consultation Cost saving per participant (based on Ding et al ³⁸)	25 26 29 37 38 41 46 47

Abbreviations: ASW, approved social worker; COPD, chronic obstructive pulmonary disease; GVA, gross value added; NHS, national health system; NICE, National Institute for Health and Care Excellence. Note: Only those studies reporting the details for the valuation procedure are included in this table. Mixed outcomes (m) were excluded from the table given that it was not possible to distinguish which outcome belonged to which valuation method; SQW is an independent economics consultancy that provides research, analysis, and advice in social and economic development.

Table 4 Valuation Methods of the Different Crime Outcomes

Crime outcomes	Valuation methods	Study ID
Reduced risk of crime (based on criminal incidents for males aged 10–24 and percentage reduction due to PAS)	Average national cost per incident	11, 12, 13, 15, 17, 39
Reduced risk of crime (number of players × risk of condition × effect on risk from participation × inactivity rate)	Cost of conviction	48–56
Reduction of incidents	Cost per incident, eg, number of young people no longer involved in illegal activity due to PAS × average cost savings from dealing with a young first-time offender through warnings and cautions	2, 10, 28
Reduced risk of recidivism (based on estimates of the rate of incarceration, rate of prisoner release per annum, and data on the national average rate of recidivism) × 50% reduction of risk due to PAS	Average prison stay × cost/day of prison	47
Reduced risk of recidivism	Social Value Bank estimate × (% of national reoffending rate – % reoffending rate for those involved in sport × number of prisoners involved in activity)	33
	Cost of activity that could result in same outcome, eg, safer and more positive environments = average family spend on sports/leisure	1, 9, 10, 28
	Willingness to pay approach to value the “Improved feeling of security within the site as it is busier”	9
Antisocial behavior (number of beneficiaries × % estimated reduction in antisocial behavior)	Savings from preventing antisocial behavior	30
Annual number of crime reports before intervention × % reduction in incidents postintervention	Cost per alternative intervention by other agencies – % of benefits due to program	2
Proven offenses in previous year × % of reduction of proven offenses	Cost of a police officer	28
Crime and personal safety benefits	ACIL Allen’s SROI framework	38
Lower chance of showing criminal behavior (juvenile)	Ecorys study	41

Abbreviations: PAS, physical activity and sport; SROI, social return on investment. Note: Only those studies reporting the details for the valuation procedure are included in this table. Mixed outcomes (m) were excluded from the table given that it was not possible to distinguish which outcome belonged to which valuation method.

mobile phones to maintain friendships; 18: family activity expenses; 23: subscription to recreational clubs; 28: spend value of going to more social events; and 45: cost of organizing team building activities), and 4 documents used the cost of some type of psychological support (23: cost of an educator for psychoeducational support; 28: cost of family therapy sessions; 35: cost of therapy; and 37: cost of marriage counseling sessions). Similarly, the 2 documents using the Social Value Bank and the Global Value Exchange chose the price given by these entities to similar activities, that is, average spending on social interaction (1) and being a member of a social group (25). Two documents used the WTP approach (18 and 19), 2 others used the “income compensation”/“well-being valuation” approach (15 and 39), one document used QALYs (29), and 3 documents used previous literature (38, 41, and 42) (see Table 7).

Second, “*sense of identity and belonging*” was valued using the “cost of an activity that could result in the same outcome” approach (9, 18, 37, and 42) and the WTP approach (18 and 43). No similar pattern of valuation was found in this case.

Third, “*community engagement*” outcomes were valued with the “income compensation”/“well-being valuation” approach (14) and the “cost of an activity that could result in the same outcome” approach (1, 28: the payment for doing a job for the community was the financial proxy in both cases).

Fourth, “*inclusion, integration, and equality*” outcomes were valued using the “cost of an activity that could result in the same outcome” approach (35), the “income compensation”/“well-being valuation” approach (14, 39), and a proxy from Global Value

Exchange (1), which was similar to the ones used to value “community engagement” (cost of time spent collaborating).

