

A comparative evaluation of 23 projects on mental health and wellbeing for veterans and first responders

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ABSTRACT

Background: Veterans and First Responders (VFR) are at risk of developing a range of mental health disorders because of cumulative exposure to critical incidents at work. Two Philanthropic organisations funded 15 organisations, which collectively implemented 23 highly heterogeneous and international early intervention mental ill-health and suicide prevention Projects. The aim was identify and collaborate with Projects with a multi-project evaluation. The evaluation examined multiple domains including intervention effectiveness but critically the implementation processes impacts for potential replication or scale up. This paper reports on the methods and evaluation results of implementation processes, impact analysis and sustainability.

Method: The evaluation involved ecosystems and complex systems approaches using novel methods and tools. There were multiple preparatory evaluation steps including developing indices for complexity and context. The Global Impact Analytics Framework (GIAF) toolkit was used to evaluate the implementation processes. Methodological tools included qualitative analysis, descriptive statistics, GIAF ladders/scales and checklists (qualitative and quantitative data).

Results: We provide the results on characteristics (organisational, Project and participants), GIAF process components (planning, pre-engagement, pre-readiness/readiness, dissemination/diffusion, usability/sustainability, adoption and uptake). All Project interventions were assessed as usable, adoptable and have capacity to be sustained, with financial resources. Uptake of the intervention was mostly high.

Conclusion: Complex multi-project evaluation of highly heterogeneous Projects implemented in the real world across different countries is possible and provides valuable information and learnings. The evaluation results establish benchmarks including Project pre-engagement with potential end-users, continuous, frequent collaboration between Project and evaluation teams, adequate contract duration for sufficient recruitment and intervention.

1. Introduction

Veterans and First Responders (VFR) are at significant risk of developing a range of mental health disorders as a result of their work context and duties [1,2]. There is cumulative exposure to critical incidents and life threatening events in the course of their work, where vulnerable people may be in shock, injured, in danger, distressed or have died [3–5]. The COVID-19 lockdowns and post-lockdown period from

2019 also led to additional psychosocial related issues in countries affected, increasing the demands on first responders (e.g. more emergency hospital admissions) [6]. The higher risk factors and prevalence of mental ill health and suicide in the VFR worker populations is well established across studies [4,7,8]. Alongside other risk management strategies, such as workplace based psychological safety standards, the provision of mental ill-health, suicide prevention and early intervention programs for VFR is critical [8].

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In response, two Philanthropic organisations Movember and The Distinguished Gentleman's Ride funded 15 organisations in seven countries through an international Grant Program, which collectively implemented 23 Projects/sub-projects (hereafter referred to as Projects). The aim was to identify and collaborate with a series of mental health Projects to demonstrate the intervention effectiveness in reducing mental ill health /promote well-being, but also the implementation impact and value of the project, and sustainability through a multi-project evaluation [9]. The implementation impact and value highlights that, in the real-world a project might be effective in improving mental health. However, it may not be successfully implemented, sustainable or therefore scalable.

The funded Projects encompassed a diverse range of preventive and/or early interventions for Veterans and First Responders (VFR), and/or their families and caregivers, or VFR's organisations. In the first instance, the overarching goal was to enhance mental health and well-being and prevent suicide among veterans and/or first responders. Secondly, the Grant Program aimed to identify and support sustainable and therefore scalable mental ill-health and/or suicide prevention programs for VFR. Thus, the evaluation considered multiple domains not only intervention effectiveness. Movember engaged external researchers at the University of Canberra (UC) to carry out the complex third-party evaluation of their Grant Program. The Grant Program commenced in November 2021 and continued to October 2024. As far as we are aware, there has been no other Grant Program multi-project evaluation that has comprehensively evaluated a group of international Projects implementing mental ill health and suicide prevention and early intervention Projects for the VFR workforce.

The evaluation examined numerous domains concerning quality and value, that of intervention effectiveness on participants (related to indicators of mental health and well-being), an economic metric (funding return on investment), performance (relative technical efficiency of the Project), and Project implementation (impact process outcomes and sustainability) [10]. The overall methods are reported in another paper [10]. The results from the evaluation domains regarding the intervention effectiveness on mental ill health and well-being (for participants); the economic metric (funders return on investment), and performance (relative technical efficiency of the Project) are reported in papers elsewhere. This paper reports on the latter evaluation domain of implementation process outcomes, impact and sustainability.

The evaluation of the Grant program presented considerable challenges due to the diverse and global nature of the Projects, their distinct contexts, and the inherent Project complexities, uncertainties, implementation research-related issues and practicalities of international evaluations and collaboration. Further challenges arose from the extensive heterogeneity in Project characteristics, including contextual factors (e.g., country, conducting organisation for each project, varying stages of Project development, internal and external barriers, and facilitators), study designs, type and duration of intervention, number of sub-Projects undertaken by an organisation, different intervention characteristics, sample sizes, target audiences, different outcome measures and evaluation tools, and other inherent variables. The heterogeneity of the Projects, the complexity arising from the global nature and contexts presented significant methodological challenges for the evaluation.

The evaluation utilised several implementation science perspectives and mixed research methods and approaches: the ecosystem approach, adapted realist evaluation methods, the Global Impact Analytics Framework for impact analysis, and multi-project program evaluation strategies [11,12–14]. The evaluation needed to identify factors which answer the overall question of “what works for whom and how” in the real-world. The program evaluation objectives were to:

evaluate the individual projects and subprojects funded under the scheme according to;

- a) intervention effectiveness in improving the mental health and well-being for participating veterans and first responders and/or families.
- b) determine the implementation processes factors, impacts and sustainability of the individual grant funded Project.
- c) determine the Funders Return on Investment (FROI) of the individual grant funded projects.

This paper broadly outlines the overall evaluation to provide context but focuses on reporting the methods and results on the **Projects Implementation, the components of the implementation processes, impact analysis and sustainability** (refer to (b) above).

2. Methods

There are limited evaluation research methods that accommodate the heterogeneity and complexity involved in answering the questions of “Does it work?” and “What works, for whom, and how?” in real-world implementation research of multiple Projects, and no one standard methodology [15,16,17].

