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Ireland Lights Up: Protocol for an Effectiveness-Implementation Evaluation of a Walking Initiative in Gaelic Games Sports Clubs

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Abstract Many physical activity (PA) for health interventions are small-scale and not designed to be reproducible or scalable. 'Ireland Lights Up' (ILU) is a large-scale, multi-level walking initiative delivered through approximately 1,000 Gaelic Athletic Association (GAA) clubs across Ireland, with an estimated 40,000 weekly participants. ILU encompasses individual, community, and environmental levels, offering strong potential for scale-up, adaptation, and sustainability. This protocol outlines a detailed methodology for evaluating both the effectiveness and implementation of ILU using implementation science frameworks. A hybrid type-two effectiveness-implementation design will be employed, guided by the RE-AIM (Reach, Effectiveness, Adoption, Implementation, Maintenance) and PRISM (Practical, Robust Implementation and Sustainability Model) frameworks, alongside the Implementation Science Assessment Tool (ISAT). The study will assess outcomes across multiple levels (participant, club, organisational, and systems). Primary outcomes include PA participation levels, subjective wellbeing (e.g., life satisfaction), social capital, reach, adoption, cost-effectiveness, and maintenance. Data collection methods include cross-sectional surveys with participants and club leaders, semi-structured interviews with key stakeholders, and a one-year longitudinal study with participants. This protocol provides a replicable approach to evaluating real-world, community-based PA interventions at scale. Grounded in implementation science, the study aims to identify key determinants of effective, sustainable health promotion within sports clubs, with particular attention to 'not yet reached' groups. Findings may inform future integration of scalable, context-sensitive initiatives into sports clubs for health and other community-based settings. **Trial registration:** ISRCTN14693503

Keywords: *physical activity, sports clubs for health, implementation science, health promotion, settings approach*

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1. Introduction

Increasing population physical activity (PA) levels continues to remain a global public health priority [1,2,3]. Traditional approaches to health promotion have focused on individual behaviour change; however, current thinking highlights broader social, environmental and policy contexts influencing health behaviours [4]. Global PA action plans now recommend population focused programmes and public education campaigns at community level to reach wider audiences and improve outcomes [5,6]. These approaches align strongly with the Sustainable Development Goals (SDGs) [7], particularly SDG 10 and 11 around inclusivity and equity. Strengthening community-level initiatives supports increased PA participation and social cohesion. Health promotion strategies are encouraged to integrate the wider social benefits of PA, such as connectedness and belonging, to enhance community engagement [8]. PA community-based programmes thus offer a promising route not only for improving health and wellbeing (SDG 3) but also for building inclusive and sustainable communities (SDG 11) [9,10].

A settings-based approach to health promotion acknowledges the role of environments, such as communities, schools and workplaces, in supporting sustainable health outcomes [11,12]. Sports clubs have gained attention as viable health-promoting settings [13,14]. As such, sports clubs can positively influence not only PA but also increase social connectedness by providing opportunities for health enhancing initiatives [14,15,16]. These settings can transcend traditional sport affiliated populations [17], reaching a wider audience within local communities that cross socioeconomic divides and life stages. Although their core purpose is

competitive sport, their role in fostering community health has become increasingly recognised [16], with government funding for these clubs often contingent on fulfilling a broader social responsibility that meaningfully impacts their communities [16,18,19]. Leveraging the embedded networks and infrastructure of sports clubs to deliver PA initiatives presents a strategic opportunity to reach those 'not yet reached' by traditional health promotion [17,20]. In line with this shift, many sports clubs look for opportunities to incorporate health promotion at a community level [21].

Walking, as a low-cost, low barrier and accessible form of PA represents an "easy win" for sports clubs wishing to expand their community health role [22]. The physical and mental benefits of walking are significant and well documented [23,24,25] and evidence shows that community-based group walking interventions can effectively increase PA levels and improve participant health [26,27,28]. Despite this, there is limited evidence of successful community-based walking interventions at scale or otherwise. Many studies include only short-term follow-up and focus primarily on walking behaviours [29,30] with no studies focused specifically on walking initiatives in a sports club setting.

An increasing number of sporting governing bodies have adopted a 'health promoting sports club' model (HPSC) [31]. A powerful example is the Gaelic Athletic Association (GAA) in Ireland. Founded in 1884 as a way of preserving Irish tradition and culture, it is now the largest amateur community sporting organisation in the world, with a grassroots network of over 2000 volunteer-led clubs across all 32 counties. GAA clubs have long been embedded as an integral part of community life, with events drawing crowds of over 80,000 spectators [32]. The GAA club network transcends age and social class and operates as a focal point for people in fostering community belonging [32]. Additionally, GAA clubs are a lifeline for Irish rural areas, where due to low population density and an aging population, many people experience loneliness and social isolation [33,34]. Government statistics report that a significantly higher proportion of the population in Ireland lives in rural areas than the EU average (31.4% v 27.3%) and these areas also report the highest proportion of medical card holders (means-tested free medical care scheme) [33]. Building on the GAA ethos of community volunteerism and recognising the desire and need for more structured health promotion activity at a grassroots level, in 2015, the Healthy Club Project in Ireland was established to embed mainstream health promotion within GAA clubs.