Finally, “*trust*” was valued using the “income compensation”/“well-being valuation” approach (14 and 15).

Other

All “other” outcomes were valued using the “cost of activity that could result in same outcome” approach, except for one outcome of community benefit and one outcome of image improvement in Study 37 valued with the WTP approach. Within the “cost of activity that could result in same outcome” approach used to value image improvement, there was some homogeneity in the activities chosen, that is, the cost of advertising (9, 10, 23, 31, and 45) and the cost of sponsorship (23 and 37). Also, image improvement included a negative outcome, that is, negative image (study 19).

Discussion

The main aim of this systematic review was to inform a wider study on the application of the SROI model to PAS. Specifically, it was to provide information on (1) what outcomes have been studied under the SROI model to evaluate the impact of PAS and (2) how these outcomes have been measured and valued.

A total of 55 documents published between 2010 and 2022 were included, adding several records to the previous systematic review within the PAS field with only 17 SROI studies published between

Table 5 Valuation Methods of the Different Education Outcomes

Education outcomes	Valuation methods	Study ID
Improved educational attainment	Number of additional active participants aged 16 and 18 with formal qualifications (GCSEs and A-levels) \times 1% increase in educational attainments (aged 11–18; based on literature; Davies et al ¹²) \times average annual lifetime productivity returns (based on Hayward et al ³⁹)	11, 12, 13, 15, 17, 39
	Number of players 13–18 y old \times improvement in educational performance \times value of education-driven GDP growth \times inactivity rate/80 y (based on OECD studies to calculate the likely effect of a lift in educational performance on a country's GDP, discounted to create a per capita, annualized value, which was applied to school-age players)	48–56
	"Cost of an activity that could result in the same outcome" approach = cost of an educator for psychoeducational support	23
	Ecorys study	41
School absenteeism	Number of players 13–18 y old \times risk of absence \times effect on risk from participation \times inactivity rate \times cost of absence	48–56
	School absenteeism days \times standard cost of school absenteeism	24
Skills acquisition	Cost of activity that could result in same outcome approach, eg, increased leadership skills = cost of an outdoor leadership training course	9, 19, 23, 28, 35, 45
	Lower NICE threshold of £20,000 as the value of a QALY	29
	Willingness to pay approach	42, 43
	ACIL Allen's SROI framework	38
Other impacts from improved education	Cost of activity that could result in same outcome approach, eg, improved career prospects = cost of UK's Goals for Young People training course	9, 18, 27, 28, 30, 32, 35, 45
	Human capital = number of final year students in higher education doing sport \times % increase in salary per year of students participating in PAS \times average additional starting salary for graduates who are sports participants (based on Hayward et al ³⁹)	11, 12, 13, 15, 17, 39
	Employment to population ratio for the working age population (15–64 y old) \times % boost \times average weekly earnings over an average working life of 43 y – % per annum (uncertainty of future estimate)	47
	Reduction in risk of becoming a NEET = number of participants \times risk of educational underachievement \times effect on risk from participation \times inactivity rate \times per capita cost of educational underachievement	48–56
	Social Value Bank	33
	Global Value Exchange	34
	WTP	43

Abbreviations: A-levels, advanced levels; GDP, gross domestic product; GCSE, general certificate of secondary education; NEET, not in education, employment, or training; NICE, National Institute for health and Care Excellence; OECD, Organisation for Economic Co-operation and Development; PAS, physical activity and sport; QALY, quality-adjusted life year; SROI, social return on investment; WTP, willingness to pay. Note: Only those studies reporting the details for the valuation procedure are included in this table. Mixed outcomes (m) were excluded from the table given that it was not possible to distinguish which outcome belonged to which valuation method.