We utilised mixed methods and tools to accommodate and manage the methodological challenges. The VFR Grant Program evaluation first took an ecosystem approach, then adapted aspects of realist evaluation approaches on context and outcomes, and then also used the Global Impact Analytics (GIAF) toolkits for process evaluation, and fourth utilised the real-world multi-projects evaluation approach. These are outlined below:

- 1) The mental health ecosystems approach which takes a whole-system perspective where the environment and context of the system are analysed. Ecosystem components that were examined include the different levels of the Project's ecosystem (nano (Project participant level), micro (Project level), meso (local area level) and macro (region/country level)) [12,18]. We adapted the systems of ecological production which distinguishes between inputs, process, and outputs [19].
- 2) The realist evaluation approach considers the context, mechanism and outcome using a theory driven framework which is tested in the real world [11,20]. The realist approach commonly uses qualitative methods and interviews to identify lessons learnt to move forward, even when multiple projects are evaluated together [21]. However, there are limitations particularly with multi-project (Program level) evaluations such as identifying the theoretical mechanisms and contextual factors, complexity in data analysis, logistics and practicalities [17,22,23].
- 3) The Global Impact Analytics Framework (GIAF) toolkit has been used in single project and other multi-project program evaluations and impact analysis [24]. In evaluation the resources and results are typically considered (Logic for Change), with less focus on the process critical to implementation impact. A scoping study on implementation frameworks affirmed there was a gap on process frameworks with tools for implementation researchers [10]. The GIAF was developed to fill this gap and be ‘fit for purpose’ for impact analysis. The GIAF provides an evaluation toolkit and uses both quantitative and qualitative data, testimonials and context specific information to rate each project on relevant ladders across 15 process domains across three phases of implementation, to enable comparisons across Projects and thereby key learnings [14].
- 4) The multi -project program evaluation approach recognises and seeks greater understanding of the context and complexities involved in real-world multi-project evaluations. In contrast to single project evaluations, the multi-project evaluation groups a number of projects under a common high-level objective. Critically, multi-project evaluation also includes an expectation of some interaction and collaboration (not supervision) between the projects. The evaluation identifies, takes advantage and leverages the benefits of collective, wider learning and integration of lessons learnt, and potentially

minimisation of costs through program level coordination of the evaluation [13,25].

In the analysis using this healthcare ecological approach [26], we could establish the systems and connections to gather, analyse, better understand, and synthesise the monitoring and evaluation data to support decision-making (at the Projects and Grant Program levels).

Also embedded in the evaluation design are components and associated methodologies, to meet the key priorities for the Grant Program of knowledge sharing, organisational learning for future Grant programs, Projects, and interventions [27]. The evaluation sought to assess the implementation, impacts, quality and value of 23 Projects, as well as to evaluate the overall Grant Program. Refer to Appendix A for a brief overview of the 23 Projects.

A multi-step process was adopted, revised and then adapted as necessary. Refer to Fig. 1 below.

The evaluation components first considered individual Projects, secondly comparisons between Projects and then thirdly collectively for the overall Grant Program. Following the finalisation of evaluation domains and indicators, mixed methods were used in the different components of the overall Grant Program evaluation. Whilst each part of the entire evaluation had components with specific methodology, targeted data collection on key indicators and analysis, they did not proceed linearly but co-occurred and informed each other.

As previously described, there were mixed methods used to evaluate the projects on the implementation processes, impact analysis including the Global Impact Analytics Framework (GIAF) toolkit. The GIAF focuses on the Process (throughputs) domains and impact analysis of the implementation of an intervention in the real world (refer to Appendix B for definitions). The GIAF toolkit includes a taxonomy, glossary, ladders and checklists to support the evaluation of health and social services implementation research [14]. The GIAF identified three phases of implementation research: the Initiation phase (pre-implementation and preparation phase), Maturity phase (early implementation) and Evolution (later implementation). There are 15 domains, and 82 subdomains included across these implementation phases. There are three domains in the Initiation phase, five in Maturity and seven in Evolution. Each domain has a validated seven level ladder (0–6), each level reflecting a subdomain. Using an associated checklist, The Project qualitative and quantitative information collected for the evaluation is rated by (up to 4) trained evaluators to reach a score, high scores reflecting higher Project impacts.

2.1. Preparatory steps

There were several steps involved to identify and then finalise the domains, indicators and the relevant categories to be used in the

implementation and impact evaluation components. In addition, it was necessary to develop two Indices to identify and consider the inherent Project Complexity and Contextual Barriers and Facilitators.

- i. *Logic for change in each Project*: The UC evaluation team worked with each Project to identify the key domains in the logic for change for their project, an explanation of how the Project is intended to work, the actions/activities and outcomes (Refer to Appendix B definition). This was achieved using a guide developed by Movember (referred to as a Program on a Page) which required each project to identify and document information on the proposed intervention, the logic for change and how the individual Project will create impact.
It was also necessary to work with the Project's to add the specifics of their target audience, which often was poorly defined. The target audience is the number and representativeness of individuals/organisations identified and selected as potential users of the intervention the organisation is implementing (refer to Appendix B definition).
- ii. *Initial identification of common indicators*: UC team used the information (from i. above), to identify common indicators across the Projects within a logic for change framework (inputs, throughputs (process) and outputs (refer to Appendix B for definitions)). The outputs include Project and Program outputs and participant outcomes (Refer to Appendix B for definitions).
- iii. *Finalise key indicators* (This step used co-design and involved an international panel and peer review process undertaken in 2022, to develop consensus using nominal group techniques [28,29] to finalise the proposed indicators via two meetings and multiple follow up emails with an expert panel ($n = 11$ experts in evaluation, mental health, statisticians and Project team representatives). The number of indicators initially developed were reduced and revised via expert panel consensus.
- iv. *Category development for some indicators*
 - a. *Genealogy*: Some Projects were developed during the Grant Program, while others had existed for years but were adapting (e.g. face to face to online) or were expanding to new geographic areas. The evaluation needed to account for these differences. Genealogy is the origin, background or line of descent of the research and the emerging scientific knowledge and its application. Innovation adaptation is the process of taking ideas from a previous innovation for use as core concepts that can be tailored to fit the challenges and context that are now being addressed. If the Project used an innovation adaptation, it was considered a subsequent 'generation' of the scientific knowledge and its application (i.e. an adapted intervention). The genealogy of each Project can impact or