1.1. Ireland Lights Up: a Unique Sports-club Based Community Initiative

This partnership led to the development of Ireland Lights Up (ILU) in 2018, a sports club-based community walking initiative hosted by GAA clubs and designed to engage both members and non-members of the club. Seasonality is a recognised determinant of PA [35], and Ireland's unpredictable and often inclement winter weather can create significant barriers to outdoor activity. Capitalising on their extensive nationwide club network and strong volunteer base, the GAA launched ILU to address this seasonal challenge. The initiative is built on a simple but effective concept: GAA clubs switch on their floodlights and open their grounds to the local community for weekly evening walking sessions during the winter months of January and February, providing a safe, accessible, and welcoming space for people to be active. There has been widespread adoption of this initiative and ILU is now operating across circa 1000 GAA clubs annually [36]. Previous formative evaluation work highlighted the positive outcomes of the initiative, such as increased social connection and sense of belonging [37]. However, due to the varied nature of participating clubs, located in both urban and rural locations, the delivery and implementation of the initiative is heterogeneous across Ireland. This inconsistency poses challenges for impact assessment, implementation, and the sustainability of these initiatives.

ILU is a novel example of a scalable walking initiative in a sports club setting offering an opportunity to address gaps in the literature regarding scalable interventions [38,39]. It represents a promising model for engaging diverse cohorts of the population with PA by exploring strategies to improve reach. Achieving sustained impact, however, requires a settings-based, whole systems approach to identify and understand the range of factors that influence both reach and implementation [21,40,41]. In this approach, relationships are reciprocal; the GAA club shapes and affects the activities that take place, while club participants, the local community and governing bodies also influence how the club functions, as outlined in Figure 1 below [11,21]. This interdependent dynamic means that, beneath the surface of the ILU approach, multiple determinants exist across an ecological model of implementation. These include the capacity of a small volunteer-led team to manage delivery at scale, attitudes about ILU at club level, and sustainable leadership and partnership support [42,43]. Understanding these determinants is essential to inform and evaluate implementation strategies at scale.

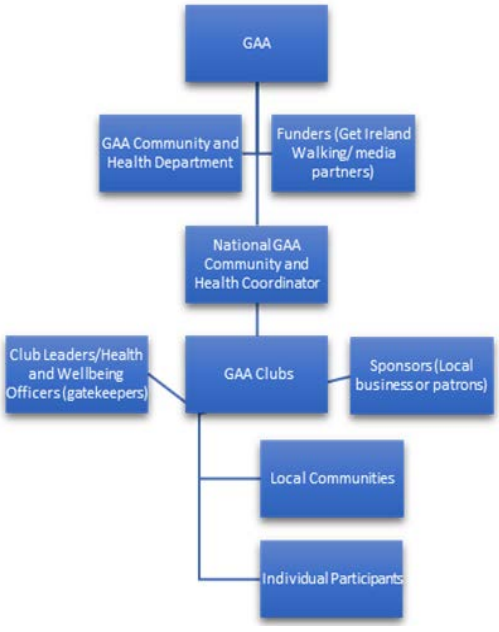

Figure 1. The reciprocal structure of ILU within the GAA

To date, these mechanisms remain largely understudied and unknown as there has been limited evaluation of ILU, beyond ad-hoc feedback volunteered by clubs. Little is known therefore about what the exact determinants of successful implementation are or the benefits in terms of health and wellbeing outcomes. Successful implementation is defined as consistent and sustained delivery of ILU as intended, to effectively engage and enhance health and wellbeing outcomes in participants [44]. The proposed evaluation seeks to address this gap by shedding light on how sports club-based community PA interventions can be successfully implemented, thereby supporting health promotion practitioners to better understand the determinants for successful scaleup and maintenance of such initiatives.

1.2. The Value of Utilising Implementation Science Frameworks in the Health Promoting Sports Club Setting

Public health interventions are often poorly adopted due to contextual factors hindering their success in real-world settings [45]. Implementation science research has been developed to amplify the adoption of evidence-based practice and thereby increase public health impacts by identifying factors that affect the initiative's uptake into sustained use [46]. The ILU initiative presents enormous potential to identify and harness implementation strategies that can act as a blueprint for other community-based and HPSC settings to implement similar approaches. However, it is also envisioned that the task of maximising the impact and reach of ILU within community settings across Ireland is likely to be met with multiple challenges, underpinned by a host of contextual factors that can limit successful translation into regular practice [47]. As ILU is implemented across diverse geographical locations and club contexts, it is important to consider the facilitators and barriers across all levels of implementation (e.g. participant, club, organisation and systems levels) [48].

Evaluating ILU at scale also requires strong approaches to demonstrate evidence of effectiveness for participants in terms of health outcomes [49]. The issue of effectiveness or impact at an individual level is important. If an intervention has no effect on individual health outcomes, at least at a minimal level, there is little point in evaluating it as a whole [50]. This protocol proposes a 12-month long effectiveness study with the inclusion of novel impact measures. In the event of even a modest intervention effect being detected, the study will be of greater significance considering the intervention is already operating at scale. It is also salient to document the possible unintended consequences of the intervention on wellbeing and related outcomes [51]. Implementation science highlights the dual focus of capturing the core determinants of successful delivery while also measuring effectiveness at an individual level [43,52]. Despite already operating at scale, the benefits, or unintended consequences of ILU have not been captured.