2010 and 2018.¹¹ This difference reflects the increasing use of this methodology during the last few years (21 documents from 2018 to 2022). Moreover, the SROI model was implemented in 13 different countries from Europe, Asia, Africa, and Australia. The lack of studies from the American continent is notable. It is possible that the search or selection strategies failed to capture relevant resources, but these results are consistent with previous reviews.¹¹ The analyses were conducted by universities, external consultants, sports clubs, and government bodies alike. Only 8 documents were published in peer-reviewed journals. On the one hand, this may be explained by the extensive reporting in SROI evaluations to reach transparency, which often exceed the word limit of journals. On the other hand, the fact that most of these applications are not supervised under a peer-reviewed process may limit the reliability and validity of the method, which often lacks before and after evaluations or the inclusion of control groups, as discussed in previous reviews.^{4,11} There was also diversity in the activities being evaluated, with most of them related to the impact of football ($k = 19$). This wide application means that the outcomes measured often vary. Neither the *outcomes* nor the indicators or financial proxies were standardized between documents, meaning that it is often difficult to compare the findings of different

SROI studies directly. There were 2 clearly distinguished SROI sport models: one developed by Davies et al¹² and used in 7 documents (11, 12, 13, 14, 15, 17, 39) and one developed by the Union of European Football Associations (UEFA) used in 9 documents (48–56).

Social Outcomes Measured in Relation to PAS

Regarding the *outcomes*, health and subjective well-being were the most frequent categories ($k = 52$ and $k = 49$, respectively), both in the total sample as well as the high-quality subsample from sensitivity analyses (see Table S2 in the [Supplementary Materials](#) [available online]), which reflects the stronger evidence of the impact of PAS in these *outcomes*. These categories were followed by education ($k = 46$), social capital ($k = 33$), and crime ($k = 28$). These categories were created based on the Davies et al¹² model and the authors' expertise. Moreover, each of these was divided into different sub-categories based on the similarity of the individual *outcomes* measured in each document. A more objective way to create categories could involve using previous consolidated theories defining each *outcome* category and its components (eg, psychological theories about well-being) or asking a panel of experts to reach agreement.

Table 6 Valuation Methods of the Different Subjective Well-Being Outcomes

SWB outcomes	Valuation methods	Study ID
General well-being	Willingness to pay approach	48–55
	GVE: According to the GVE, evidence shows that membership in a sports club has the same impact on individual well-being as an increase in income of £3600/y	1
	Income compensation/well-being valuation approach: Doing sport at least once a week generates SWB equated by individuals to an equivalent of £11,000 per annum increase in their salary (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/71231/CASE-supersummaryFINAL-19-July2010.pdf)	28
	ACIL Allen's SROI framework	38
	Average rate of value placed on an additional unit of participation in organized sport derived by the UK Culture and Sport Evidence program	47
Quality of life	Cost of activity that could result in the same outcome approach, ie, increased quality of life = amount of budget the individual needs to invest in to achieve the same change	18
	Health-related quality of life = QALYs = time in a certain health state × utility value	24
	Social Value Calculator: good overall health	25
	Social Value Bank: Health-related quality of life = sense of belonging Social Value Bank value	26
	ACIL Allen's in-house input–output modeling framework	38
Life satisfaction	Ecorys study	41
	Income compensation/well-being valuation approach based on Fujiwara et al ^{35,36}	11, 12, 13, 14, 15, 17, 39
	–Cost of activity that could result in same outcome approach, ie, established positive values and outlook on life = Baseball Project accommodation costs and baseball summer camp expenses	18
	–Willingness to pay approach	29
Happiness	Lower NICE threshold of £20,000 as the value of a QALY	8, 37
	Cost of activity that could result in same outcome approach, eg, F = feel happier and positive = spend on social trips out	14
Motivation	Income compensation/well-being valuation approach based on Fujiwara et al ^{35,36}	6, 27, 35
	Cost of activity that could result in same outcome approach, eg, development of children's exercise motivation = average price for children's private sport program	8, 9, 10, 18, 23, 30, 32, 36, 37
Confidence and self-esteem	Cost of activity that could result in same outcome approach, eg, cost of a course aimed to boost confidence of self-esteem	14, 39
	Income compensation/well-being valuation approach (Fujiwara et al ^{35,36})	43
	Willingness to pay approach and well-being valuation method	25, 26, 33
	Social Value Bank	34
	GVE	29
	Lower NICE threshold of £20,000 as the value of a QALY	