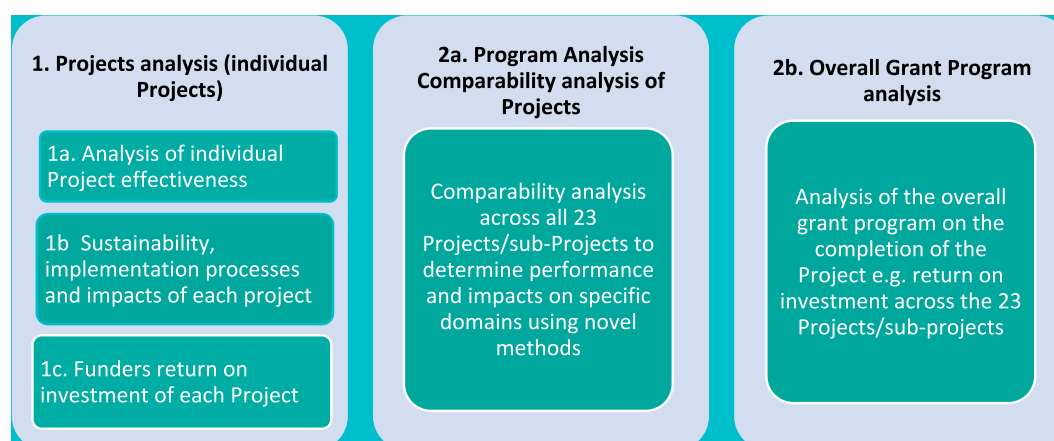


Fig. 1. Evaluation design of the 15 organisations/23 Projects and the Grant Program.

‘weight’ other domain indicators (e.g. duration of recruitment). We developed the categories of Parent, Child and Grandchild for this indicator.

b. *Intervention characteristics*: To manage and consider the heterogeneity of the characteristics of Project interventions, indicators were identified. The five intervention characteristics were mechanism of change, communication channel, intervention mode, intervention exposure and frequency. After defining the indicator, each Project was examined according to the indicator and then the categories developed accordingly. For convenience to the reader, the definitions of each characteristic are provided in the results section and discussion.

v. *Development of the Complexity Index*: The Complexity Index includes seven domains and factors that are inherent in the Project, excluding contextual barriers and facilitators. The domains and factors were developed through UC using expert knowledge and experience, research literature concerning the complexity concepts, intervention complexity and complexity related to the implementation of an intervention. The factors are not weighted. The factors are scored in the direction of increasing complexity such that a higher score in each factor represents greater complexity with the penultimate score a low, medium or high complexity category.

vi. *Development of the Context Index*: The Context Index considered qualitative information on the inner and outer implementation barriers and facilitators that either positively or negatively impacted the Project team’s progress and processes, or the implementation of the Project. The categories of the Context Index were derived from established implementation frameworks that considered context e.g. Consolidated Framework for Implementation Research (CFIR) [30] and Integrated Promoting Action on Research Implementation in Health Services (i-PARIHS) [31]. The Index involved categories of facilitators and barriers, identified through collaboration of the Project and UC teams, summed and then graded according to low, medium, high.

There were additional preparatory steps taken for the other components (intervention effectiveness, funders return on investment and performance) of the evaluation although not reported here.

2.2. Implementation and impact evaluation domains, indicators/variables and methods

Table 1 below provides the indicators used for the evaluation of the implementation processes and impact analysis and **excludes** the indicators for the multi-layered statistical data analysis on intervention effectiveness, FROI, efficiency modelling and performance evaluation components.

2.3. Data collection

Qualitative, quantitative and context data was continuously collected throughout the Grant Program on input, throughputs, and output indicators both by the UC team and the Projects. UC had a data sharing agreement with each Project’s organisation.

Data collection approaches for the key implementation processes and impact analysis of the evaluation domains are described below:

- Monitoring data collection and testimonial information collected opportunistically by the UC team occurred from November 2021 to September 2024. UC conducted regular meetings with the Projects over the 2.5 years Grant program duration (mean 18, range 12–33 meetings per Project, total across Projects $n = 279$). Ad hoc audits were completed to check with the Projects that their data collection across all the final indicators was occurring. UC also collected

Table 1

Evaluation domains, indicators/variables, methods and methodological tools for the implementation processes, impact analysis and key organisational learnings components of the evaluation.

Domain	Sub-domains/ Indicators /Variables	Methods	Methodological tools
Grant program characteristics	Collaboration factors Time periods (e.g. contract) Collaboration patterns	Categorisation Data collection Survey Project teams Monitoring activities throughout grant program Network analysis; Visualisation	Qualitative analysis and descriptive statistics Co-op platform [32,33]
Project Organisational Characteristics	Type of organisation Time periods (e.g. recruitment) Project connections (e.g. partners) Project study design Geography Sample size (goal and actual)	Categorisation Data collection Survey Project teams Monitoring activities throughout grant program	Qualitative analysis and descriptive statistics
Intervention characteristics	Genealogy Intervention Frequency Intervention Exposure Intervention Mode Intervention Mechanisms Intervention Communication channels	Categorisation Data collection Survey Project teams	Qualitative analysis and descriptive statistics
Participant characteristics	Target audience/s Demographic (age, gender) (Indicators of mental health and wellbeing utilised in the intervention effectiveness analysis)	Categorisation Data collection Survey/questionnaires from OMs Survey Project teams	Qualitative analysis and descriptive statistics Standardised mental health and wellbeing outcome measurement scales
Complexity Index (inherent in the project)	Resource dependency Scope/study design Sub-projects/stages Intervention components Dependencies In-flexibility	Testimonial and project related information, collected opportunistically throughout the 3 years Two researchers - consensus rating of the Project on the Index	Complexity index UC developed informed by the literature [34–36]
Context Index (barriers and facilitators/enablers)	Inner and outer barriers Inner and outer facilitators	Categorisation of barrier or facilitator by type Rated by the Project teams Overall total scoring within barrier or facilitation and total scores (categories of low, medium or high) Surveys (to project participants and	Context Index UC developed and informed by the literature frameworks [30,37–40]
Implementation impacts (GIAF)	Phase of implementation		Global Impact Analytics (GIAF)

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Table 1 (continued)