There is also a gap in our understanding of scalability; in terms of maximising its own implementation or evaluating the scalability of the approach across other sporting governing bodies and community organisations. These factors are critical moderating factors to implementation and scale-up success [53]. Similarly, merely determining if an intervention is successful is not enough; it is crucial to capture the ingredients that contribute to that success [54,55]. Hybrid effectiveness-implementation trials have been developed to respond to this and are vital to the successful translation of settings-based interventions [56,57]. This proposed research design will guide the development of a blueprint to capture the core ingredients of what determines the success of ILU, to guide replication while identifying barriers to implementation, and strategies to address these barriers within the real-world context [48].

1.3. Study Aim and Research Questions

The overall aim of the study is to measure the effectiveness of the ILU initiative in terms of its reach, implementation and sustainability across GAA clubs, measure its impact on health and wellbeing outcomes and examine how it could be implemented in other National Governing Bodies (NGBs) of Sport. This paper will detail the methods used in the evaluation of ILU to allow reproducibility for HPSCs internationally and ensure that this research can be translated for real world benefit. The methods outlined will attempt to answer the following research questions:

1. What is the reach of ILU in terms of participants and clubs across the GAA?
2. What are the facilitators and barriers that impact adoption, implementation, maintenance and sustainability of ILU across the participant, club, organisation and systems level?
3. Does participation in ILU improve physical, mental, and social health and wellbeing among participants?
4. What are the core determinants of ILU for successful scale-out to other organisations?
5. What is the wellbeing cost-benefit of the ILU implementation approach?

2. Methods

2.1. Study Design

Ireland Lights Up is a sports club-based community walking initiative coordinated by the GAA and in partnership with Get Ireland Walking (GIW) and various Irish television, radio and digital media outlets. The initiative is endorsed by a variety of stakeholders: Sport Ireland, Healthy Ireland and Irish Life GAA Healthy Clubs. The ILU initiative, launched in 2018, operates under a straightforward model where registered clubs commit to opening their facilities to the local community on one or more designated evenings each week. These sessions are facilitated by local club leaders and volunteers who undertake responsibilities such as lighting the walking track, managing registration of participants and providing guidance and support to walkers. To assess the possibility of a national evaluation, a formative study conducted in early 2023 [37] involving 181 survey participants and 12 semi-structured interviews from 12 GAA clubs, highlighted the significant impact of the ILU initiative on PA and social connection. Key findings

included increased PA levels, improved social interactions, and enhanced general health and wellbeing. These findings provided the basis to inform the design of a more comprehensive evaluation framework.

The ILU study design utilises a mixed methods approach guided by implementation science [55]. The decision on which framework to use depends on the research problem, the context and the fit among the intervention [58]. Thus, a hybrid type-two effectiveness-implementation study design will be applied which allows for parallel testing of impact and implementation outcomes to maximise translation to a real-world context while also providing accurate assessments of effectiveness regarding health outcomes [56]. To achieve this, outcomes such as reach, adoption, acceptability, adaptability and costs must be assessed [44,59,60,61]. This study will utilise a combination of two implementation science frameworks; the widely known Reach, Effectiveness, Adoption, Implementation and Maintenance (RE-AIM) framework [59] and, in tandem, the Practical, Robust Implementation and Sustainability Model (PRISM) [62]. These frameworks facilitate the evaluation of contextual factors, processes and outcomes of efforts to translate knowledge into real-life practice (63). The ILU theoretical framework is outlined in Figure 2 below.

Focusing on contextual factors is particularly important here as ILU is delivered over a variety of club settings. Identifying the core determinants of effective implementation across clubs in Ireland is critical to the continuation of initiatives within the community setting helping to identify the most feasible delivery processes to maximise maintenance and sustainability [59]. In this context, sustainability refers to the continued adoption and integration of programme principles and behaviours at the participant, club and organisational levels to maintain impact over time [65,66]. In addition, the Intervention Scalability Assessment Tool (ISAT), a critical decision support tool for use at policy, practitioner and researcher level will assess ILU's scalability [49]. This will help determine how well ILU operates at scale across the club network. The ISAT, divided into three sections, will guide the researchers through the established factors impacting the success of scaling up PA interventions. The ISAT encourages evidence-based decision making and reflection on required resources and possible risks to long term sustainability. Informed by RE-AIM and PRISM and through a multi-stakeholder engagement approach (participant, club, organisation and systems level), the study will identify barriers and facilitators to ILU implementation, successful scale up, and strategies to overcome barriers affecting the impact and sustainability of the initiative. Successful implementation will be evaluated based on a variety of factors including intervention effectiveness alongside implementation outcomes [67].