Abbreviations: GVE, Global Value Exchange; NICE, National Institute for Health and Care Excellence; QALYs, quality-adjusted life years; SROI, social return on investment; SWB, subjective well-being. Note: Only those studies reporting the details for the valuation procedure are included in this table. Mixed outcomes (m) were excluded from the table given that it was not possible to distinguish which outcome belonged to which valuation method.

Also, it is important to note that *outcomes* can be intermediate or final, which is specific in each evaluation. This is due to the fact that activities like PAS can start a chain of events, for example, sporting activity in school leads to higher motivation in teenagers (intermediate outcome), which leads to better grades (final outcome). The present review aimed to give an overview of *all* the social impacts that have been measured in the literature regarding the participation in PAS. Therefore, it did not distinguish between intermediate and final *outcomes* (some examples are indicated as “mixed outcomes (m)” in Table S1 in the [Supplementary Materials](#) [available online]). However, when applying the SROI model, it is important that stakeholders distinguish in an impact map between intermediate and final *outcomes*. Otherwise, the impact of the same *outcome* could be double counted, reaching an inflated, not accurate estimate.²³ The final tool kit resulting from this project will provide a guide for this process, including a decision tree helping in the selection of *outcomes* depending on the project's context.

Indicators Used to Measure Social Outcomes

Regarding the *outcome indicators*, the high variability in the measurement methods led to the distinction of subcategories. Some of these showed a higher unified methodology than others. For example, the most common subcategory was “physical health” ($k=46$), with a notable difference to the following ones, that is, “other impacts from improved education” ($k=35$) and networks and relationships ($k=29$). This could be due to the fact that health is the category with the most scientific evidence accumulated in relation to the benefits of PAS^{12,13} and that the health field is one of the few using common measures (such as DALYs and QALYs) in the evaluation of social value creation in comparison with, for example, education.¹⁰ It is surprising, however, that only one document (24) used an objective measurement for health (food intake, height, and weight) given that the combination of these tools with self-reports would help improve the validity of the

Table 7 Valuation Methods of the Different Social Capital Outcomes

Social capital outcomes	Valuation methods	Study ID
Networks and relationships	Cost of an activity that could result in the same outcome approach, eg, strengthened family bonds = family activity expenses	8,10, 18, 23, 28, 35, 37, 45
	Willingness to pay approach	18, 19
	Income compensation/well-being valuation approach	15, 39
	Global Value Exchange: average spending on social interaction (from SROI report by Social Value Lab)	1
	Social Value Bank: HACT Social Value Calculator v4: member of a social group	25
	Lower NICE threshold of £20,000 as the value of a QALY	29
	Value from previous literature ⁴⁰	42
	ACIL Allen's SROI framework	38
	Ecorys study	41
Sense of identity and belonging	Cost of an activity that could result in the same outcome approach, eg, sense of belonging = membership of a social group	9, 18, 37, 42
	Willingness to pay approach	18, 43
Community engagement	Cost of an activity that could result in the same outcome approach, eg, improved sense of doing something for my community = bonus payment or honorarium for doing a good job	1, 28
	Income compensation/well-being valuation approach	14
Inclusion, integration, and equality	Cost of an activity that could result in the same outcome approach, eg, empowerment and equality = 1 mo participation fee of soccer winter school	35
	Income compensation/well-being valuation approach	14, 39
	Global Value Exchange: greater integration of social, sport, and special interest groups = cost of time spent collaborating	1
Trust	Income compensation/well-being valuation approach	14, 15