Domain	Sub-domains/ Indicators /Variables	Methods	Methodological tools
	and over time GIAF domains 15 domains; 82 sub-domains	organisations) Information collected through monitoring activities, project reports and related documents Dissemination activity records collected in real time. Depending on the checklist requirements – calculations; 4 raters independently rating and differences reconciled via group consensus; two raters consensus rating; mathematical	toolkit (taxonomy, glossary and checklists), refer to GIAF [14] and listed papers

- additional information from the Projects (e.g. in-kind costs, duration of recruitment period).
- The GIAF methodology uses an approach involving the GIAF checklists, which use diverse methods of data collection, and from multiple sources including Project personnel, a range of documents related to reporting and dissemination. Both qualitative and quantitative information is then used to rate the Project on the relevant GIAF domains in each phase of the process of implementation. Some examples of sources of information include: Project progress reports, meeting minutes, testimonial information collected opportunistically through working with the Project personnel throughout the project, via direct observation, face to face, phone or email discussions or purposeful approaches to individuals, standardised GIAF tools from the GIAF toolkit such as surveys to participants, organisations (on usability and adoption), the GIAF dissemination runsheet with pre-determined, Project website and/or app data from users.
 - The data for the ratings for the Project Complexity Index were collected by UC opportunistically throughout the Grant program. The ratings were performed by two raters in the UC team according to their perception and understanding of the Project at the end of the Grant period.
 - The Context Index factors (barriers and facilitators) for each project were identified through semi-structured interviews with project personnel using an excel spreadsheet format. and ratings of their impacts for the Project teams, by the Project teams, with UC facilitating the identification of perceived barriers and facilitators. The interviews were held in March/April 2024 with project teams identifying barriers and facilitators that impacted implementation of their project/s and allocating a rating from 0 to 10 for each barrier or facilitator. Following the interview process, project teams consulted with their wider team to identify any further barriers/facilitators and confirm or change the allocated ratings. The updated spreadsheet was provided to UC several weeks later.

3. Results

The results related to the domains of implementation processes, impact analysis and sustainability are reported here.

3.1. Project level

3.1.1. Training

In early 2022 UC provided training to each Project team on the use of the GIAF dissemination run sheet tool (with the pre-determined categories) to enable concurrent data collection with activities to make their project ‘known and used’. Additional UC collaboration with Projects occurred to finalise and contextualise the GIAF usability and adoption questionnaires to participants and organisations involved in their Project. This enabled the questionnaires for these two GIAF sub-domain tools to be integrated into the Project’s surveys to participants involving the OMs, rather than separately.

3.1.2. Project reports

As sharing evaluation learnings was a key goal of the evaluation, UC provided each Organisation a UC Project Evaluation Report (30–47 pages) on the Project and where relevant subprojects. The document reported on the indicators related to the key performance domains, implementation and impact analysis results and key learnings of their project from the UC perspective. Over 7 weeks between August to September 2024, each organisation received a report and there was a subsequent separate meeting held for discussion.

3.1.3. Data collection

Two surveys to the Projects were conducted in July 2022 and March 2024 to confirm and seek additional information (e.g. in-kind costs, recruitment periods). Each Project provided their final data to UC (including results for the GIAF sub-domains) in March 2024 although all data was not available and sufficiently finalised to commence all the components of the analysis until May 2024.

3.2. Project characteristics

3.2.1. Organisation level

The 15 Organisations and their Project teams were based in the following organisation types: Academic/university/institution ($n = 6$); Not for profit organisation ($n = 6$); Government organisation e.g. employer ($n = 3$). The Project teams collaborated with various individuals and organisations as Project partners. The number of Project partners ranged from 1 to 11 with a mean of 4 Project partners per Project team. In total there were 171 people directly engaged across the Grant Program Project teams. Five Project teams employed an external evaluator to assist with Project design, methods, and to conduct the data analysis specific to their Project.

3.2.2. Project timelines

The Project teams contractual timeline with Movember was 24 months to 30 months (mean 28 months). The active recruitment period varied between the 23 Projects, from 7 months to 29 months, with a mean duration of 15 months across Projects (53.5 % of contracted time).

3.2.3. Study design

There were only three relevant categories used for study design (pre-post, cluster randomised trial/randomised controlled trial, and organisational change strategy). The latter refers to shifts in direction, structure, or processes that shape how an organisation operates. The study design of the 23 Projects included:

- Pre-post ($n = 16$)
- Cluster randomised/randomised controlled trial – RCT ($n = 2$)
- Organisational change ($n = 5$)

two Projects using an RCT design had recruitment difficulties but remained as an RCT. There was one Project that began as a RCT, but due to recruitment difficulties changed to a pre-post study design and has been categorised as such above.

3.2.4. Geographic spread

Target audiences were spread across micro to macro. The following categories and definitions were used, with the number of Projects in each category provided.

- Micro – catchment area for a specialised community centre/post-code, minimum local health district (n = 1)
- Meso - Health district or health region, catchment area for a public hospital (n = 5)
- Macro 1- regional level (e.g. county/state/province) (n = 8)
- Macro 2 – National level (n = 6)
- Macro 3 – Pan-national (>1 country) (n = 3)

3.3. Intervention characteristics

Genealogy. Each implementation Project was categorised using a hierarchical generational structure and language of terms as either a parent, child or grandchild using the following definitions and the number of projects in each category provided.

- Parent: A parent is defined as an original innovation (n = 13)
- Child: A child is an adaptation of the parent innovation, generally adapted to a new target audience, geographical location, sector or new elements are added/other elements are removed. (n = 9)
- Grandchild: A grandchild is a further adaptation of the child innovation. (n = 1)

3.3.1. Mechanism of change

A mechanism is an explanatory account of how and why programs are intended to give rise to outcomes. It is the feature of the intervention that once exposed to the mechanism, the participant is equipped to progress to the desired outcome (e.g. behaviour change). To use an exemplar, the mechanism of pain medication may be the drug Paracetamol or Nurofen, both of which have different mechanisms (the latter reducing inflammation). Without the input of the intervention mechanism, the behaviour change for participants is not possible.

The mechanisms of change employed by the Projects were classified into six categories. Some Projects used more than one mechanism. The mechanisms for the Projects were Civic Service/Volunteerism (n = 1), Train the trainer (n = 3), Organisational change (n = 5), Support Network (n = 7), and the two most common Person to Person (n = 11) and Psychoeducation (n = 14). Psychoeducation was the most commonly used mechanism.