In order to appeal to policy makers and funders, an important consideration in these types of settings, where resource allocation is limited, is the cost-benefit analysis of ILU and public health [44,45,68]. Implementation costs are also likely to influence the acceptability of an initiative and therefore are important to measure in a study where acceptability is a key priority [44,60]. Cost-benefit is a key consideration regarding the justification of scale-up to other GAA clubs and the scale-out of ILU to other community settings [49]. Furthermore, community-based initiatives need to consider broader concepts of value, focusing on incorporating social, environmental and economic cost benefits to reduce inequalities [69]. To evaluate the wellbeing cost-benefit of the ILU initiative, the study will focus on measuring impacts within the effectiveness arm of the trial. The following section is presented in two parts; the first outlines detailed research methods for examining the effectiveness of ILU, while the second focuses on the proposed methods to assess its implementation. Data collection for the evaluation will take place over two years due to the initiative's short 6-week duration.

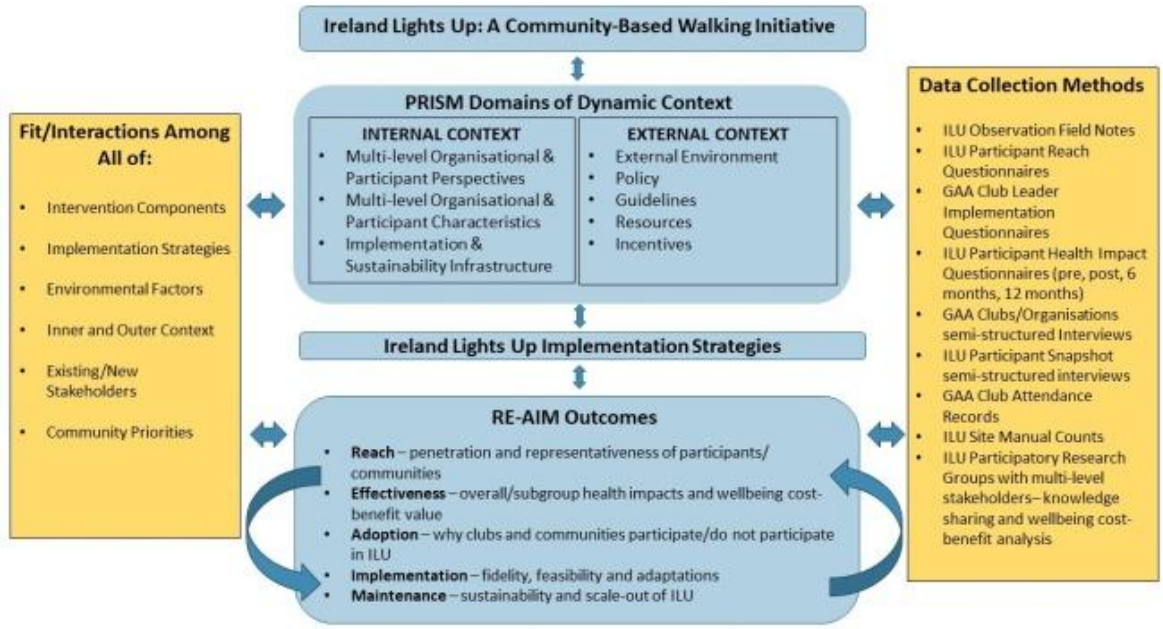

Figure 2. Ireland Lights Up Theoretical Framework. ***Adapted from [64]***

2.2. Part 1: Ireland Lights Up Effectiveness Evaluation

2.2.1. Overview

Evaluating the effectiveness of the initiative is critical to the value of a scaled-up intervention [52]. This will involve an assessment of health outcomes at participant level at baseline, post-initiative, six months and 12 months via questionnaires using validated measurement tools to measure physical and mental health outcomes as well as levels of social connection. Measurement tools are described in detail in Table 1 below. Snapshot semi-structured interviews with participants will be conducted face to face during walking sessions over the six weeks of the initiative. Alongside this, wellbeing cost benefit analysis (WCBA) methodology will be adopted [70,71,72]. Data indicators measuring life satisfaction, mental health, physical health and social relationships will be collected as part of the effectiveness evaluation questionnaires. Monetary values will be assigned to these outcomes, and a discount rate will be applied to future wellbeing outcomes to bring them to present value terms [73]. This approach is suitable for longer term, sustained initiatives such as ILU. Each identified outcome will be assigned a corresponding social value, capturing the true value of the initiative. Outcomes will be informed by formative work carried out in 2023 [37] as part of a rationale for proposing this protocol.

2.2.2. Participants and Sampling

All adults in participating GAA clubs will be eligible to take part in the study providing they can give informed consent. Purposive sampling will be used to recruit participants. To address representativeness, efforts will be made to ensure diversity in participant recruitment across variables such as geographical location (e.g., urban and rural clubs), age groups, and socioeconomic status. Questionnaires will be administered online through Qualtrics software. Recruitment information will be disseminated to registered clubs by the GAA Community and Health Department who will act as gatekeeper for recruitment. The GAA will identify lead organisers in each club for questionnaire distribution. The study will apply a clustered design which is in keeping with the GAA club ethos and to ensure a wide geographical spread. Clubs will act as clusters and participants will be recruited within each cluster. A design with approximately 20 adults in each cluster was estimated. Previous sample size estimation where physical activity was the primary outcome measure [74] suggests a design effect of ~ 2.4 which indicates a sample size of n=255 is required. Allowing for a dropout of 20%, the final participant total is estimated at n=306 with circa 15 clubs/clusters.