Abbreviations: HACT, housing associations' charitable trust; NICE, National Institute for Health and Care Excellence; QALYs, quality-adjusted life years; SROI, social return on investment. Note: Only those studies reporting the details of the valuation procedure are included in this table. Mixed outcomes (m) were excluded from the table given that it was not possible to distinguish which outcome belonged to which valuation method.

results. Some other subcategories were included in only a few documents, for example, "trust" (within social capital) was included in 5 documents, and "motivation" (within subjective well-being) was included in 4 documents. Subjective well-being was the most heterogeneous *outcome*, with 7 distinct subcategories, including an "other outcomes" subcategory, which was too diverse to be unified with one term. However, some subjective well-being subcategories showed homogeneous indicators, such as "life satisfaction," based on previous literature showing an association between sports participation and higher subjective well-being and health-related "quality of life," measured in all cases by the questionnaires of the EuroQol Group.⁴¹ Crime was not divided into subcategories given that it was measured primarily in one way, that is, reduced risk of criminal incidents and reduced risk of recidivism. There was also one indicator measuring reduction of antisocial behavior. This reduced variety of measurement techniques makes the comparison of results easier.

An important consideration when choosing the *outcome indicators* is the scope of the evaluation. On the one hand, if the aim is to calculate the social value of PAS at the population level (eg, national level), the data to calculate the impact will be taken from population-level evidence and secondary sources. For example, Study 11 aimed to estimate the social impact of sport in England in 2013/14, which necessitated the use of population-level indicators, such as "Sports participation reduces criminal incidents for males aged 10–24 years by 1%," "% of increase in educational attainment in children aged 11–18 who participate in sports," or "% of Risk reduction of coronary heart disease by participation in sport and exercise at moderate intensity in adults." This means having

strong evidence from previous literature and the need to apply the evidence specific to the geographical context to make assumptions about populations. Of note, some population-level studies make assumptions that are not based on population-level evidence, which can reduce the quality of evaluations. Also, in some *outcome* areas, there is no population-level evidence available, which makes it very important to be transparent about the assumptions taken. Future research is needed in these *outcome* areas (eg, the relationship at the population level between PAS and different subcategories of social capital) for SROI analyses to become more robust in the field. On the other hand, if the aim is to calculate the impact of a specific program or activity, then data should be collected directly from the stakeholders. For example, Study 24 aimed to evaluate the impact of "Physical Activity Schools" intervention and used indicators such as school data for educational attainment before and after the intervention as well as the change on the EQ-5D-Y questionnaire for children and parents before and after the intervention.

Valuation Methods for Social Outcomes

Finally, in relation to *valuation methods*, there were several approaches used to value the different *outcomes* (see the Glossary in [Supplementary Materials](#) [available online] for a definition of each valuation method). "Overall good health" was mostly valued using the annual NHS cost saving per person associated with improvements in self-reported good health.^{35,36} It is important to mention that all studies measuring "overall health" in the high-quality subsample were based on this approach or the value from