3.3.2. Intervention communication channels

Intervention communication channels are the vehicle for delivery of the intervention. It is the medium the project uses to expose the intervention to the target audience. The following six intervention channels were used by the Projects: Individual (online), facilitated individual online, workplace/organisational structures, group online, facilitated group online, group face to face. Most projects used more than one intervention communication channel. The most frequently used intervention channels were group face-to-face (n = 8), individual online (n = 8), Facilitated group or individual online (both n = 7), with n = 5 interventions using workplace or organisational structures and systems.

3.3.3. Intervention mode

Intervention mode refers to the **way** the intervention is experienced or done e.g. a mode of travel might be a car, bus or train. The categories and the percentage of Projects that adopted the intervention mode in decreasing order were:

- Individual intervention (various modes but is directed at the individual and generally will be personalised) (40 %)
- Peer to peer (25 %)

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- Self-guided (receiving but not providing feedback or personal experience) (17 %)
- Group work (10 %)
- Administrative /procedural or policy to which the person is exposed and experiences e.g. workplace policy or procedure (8 %)

3.3.4. Intervention exposure and frequency

UC aimed to identify and evaluate the quantity of the Project’s intervention to allow comparisons. It is aligned with the concept of ‘dose’ (e.g. dose or how often a drug should be taken and what ‘strength’ of the drug) or the measured amount that is therapeutic and achieves the desired participant outcome.

For this evaluation, Intervention frequency refers the regularity of the Project intervention provided to the participants. Intervention exposure refers to the amount of time that the participant directly interacted with the intervention or had experience of the intervention via the Project. Refer to Table 2 for the categories for frequency and exposure.

There were seven interventions that occurred with a frequency of once per week for up to 12 weeks, so were regular and over a longer period, with another Project involving ad hoc frequency of contact, but over 6 months. There were 12 projects that involved weekly exposure to the intervention over 6 months or more and three for 25–38 h/1 week. Fig. 2 provides the frequency and exposure for the 23 Projects.

3.4. Project participant characteristics

The 23 Projects included the following target audiences (n = number of projects, percent is the percent of projects targeting that audience with several Projects with multiple target audiences):

- Firefighters (n = 10, 43 %)
- Police (n = 6, 26 %)
- Healthcare (n = 6, 26 %)
- Veterans/Retired (n = 3, 13 %)
- First responders not listed above (n = 4, 17 %)
- Family/Friends/Significant others (n = 5, 22 %)
- Management/Leadership (n = 3, 13 %)

Based on the data provided by the Projects by 31 March 2024, the baseline sample size across all Projects was n = 13,348.

3.5. Complexity

The 15 Projects, and sub-Projects within them, were rated using the Complexity Index developed by UC. The total score is categorised as low, medium or high. The higher the total score indicates higher complexity inherent in the Project. Each complexity factor is scored from 0 to 10. Total score may range from 0 to 70. Fig. 3 provides the domain scores across Projects on each domain. The highest rated complexity factors were number of intervention components followed by study design and target audiences.

Table 2
Intervention frequency and exposure categories.

Category	Intervention frequency	Intervention exposure
1	Once only	< 1 h
2	As part of work routine (organisational strategy)	1–8 h/1 day
3	Daily up to a week	9–16 h/2 days
4	Once per week up to 12 weeks	17–24 h/3 days
5	On completion of intervention there is ongoing support over months /ad hoc/ as needed	Weekly or Ad hoc exposure but occurring over 6 months or more
6	Other - comment to clarify	25–38 h/1 week

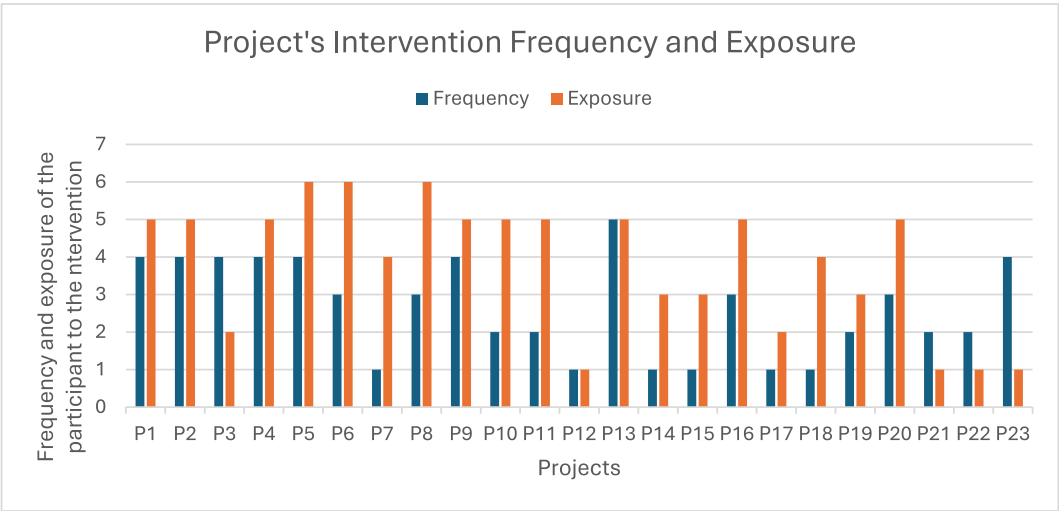


Fig. 2. Project’s Intervention Frequency and Exposure.