2.2.3. Ireland Lights Up effectiveness evaluation - data collection

Longitudinal participant health impact (effectiveness) questionnaires will be administered via an online Qualtrics form with links also displayed at walk starting points during the first week of the programme. Participant demographics will be recorded at baseline and include gender, age, relationship status, educational attainment, employment status, and ethnicity. Participants will also be asked about club membership, participation in ILU and sense of belonging in the club. Core health and wellbeing outcomes will be measured at baseline, post-intervention, 6 months and 12 months, and will include PA, life satisfaction, self-rated health, subjective wellbeing, mental wellbeing and social capital. The survey will use the same validated health measures at all four timepoints over 12 months, with additional ILU-specific questions included post-programme and at follow-ups to capture participant experience, programme exposure, and behavioural outcomes. This data will inform dose-response relationships, track health changes over time, and explore long-term engagement with ILU to support sustainability. The single item PA measure will be used to record PA levels [75] and strength will be measured using a validated tool from the Sport England Active Lives Adult Survey [76]. Life satisfaction and value will be recorded using the Office of National Statistics (ONS) subjective personal wellbeing 4-point scales [77]. Self-rated health will be measured using a single question Likert scale which has high validity and reliability among the general population [78]. Loneliness will be measured using the 3-item UCLA Loneliness Scale which measures three aspects of loneliness [79]; relational connectedness, social connectedness and self-perceived isolation. The Short Warwick-Edinburgh Mental Wellbeing Scale (SWEMWBS) will be used to measure mental wellbeing [80]. Social Capital will be measured using adapted items from the ONS Social Capital harmonised standard [81], measuring belonging and trust.

Snapshot interviews are brief, focused interviews that usually take place at public events to gather impressions quickly. The interviews consist of three to four questions and take 2-5 minutes to complete [82]. Snapshot interviews with ILU participants (n=30) will be conducted face to face onsite using semi-structured interview guides to give a voice to participant perspectives and values [83]. Sample sizes are determined based on pragmatic sampling and grounded in the methodological theory of saturation principles [84]. Saturation will be incorporated in a way that aligns with the study's research questions and its theoretical and analytical approach, specifically, the RE-AIM and PRISM frameworks. A hybrid deductive-inductive approach will be used to design these by applying these implementation frameworks to assess outcomes but also to create room to explore possible changes in physical activity, health, and wellbeing outcomes, and attitudes towards ILU. A constant comparison process will be used to streamline and modify interview schedules to reflect new themes to be explored as ILU evolves across implementation settings.

2.2.4. Ireland Lights Up effectiveness evaluation - data analysis

Statistical Package for the Social Sciences (SPSS V25) will be used to analyse questionnaire data. Descriptive statistics will be applied to summarise participant characteristics. To assess intervention effects on health and wellbeing outcomes, change scores from baseline to post-intervention at 6 and 12 months will be compared. Depending on the type and distribution of the data,

appropriate statistical tests will be selected (e.g., paired t-tests, repeated-measures ANOVA). For longitudinal data, mixed-effects models will be employed to account for repeated measures within individuals over time and to handle missing data due to attrition. These models allow adjustment for potential confounders (e.g., age, gender, baseline health status) and clustering at the club level. Significance will be set at $p = 0.05$. To address potential attrition bias, intention-to-treat (ITT) analysis will be applied where possible, alongside sensitivity analyses. Methods such as multiple imputation will be used to handle missing data under the assumption that data are missing at random.

Analysis of a framework-driven approach (RE-AIM, PRISM) will be applied to qualitative data analyses. Interviews will be transcribed verbatim and in accordance with recommendations by the National Cancer Institute's White Paper [85] on qualitative research in implementation science, qualitative data will be analysed using NVivo software following a hybrid deductive-inductive approach. Initially, line-by-line coding will be conducted based on the study's research questions and relevant frameworks (RE-AIM and PRISM). Subsequently, new themes will be generated inductively from the data to capture emergent insights. Multiple researchers will independently code transcripts to enhance consistency and accuracy. Regular meetings will be held to discuss coding discrepancies and achieve consensus, thereby ensuring inter-rater reliability throughout the analysis process.

To assess the wellbeing cost-benefit, the ONS Life Satisfaction measure [81], the total number of participants, and the cost of the intervention will be employed [73,86]. The cost of the intervention will be assessed by capturing both direct financial inputs (such as cash donations and funding contributions) and non-monetary resources, including volunteer hours and running costs incurred by clubs. Volunteer time will be valued using appropriate shadow pricing methods, for example, by assigning a monetary value based on average local wage rates or opportunity costs. Club resources, including facilities and staff time, will be similarly quantified through a combination of accounting records and self-reports from participating clubs. This valuation will be guided by recent advances in wellbeing economics and social value measurement, drawing on frameworks such as the WELLBY measure of social value [70] and the HM Treasury Green Book guidance on wellbeing appraisal [71,72]. This approach allows for a comprehensive and holistic appraisal of the resources invested in the programme, beyond traditional financial metrics alone. Life Satisfaction Years (LSYs) are calculated by multiplying a participant's life satisfaction score by how long they experienced that level of satisfaction. Validated scales with established reliability and validity will be utilised to measure constructs related to satisfaction. This ensures that the data collected is as accurate and consistent as possible.