the Social Value Bank, providing a potential consensus on how to value this outcome subcategory. There seems to be an agreement to value “physical health” and “mental health” using the cost per condition as a proxy. However, there is also variety within this approximation because health costs per condition can include direct, indirect, and informal costs. Often SROI studies lack transparency in terms of what direct and indirect costs are included, and others combine indirect and informal costs, again, making comparisons difficult. Future SROI studies should specify which of those costs they are including for their calculations. Another commonality for the valuation of “physical health” (but not “mental health”) was using the cost of exercising (swimming sessions, the cost of a bike, gym membership, the cost of a personal trainer, etc). The rationale behind this choice is that physical exercise directly translates into physical health benefits. It is important to note that the predominance of these 2 valuation methods for “physical health” was maintained in the high-quality subsample (36.8% used the cost of treatment, and 31.6% used the cost of doing some type of exercise). Given the higher homogeneity in the crime category, the valuation method in this case mostly involved the calculation of reduced risk of committing a crime or recidivism multiplied by the cost per criminal incident. However, it is necessary to adjust the cost depending on the type of incident prevented (eg, reduced drug abuse, decreased antisocial behavior, etc). The challenge with the valuation of crime is that it relies on evidence about its relationship with PAS participation, which is very varied and often of a lower level of rigor compared with other outcome areas. Moreover, those studies using the “cost of activity that could result in same outcome” approach did not follow an agreement either in the total sample of documents or in the high-quality subsample (see [Supplementary Materials](#) [available online]). Within the education category, there were 2 main established methods to value “Improved educational attainment,” both of them based on previous literature. The first one used Organisation for Economic Co-operation and Development (OECD) studies showing the influence of a higher educational performance on a country’s gross domestic product.⁴² The second one used Hayward et al’s³⁹ estimations of return and lifetime productivity gains due to higher educational attainment. Similarly, “other impacts from improved education” were mostly valued with the per capita cost of educational underachievement also based on OECD studies and Griffiths et al’s⁴³ estimation of average additional starting salary for graduates who are sports participants. Although both approaches are robust and supported by scientific evidence, the benefit of using the OECD calculations is that it is an international organization, whereas the estimations of Hayward et al³⁹ and Griffiths et al⁴³ were based on the UK population. Also, the OECD maintains up-to-date online statistics relating education and earnings.⁴⁴ “School absenteeism” was valued in all cases by estimating the cost of the absence. However, only one document in the high-quality sample included this outcome subcategory and specified using published proxy values. Future SROI studies measuring the impact of PAS on “school absenteeism” should look for scientific studies estimating the cost of being absent at school adapted to the country or region of interest. “Skills acquisition” was mostly valued with the cost of completing a course that would provide the development of the same skills acquired with the participation in PAS activities (eg, improved leadership skills in PAS equated to the value of an outdoor leadership training course). Within the subjective well-being category, “general well-being” was mostly valued with the WTP approach (participants were asked to assign a monetary value to their increase in well-being

due to PAS), and “life satisfaction” was mostly valued with the “income compensation”/“well-being valuation” approach.^{35,36} Although the WTP offers a more subjective approach, the “income compensation”/“well-being valuation” is based on population data. Strengths and limitations of both methods can be found in previous work.^{45–47} “Quality of life” was valued with different methods, finding no consensus in this case. “Happiness” was mostly valued with the “cost of activity that could result in same outcome” approach, finding the cost of holidays or trips as a usual proxy. “Motivation” was only valued with the “cost of activity that could result in same outcome” approach, but there was no similarity for the activities chosen in this case. “Confidence and self-esteem” was mostly valued with the “cost of activity that could result in same outcome” approach, with the value of a training course (eg, a self-esteem training course for young people) that would boost confidence and self-esteem as the most common proxy both in the total sample and the high-quality subsample of documents. Finally, within social capital, “networks and relationships” was mostly valued with the cost of varied social activities, which was consistent with the approach taken by the external sources Social Value Bank and Global Value Exchange. It would be necessary in this case to calculate these prices adjusted to the context and country of the study. There was no standard pattern to value “sense of identity and belonging” either in the total sample or in the high-quality subsample of documents. “Community engagement” and “inclusion, integration, and equality” were almost equally valued with the “income compensation”/“well-being valuation” approach and the “cost of an activity that could result in the same outcome” approach. Moreover, the activities chosen were related in both cases with doing a job for the community. This result could indicate that these 2 categories overlap and should be taken as one. Finally, “trust” was valued with the “income compensation”/“well-being valuation” approach. It is necessary to consider that not all documents provided information about the valuation approaches, thus presenting another challenge for comparing SROI studies and going against the quality criterion of transparency promoted by social value.¹⁹ Although one of the reasons this information may be omitted is due to the confidentiality of data and the commercial nature of SROI research, the development of the SROI literature would benefit from the inclusion of the details about measurement and valuation in all published documents. In relation to this, social value banks are useful tools when conducting an SROI, but there is need of higher clarity regarding the calculations of the proxies.