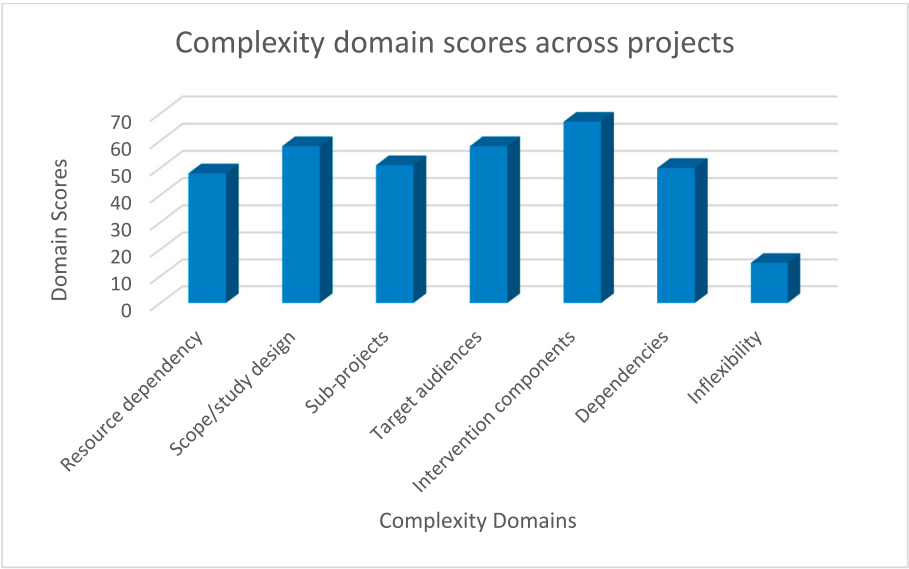


Fig. 3. Complexity domain score for the 15 organisations that implemented the Projects.

3.6. Barriers and facilitators

Combined inner and outer implementation barrier scores ranged from 7 to 77, while combined implementation inner and outer facilitators ranged from 5 (sub-project) to 134. In the case of three sub-Projects and one Project, the barriers exceeded the facilitators, however for most projects/sub-projects, the facilitators exceeded the barriers. The summary of the highest rated common barriers and facilitators are provided in Table 3 below.

3.7. Impact analysis

The Global Impact Analytics Framework was used to undertake the evaluation of the Project’s process of implementation (the throughputs in the logic for change)and impacts ([14]. The definitions of each sub-domain are provided in the excerpts of the GIAF Glossary (refer to Appendix B). Each relevant process domain and sub-domain of the GIAF are provided below within the phases of implementation (Initiation, Maturity and Evolution phases (also refer to Appendix B for definitions). Each sub-domain ladder is from 0 (lowest level) to level 6 (highest level).

3.8. Initiation (pre-implementation) phase

3.8.1. Planning

The planning undertaken by all 15 organisations for the 23 projects was rated as comprehensive (level 6). The early collaboration with the UC team facilitated planning activities via the meetings with Projects and the support provided to the Project teams, for example on the logic for change, OMs, definitions of the target audiences, planning for dissemination activities. It is probable that not all Projects would have undertaken this level of planning if the external evaluation team was not involved. For example, initially several projects did not prepare or specifically plan for their dissemination activities. The GIAF dissemination run sheet (spreadsheet) enabled them to consistently consider and thereby more appropriately plan and monitor their dissemination activities, approaches and effect on recruitment.

3.8.2. Pre-engagement

Pre-engagement ladder steps are scored from 0 (no engagement) to the following six consecutive levels – Inform, Educate, Consult, Involve, Co-design, Co-produce. Eight Projects and one subproject were rated on

Table 3
Examples of the highest rated barriers and facilitators.

Barriers		Facilitators	
Inner	Outer	Inner	Outer
Availability of resources e.g. underestimation of staffing needs	Local conditions e.g. workers strikes, duration of training, security issues, remoteness of participants	Team capability e. g. knowledge, skills and experience,	Partnerships and connections e.g. relationships with external program partners, marketing expert involved, co-design with end users
Work infrastructure e. g. contract signing, ethics approvals, recruitment delays,	Local attitudes e.g. recruitment issues, reluctance of participants to complete surveys	High level leaders e.g. team leadership, regional and executive level advocacy	Other implementation support e.g. marketing assistance, external evaluator, previous participants turned project ambassadors
Relational connections e.g. tension between different organisational teams (not within the team), stigma around mental health	Partnerships and connections e.g. technical issues, websites, licensing and data storage issues, consultations taking longer	Work infrastructure e.g. additional funding, team agency and autonomy, stable team/staff retained	
		Implementation facilitators e.g. lived experience of Project team, trainers & facilitators, gave credibility, culture	
		Relational connections e.g. within team, co-design teams, key stakeholders	

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the Initiation Phase domain of Pre-engagement. All Projects that commenced in the Initiation Phase, undertook some level of pre-engagement with their target populations. One project only engaged via education, two projects consulted with their target audience, whilst one project used co-design, and four projects were rated at level 6 – co-production. There was one Project which did not conduct any pre-engagement activities with the target audience/s. This lack of pre-engagement potentially impacted on subsequent recruitment and dissemination activities.

3.8.3. Pre-readiness and readiness

These domains are across two phases of implementation: Initiation (Pre-readiness) and Maturity (Readiness). For any emerging or new health and wellbeing intervention, the pre-readiness and readiness is particularly critical and can have impacts on the implementation outcomes.

Fig. 4 below shows the Readiness level of Projects at the starting point of the Program (T0) and at the endpoint (T2). Several Projects started at Level 6/7 and stayed at that level. These Projects were in the pilot testing phase (level 6) or were established Projects (level 7). For the rest of the projects, their Readiness levels moved upwards until they reached the pilot test stage (level 6) or higher. Four Project readiness levels did not move from T0 to T2.

3.9. Maturity (early implementation) phase

3.9.1. Dissemination (Diffusion in the evolution phase)

Most Projects undertook a high level of dissemination/diffusion activities (to level 5 or 6 on the Dissemination ladder). The Project with the lowest dissemination activities were not agile in adapting their approach to dissemination strategies, which resulted in poor recruitment rates during the Grant Program time frames. Two Projects with the lowest diffusion activities, were well-established Projects with wait lists of registered potential participants, thus there was no need to undertake a high level of dissemination activities.

3.9.2. Usability (Sustainability in the evolution phase)

The result on overall usability/sustainability is high across all Projects (n = 23), to the level 6, except for three which had overall ratings of 5 due to lower ratings on sub-domains. The end users of all projects rated the Project as useful (> Level 1). The differences in the sub-domains of usability are summarised below in Table 4.

Differences between Projects were more pronounced in the value domain, with 8 Projects rated lower. Most Projects were rated high on acceptability, applicability and practicality. The usefulness sub-domain of efficiency was rated lower across the Projects.

3.9.3. Adoption

Adoption in the GIAF framework refers to the level to which a target organisation (or target user) takes the intervention as its own and embeds it in the organisation’s systems and structures. All but one Project reached adoption levels of either 4) Allocation of resources, or 5) Provision of the application within operating procedures, service expectations, staff training or 6) Routinely made available in the interventions and services offered by the organisation. This indicates that organisations have adopted the intervention to some extent.