This approach is similar to how healthcare interventions are evaluated based on Quality-Adjusted Life Years (QALYs), which measure the value of an extra year of perfect health. In the UK, an intervention is considered cost-effective if it costs less than £25,000 per extra QALY. Since life satisfaction is measured on a 0-10 scale, this translates to £2,500 for a one-point improvement in life satisfaction over a year [86]. Therefore, any intervention that increases life satisfaction by one point for less than £2,500 is considered cost-effective [71].

Table 1. ILU Effectiveness-Implementation Hybrid Study Design

Evaluation Focus	Research Question	Research Methods & Data Collection	Tools & Frameworks	Targeted Outcome
Implementation	What is the reach of Ireland Lights Up in terms of participants and GAA clubs?	ILU Observation Field Notes ILU Participant Reach Questionnaires ILU Participant Snapshot semi-structured interviews GAA Clubs/Organisations semi-structured interviews GAA Club Attendance Records ILU Site Manual Counts	RE-AIM Framework PRISM Framework (Practical Robust Implementation and Sustainability Model) ISAT Tool (Intervention Scalability Assessment Tool)	Reach Adoption Sustainability
	What are the facilitators and barriers that impact adoption, implementation, maintenance and sustainability of ILU across the participant, club, organisation and systems level?	GAA Club Leader Implementation Questionnaires GAA Clubs/Organisations semi-structured interviews ILU Participatory Research Groups with multi-level stakeholders (Knowledge sharing and wellbeing cost-benefit analysis)	RE-AIM Framework PRISM Framework (Practical Robust Implementation and Sustainability Model) ISAT Tool (Intervention Scalability Assessment Tool)	Adoption Appropriateness Implementation Maintenance Fidelity Penetration Sustainability
	What are the core determinants of ILU for successful scale-out to other organisations?	GAA Clubs/Organisations semi-structured interviews ILU Participant Snapshot semi-structured interviews ILU Participatory Research Groups with multi-level stakeholders	RE-AIM Framework PRISM Framework (Practical Robust Implementation and Sustainability Model) ISAT Tool (Intervention Scalability Assessment Tool)	Effectiveness Implementation Maintenance Sustainability

Effectiveness	Does participation in Ireland Lights Up improve physical, mental, social health and wellbeing among participants?	ILU Participant Health Impact Questionnaires (pre, post, 6 & 12 months) ILU Participant Snapshot semi-structured interviews	Self-reported Health Measure Short Warwick-Edinburgh Mental Wellbeing Scale (SWEMWBS) 3-item UCLA Loneliness Scale ONS 4-point Scales 0-10 Life Satisfaction 0-10 Strength Training measure Single item PA measure ONS Social Capital Harmonised Standard EQ-5D IPAQ –SF Walking Domains	Physical Health Physical Activity Life Satisfaction Subjective Wellbeing Mental Health Social Capital
	What is the wellbeing cost-benefit of Ireland Lights Up?	ILU Participant Health Impact Questionnaires	ONS Life Satisfaction	Implementation Cost Sustainability

2.3. Part 2: Ireland Lights Up Implementation Evaluation

2.3.1. Overview

The RE-AIM and PRISM frameworks [61,62] will guide the evaluation of the process and determinants of implementation across multiple levels including participant, club, organisation and systems. This hybrid framework seeks to monitor the implementation of ILU across multiple delivery sites to identify strategies for successful implementation that can be translated across settings to maximise impact and scalability (see Table 1). To assess the scalability of ILU, the Intervention Scalability Assessment Tool (ISAT) will be applied which consists of ten domains: (1) the problem; (2) the intervention; (3) strategic/political context; (4) evidence of effectiveness; (5) intervention costs and benefits; (6) fidelity and adaptation; (7) reach and acceptability; (8) delivery setting and workforce; (9) implementation infrastructure; and (10) sustainability [49]. The implementation arm of the study utilises observational site visits, participant and club leader cross-sectional questionnaires, stakeholder semi-structured interviews and participatory research groups with multi-level stakeholders.

2.3.2. Participants and Sampling

For the implementation arm of the study, purposive sampling will be used to recruit a diverse sample of stakeholders across multiple levels of implementation (participant, club, organisation). Stakeholders will be invited to participate via the GAA National Community and Health Coordinator and a diverse sample of clubs will be sought in terms of club size and geographical spread. For the observational site visits, qualitative interviews, and participatory research groups, non-random convenience sampling will be employed. Email contact will be made with the lead organisers in clubs and specific GAA members will act as gatekeepers for their own networks. Individual club leaders will act as gatekeepers for accessing individual participants to ILU. The participant reach survey will also be disseminated to all GAA clubs by email through the club leaders. Qualitative interviews will use non-random convenience sampling with support from GAA gatekeepers and will involve interviews with club leaders and organisational representatives, specifically leaders and volunteers from GAA clubs and also GAA Healthy Clubs who are responsible for organising the ILU initiative within their respective clubs. Similarly, the participatory research groups will include leaders and volunteers, ensuring that the perspectives of those directly involved in programme delivery and coordination are central to the research process.