Limitations

This review has several limitations. First, of the 55 studies included in this review, just 8 were scientific articles, whereas 47 were reports not published in peer-reviewed journals. Moreover, most studies were cross-sectional, and all of them based their methods on self-report measures. These results limit the interpretation of the findings and make it difficult to talk about causal relationships. Therefore, there is a need to improve the methodological quality in the application of SROI studies. Despite this, none of the documents met less than 20% of the quality criteria according to the Drummond checklist, although future studies on SROI could benefit from the use of Krlev’s framework, used in previous reviews of SROI studies.¹¹

Second, the search strategy did not include conference proceedings or non-English-language articles, which might have left out some relevant documents. However, the present systematic review still adds several records to the previous one.¹¹

Finally, there was a high level of heterogeneity regarding the aims, *outcomes*, indicators, and financial proxies used in the different documents, which makes it difficult to synthesize the findings and reach robust conclusions. This is a caveat in the practical implementation of the method, for example, by organizations or policymakers.

Conclusions

Despite its limitations, this study makes a significant contribution to synthesizing knowledge on SROI studies and PAS. It not only updates the previous systematic review in the area,¹¹ but it also widens the scope identifying the *outcomes*, the indicators (measurement methods), and financial proxies (valuation methods) used in the literature.

This review is part of a wider project that aims to develop a Global Consensus Statement on the measurement of social value and PAS. It will inform a Delphi study to reach experts' consensus on the definition of social value and how to apply the SROI methodology. The present review is the first step to understand which social benefits are being measured globally and to organize the details on how to measure and value them. This exercise is essential to then discuss the different alternatives and reach the best available solution in each area of knowledge. In the context of scarce resources and competing priorities, the SROI approach can be a "game-changer," helping in the decision-making processes of investment and subsequent management of resources. This review provides quantitative, scientifically based evidence of the different benefits that PAS participation can bring at national, regional, and local levels. It establishes the base to design an open, available guide on how to conduct an SROI, which will solve application problems such as lack of training,⁴⁸ dependency on external consultants,²³ and the lack of public availability to learn about and compare outcomes.⁶ This will promote the wider use of the SROI as a tool to show evidence of the benefits of PAS and to justify investment in these activities.

Notes

I. The final systematic review presents a difference from the preregistered information. The preregister stated the secondary goal of searching international PAS policies to compare their main areas of interest (government focus) with the resulting outcomes of the systematic review (academic and organizational focus). However, given the length of the study, the results of this secondary aim will be presented elsewhere.

Acknowledgments

We thank Professor Peter Taylor (Sheffield Hallam University) for his key role in reshaping and informing the initial steps of the study. **Funding Source/Trial Registration:** This work was supported by EuropeActive as part of a Senior Research Fellowship at the Research Centre in Sports Science of King Juan Carlos University. EuropeActive, formerly the European Health and Fitness Association (EHFA), is the leading not-for-profit organization representing the whole of the European fitness and physical activity sector in Brussels. Membership is open to all stakeholders—public or private—including operators, suppliers, national associations, training providers, higher education, and accreditation institutions. The EuropeActive team is fully committed to consulting and working with the different mentioned stakeholders, including other non-governmental organizations (NGOs) promoting health-enhancing physical activity, sector media, and research and scientific institutions. EuropeActive aims to co-operate with the European Union and

other international organizations to achieve its objective to get more people more active more often. **Grant number(s):** EuropeActive, grant reference number: #V-1000. Date of Award, November 15th, 2022. This study was preregistered at OFS Registries (osf.io/sx9cn).

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