The lowest level of adoption (Level 3) was in one Project involving the target audience of significant others of first responders. In this circumstance, first responder organisations may perceive themselves to be limited to being a referral agency only.

3.9.4. Uptake

The level of penetration involves the calculation of the goal sample

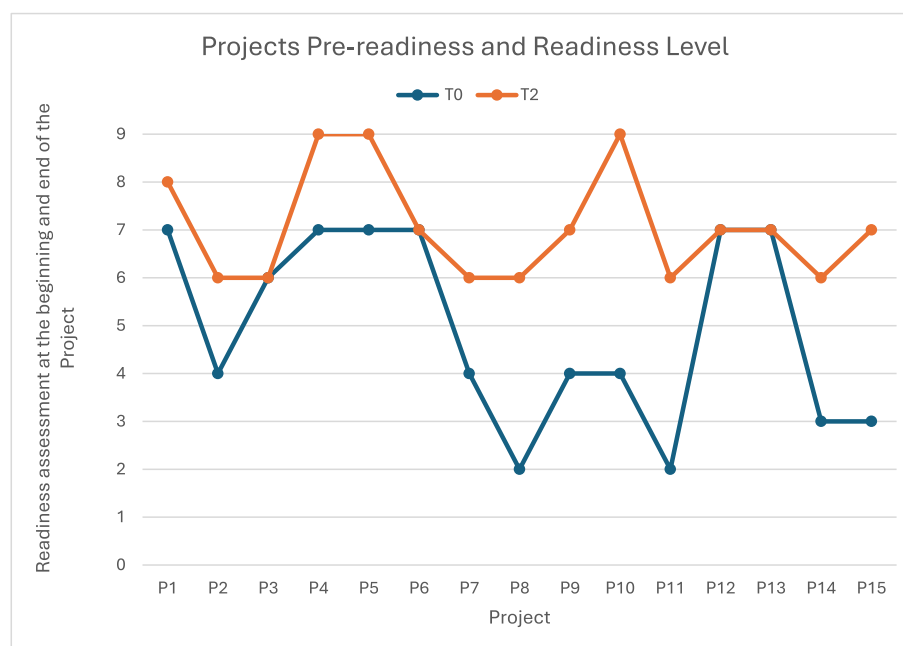


Fig. 4. The Pre-readiness and Readiness level of the Projects.

Key: Uptake levels: 1. (Initial <5 %). 2. (Low 6–24 %). 3. (Moderate 25–49 %) 4. (High 50–79 %). 5. (Extensive 80–90 %) 6. (Complete >90 %).

Table 4
Usability sub-domains summary of Project results.

Sub-domain	Results across Projects	Levels and No of projects	
Relevance	Some projects were rated lower on relevance. It is noted that all these projects involved an intervention which included an organisational change mechanism. Furthermore, three of these had a shortened period of exposure for participants to the intervention, which would impact on perceptions of relevance. The two highest-rated Projects were both residential programs that take place face-to-face in a retreat setting (separate from the participant's workplace over several days. Participants ranked both Projects as highly relevant.	Level	Projects
		7	2
		5–6	17
		4–5	4
		1–4	0
Acceptability	Four Projects were rated very high, with the common intervention characteristics of group work/retreat and the mode of facilitated group communication channel (either online or face to face). There were differences in the intervention's exposure and frequency.	Level	Projects
		7	4
		5–6	18
		4–5	1
		1–4	0
Applicability	The five Projects rated the highest again had the common intervention characteristics of mode and communication channel facilitated group work (online or face to face) with a common mechanism of psychoeducation.	Level	Projects
		7	5
		5–6	17
		4–5	1
		1–4	0
Practicality	All practicality mean ratings were positive, with one retreat-based Project rated the highest. This Project targeted participants in rural and remote areas and may explain the high ratings.	Level	Projects
		7	2
		5–6	18
		4–5	3
		1–4	0
Efficiency	All efficiency mean ratings were positive with greater differences across projects on this sub-domain. There were no potentially explanatory patterns across the projects identified.	Level	Projects
		7	0
		5–6	11
		4–5	12
		1–4	0
Value	All Projects were rated by participants to be of value and significance. No common intervention characteristics were identified in the two highest rated Projects, nor in the eight projects rated the lowest.	Level	Projects
		7	2
		5–6	13
		4–5	8
		1–4	0

size of the target audience (e.g., individuals, organisations, groups, workplaces, district). The number of end-users or actual study sample size (at baseline or T0), are then calculated as a percentage of the goal sample size. It provides an understanding on the proportion of the target audience that used the Project's application. Fig. 5 presents the GIAF Uptake scale Projects Uptake rating.

The uptake for most projects was >50 %. Four projects exceeded their Goal sample size. One of these employed a marketing expert to develop and implement a dissemination plan which had a strong focus on social media marketing. Of the four Projects with <24 % uptake, two had significant issues with recruitment and one was restricted with the period of implementation because of internal and external barriers.

3.10. Sustainability

In the GIAF, sustainability refers to the extent to which an application can continue to be delivered beyond the maturity phase of implementation and into the evolution phase. In the UC evaluation a Project is considered sustainable across two key factors: if the Project is perceived as useful (usability) and is adopted by organisations. The GIAF Usability ladder measures usefulness across the domains of relevance, acceptability, applicability, practicality, efficiency and value. Adoption is where the end user and/or organisation takes the intervention as its own, that is the level to which the intervention becomes 'routine' and embedded within organisations. In the GIAF framework, an intervention must reach at least Level 4 on the GIAF Adoption ladder to be considered adopted to some extent. Higher ratings on usefulness affirm high ratings of usability and thereby sustainability. If the intervention is not considered useful, it is not sustainable. Adoption is the next stage in a Project being sustained.

All Projects funded through the VFR Grant Program are considered usable, adoptable and have the capacity to be sustained into the later implementation and evolution phase, based on our assessment. Funding is an additional factor which contributes to the Project continuing beyond the Grant is funding. This was not within scope of the UC Program evaluation.