2.3.3. Ireland Lights Up Implementation Evaluation - data Collection

Qualitative data will be collected via observations across implementing clubs (n=10-15), one-to-one semi structured interviews (n=15), short club telephone interviews (n=40) and participatory research groups (n=2) with stakeholders. Additionally, participation rates will be gathered via attendance records and manual counts. Quantitative data will be collected by means of online surveys which will be disseminated to registered club leaders and participants to ascertain how Ireland Lights Up is organised at club level. Where feasible, self-reported data will be supplemented with additional sources, such as behavioural observations or physiological measures, to support participant responses and provide a more comprehensive understanding of their experience.

2.3.4. Observation

Each GAA club selected (n=15) will be visited on at least one occasion by the research team. The research team will undertake manual counts, snapshot interviews, and notetaking elements. Consent will have been obtained from the lead organiser in the club in advance. The constructs under observation will be based on the PRISM framework template of relevance to the external environment, organisational characteristics and implementation or sustainability infrastructure [62]. These are structural characteristics (e.g. parking, toilet facilities, terrain, refreshments, cost etc.), networks (e.g. organised groups v informal arrangements), communication (e.g. atmosphere, welcome and introductions, no. of volunteers). A checklist of these items will be rated by the observer on a 5-point scale from “not evident/visible” to “highly visible”. Where possible, data such as the number of participating clubs each year (including cumulative vs. active figures), club attrition over time, and reasons for non-continuation will be gathered through desk-based

research. All clubs that register and offer at least one session during the 6-week period are considered as having participated. Variability in delivery (e.g., frequency per week, adherence to the full programme) will be examined during the evaluation phase to better understand fidelity and implementation quality.

2.3.5. Participant and Club Leader Questionnaires

The participant reach survey will be administered using the electronic data collection software, Qualtrics. In this context, reach is defined as the absolute number, proportion, and representativeness of individuals who participate in the ILU initiative [59]. The QR code will be disseminated to club leaders and links to the survey will be printed and displayed at the start point for each walk during the six-week ILU campaign. The lead organiser in each club will direct adult participants (>18 years of age) to scan the code on their smartphone and complete the questionnaire before walking. The aim is to understand the characteristics of those who participate (or not) in ILU. It is a one-time, cross-sectional survey.

Similarly, the GAA club leader implementation questionnaire will be administered using Qualtrics and disseminated by email through GAA gatekeepers. This is also a one-time cross-sectional survey. Both surveys include questions designed to gather comprehensive data relevant to the study objectives, including: demographic data (age, gender, occupation); GAA club membership (length of membership, roles within the club); ILU participation (frequency, type, and level of involvement); validated measures to assess general well-being, life satisfaction, and self-reported health status (see Table 1 above); logistics and challenges of organising ILU; and suggested changes for future ILU activities. To assess engagement patterns, both the Reach Participant Survey and the pre-and-post Health Impact Participant surveys will include a question on regularity of attendance across the 6-week period.

2.3.6. Semi-Structured Interviews

Interviews will be conducted and recorded using the Zoom digital platform with a range of key stakeholders, including GAA club leaders, organisers and representatives of stakeholder bodies responsible for ILU development. The interview schedule, informed by the RE-AIM framework, will include questions about reach (engagement, promotion, reasons for participation; effectiveness (positive or unintended negative impacts); adoption (perceptions of ILU, delivery of ILU, barriers); implementation (key success factors, adaptations to delivery); and maintenance (continuation of ILU, resources required to continue, influence on other interventions). To strengthen evaluation of implantation at scale, 10-minute phone interviews will be conducted with a broader sample of approximately 40 clubs, selected to represent four categories: (1) clubs that have discontinued ILU involvement, (2) clubs delivering the programme on a recurring basis, (3) newly participating clubs in their first year of implementation, and (4) clubs yet to implement ILU, in order to explore perceived barriers and facilitators. This component will complement data from the 15 site visits and support a broader understanding of ILU implementation.

2.3.7. Participatory Research Groups

Based on findings from the GAA participant and club leader questionnaires and semi structured interviews, participatory research groups (n=2) will be established to gather perspectives from organisational stakeholders and lead club organisers. Each participatory action group will comprise of approximately 15 to 20 participants, primarily recruited through the GAA Healthy Club Conference registration process. Conference attendees from clubs nationwide will be invited to join these groups during workshop sessions. Using the PRISM framework, these groups will explore contextual factors influencing reach and adoption. This approach aims to identify barriers and facilitators for reaching underserved populations, sharing of best practice [61] and support the adaptation of implementation strategies to local needs.

2.3.8. Ireland Lights Up implementation evaluation – data Analysis

Statistical Packages for the Social Sciences (SPSS V25) will be utilised to analyse questionnaire data. Each variable will be analysed using descriptive statistics to describe participant characteristics. Risk of selection bias when recruiting clubs and participants in the implementation data collection will be minimised by stratifying and selecting clubs based on variables such as urban/rural, size of club and Healthy Clubs versus non-Healthy Clubs. The RE-AIM and PRISM framework-driven approach will be used to analyse qualitative data. Interviews and participatory research groups will be transcribed verbatim, and a hybrid approach of thematic deductive and inductive analysis will be applied to inform implementation outcomes with a constant comparison process also applied. As participation in the reach component is voluntary, data will be analysed from participating clubs, with extrapolation of broader trends based on club characteristics (e.g., location, size, type). Desk-based research and secondary data sources will be used to enhance context and assess representativeness, with limitations related to sampling and generalisability clearly acknowledged. Using the ISAT, scalability will be assessed by integrating key dimensions from the RE-AIM and PRISM frameworks. Quantitative metrics and qualitative stakeholder insights will be combined to generate a comprehensive scalability profile, with outcomes reported through concise metrics and narrative summaries highlighting facilitators, barriers, and recommendations for scale-up.

3. Discussion

ILU is a rare example internationally of a community sports-club based walking intervention operating at scale nationwide. It is estimated that over 120,000 participants have taken part since 2018, yet the initiative has never been evaluated. To the best of the research teams' knowledge, this is the first evaluation of a real-world community walking initiative in the sports club setting, operating nationally. ILU is uniquely placed to not only improve PA levels but also health and wellbeing in urban and rural communities across Ireland [87,88]. Thus,

findings have the potential to impact public health at a societal level by enhancing the reach, effectiveness, adoption, implementation and sustainability of ILU.

Evaluating a project already at scale provides a novel opportunity to tell the real story of a national community PA initiative, explore the complex interacting factors underpinning ILU and develop shared contextual learnings [89]. The pragmatic use of RE-AIM and PRISM frameworks ensures external validity, enabling application across diverse settings and populations and allowing for adaptations in other community contexts [90]. The research design also addresses equity by exploring strategies to engage 'not yet reached' groups, informed by implementation data on reach and adoption. The hybrid RE-AIM and PRISM approach sheds light on multilevel influences affecting PA, mental, and social wellbeing, while guiding tailored recruitment and culturally appropriate adaptations [89,91].

Nevertheless, challenges remain. The heterogeneity of GAA clubs, both in size and location, may influence implementation fidelity and outcomes, complicating comparisons. Variations in community context, including socioeconomic status, cultural norms, and local infrastructure, further influence participant engagement and the relevance of the programme's content. This diversity complicates direct comparisons across clubs and may introduce variability in outcomes that is difficult to fully adjust for analytically. Sustaining ILU long-term raises questions about ongoing resource allocation, volunteer capacity, and maintaining participant motivation beyond initial engagement. The programme relies heavily on volunteer time and local club resources, both of which may fluctuate due to competing demands, volunteer burnout, or changes in club leadership. Ensuring consistent promotional and funding streams and organisational support will be crucial to maintaining ILU.

The non-randomised design and absence of a control group may be seen as limitations. Previous interventions have used RCTs focusing on individual or group approaches [92], but an RCT would have been more useful during early development. Since ILU is already operating at scale, a real-world evaluation is more appropriate. Widespread adoption and media coverage made control group inclusion unfeasible, as random allocation or withholding the intervention was not practical or ethical. The study will attempt to mitigate potential biases, such as selection bias and confounding, through comparative analyses of clubs delivering ILU at high versus low intensity and by adjusting for relevant covariates in the analysis. The evaluation takes place within multifaceted, evolving real-world contexts, necessitating a pragmatic approach to assess external validity [93,94].

Another limitation of this study is the absence of participants and underserved populations in the participatory research groups, despite the stated objective of improving reach and equity. This reflects a deliberate first step to identify who these groups are and understand their specific barriers, with the intention that this foundational work will inform a follow-up study involving meaningful co-design and participatory research. The research design also runs the risk of inherent bias due to the inclusion of subjective self-reporting measures [95]. Nevertheless, since health and wellbeing are subjective experiences by nature, the evaluation design will still capture observations from participants in the real-world context of a sports club setting.

3.1. Conclusions

This study protocol outlines how a scaled-up intervention can be evaluated using an implementation science approach. The unique nature of ILU and the diverse variables measured present an excellent opportunity to document an initiative already operating at scale. This research holds potential societal impact by expanding ILU's reach to underserved groups through strengthened local partnerships, while the maintenance phase is expected to offer a replicable template for engaging sedentary individuals and connecting them with sustainable community programmes. Findings will inform other NGBs in implementing similar sports club-based walking programmes, reinforcing the potential of clubs as settings for PA promotion. Rooted firmly in implementation science, the ILU evaluation will actively share findings with organisers and stakeholders throughout the study. There are no publication restrictions, and results will be widely disseminated to Sport Ireland, Healthy Ireland, and the Health Service Executive. Multiple publications and conference presentations are planned. Interim analyses will assess ILU's reach and impact on participant health and wellbeing, with accessible reports provided to participants, the GAA, GIW, and relevant partners. Additionally, a blueprint detailing the implementation process and resources needed to replicate the programme in other organisations will be developed.

Beyond ILU, these findings have wider relevance and should be framed within national and global policy, including the Global Action Plan on Physical Activity (GAPPA), which highlights the need to build research and evaluation capacity. By linking findings to policy and practice, this study aims to shape scalable, effective initiatives that align with national goals and global efforts. The research also carries policy implications by demonstrating how health promotion through sports clubs aligns with forthcoming government initiatives, potentially accelerating policymaking and contributing to knowledge on expanding health-promoting sports environments for diverse communities.

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