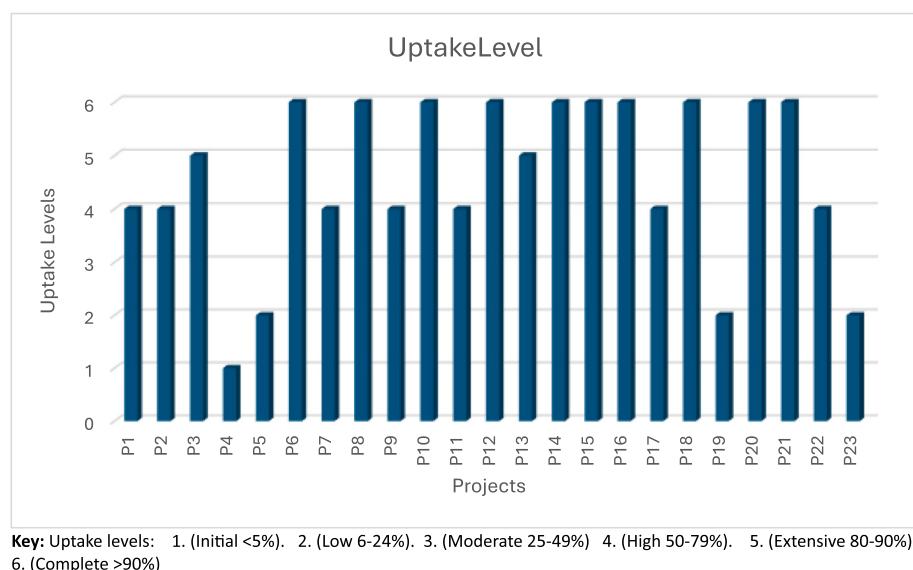


Fig. 5. Project ratings on the GIAF Uptake scale.

4. Discussion

This paper reports on a highly complex evaluation of 23 heterogeneous Projects in seven countries. The evaluation is significant for implementation research and evaluation as it presents and demonstrates the use of novel mixed methods for multi-project evaluations and approaches for accommodating Project heterogeneity. The international evaluation considered a broad range of domains to determine the value and success of the Projects implementation to answer the funders question of which mental ill-health and/or suicide prevention programs projects are sustainable and therefore scalable. Such information is critical to Grant programs, government and other organisations to support their decision making on Project funding and support.

The evaluation differs from typical Project evaluations. Frequently evaluations consider only two domains of the logic for change (the resources and results) and components such as funding, and participant outcomes/intervention effectiveness [41–43]. Whilst evaluating the effectiveness of the intervention is important, that alone does not provide the information to know whether a project is of value and sustainable, to be replicated or taken up elsewhere. The critical missing domain is frequently the evaluation of the implementation process domain – the ‘how’ it is implemented and further the impact of its implementation. The process domain evaluation considers whether a Project implemented in the real-world (e.g. workplace) was successful in terms of factors such as the user’s perception of usability, adoption and uptake such that it is valued and therefore sustainable. It is important to consider the wider perspective of what works, in what circumstances and contexts and how it is implemented.

The evaluation considered the organisation characteristics, implementation processes (throughputs), impacts, complexity and context through the adoption of complexity science thinking [16,44] and an ecosystemic approach [12], and the use of novel methods and tools. The range of components and data collection in the evaluation enabled the evaluation of differences in the characteristics of the organisations, highly heterogeneous Projects and Project interventions implemented in the real world, the implementation processes and impacts.

Most organisations were either academic institutions, such as universities, or not-for-profit organisations. The duration of the Projects varied by up to six months across the organisations, with most adopting a pre-post evaluation study design. Some Projects geographically spread across micro (district) to macro regions (international), although most involved macro (level 1), at regional provincial levels. Most Projects

were rated as medium complexity. The Project’s common inner facilitators of lived experience, team capability and connections supported the capacity to adapt approaches and implementation processes as needed to overcome barriers. Most projects were rated high on their planning with some weaker with dissemination. Pre-engagement with the end users was identified as a strength potentially impacting on recruitment and compliance with participant survey completion of self-rating on outcome measures. On readiness (preparedness of the intervention to be implemented in the real world), all but four Projects progressed, although these were interventions that were already developed prior to funding. All projects were considered by the target audience to be useful in all domains (relevance, acceptability, applicability, practicality, efficiency, value). The level of adoption and uptake varied across projects and was related to time available for recruitment and duration of the interventions.

Firefighters were most frequently represented in the target audience with Police and Frontline emergency health workers including paramedics the second highest. The Project intervention implemented was generally the original adaptation (parent), or an adaptation with some intervention elements removed or new elements added, or for a different target audience or geographical location (child). The most common mechanisms of the intervention were psychoeducation, although the person-to-person mechanism was also commonly used. The most frequent communication channels were face to face (either group or online) and facilitated, whereas the most frequent mode (the way the intervention was experienced) was Individual (personalised and directed to the individual) with the next highest peer to peer. Typically, the intervention’s frequency and exposure was regular and over a longer period (up to 12 weeks or less frequent but over 6 months). For most Projects teams there were more implementation facilitators than barriers for most Project teams. Thus, the most common intervention characteristics could be described as face to face (communication) and involves interaction with people, uses psychoeducation directed towards the individual with regular contact over weeks or months.

The uptake of projects was high. Those projects that had marketing or social media expertise contracted to their team or external support (e.g. from Movember), generally resulted in higher Uptake by participants. Ultimately all Project interventions are assessed as usable, adoptable and have the capacity to be sustained, dependant on the availability of continued financial resources.

Some key learnings and benchmarks established through the evaluation of the implementation impacts are:

- *Continuous and frequent collaboration between the Project and evaluation teams:* The complexity of a Grant Program evaluation across 7 countries with highly heterogeneous Projects required continuous and regular collaboration. The evaluation depended on the willingness of all involved to cooperate within the context of mutual respect and acknowledgement of both experiential and expert knowledge [45] across the Project teams, Movement teams and the UC Evaluation team.
- *Project team pre-engagement with potential participants and end-users may enhance uptake:* Pre-engagement processes with the target audience (e.g. co-design workshops, focus groups, incentives for participation) can significantly enhance subsequent recruitment and uptake. Engagement also creates a strong foundation for recruitment by building trust, aligning with user needs, and ensuring that the intervention is seen as valuable and relevant and potentially enhances participant survey completion rates. Many identified the lived experience of team members and their experiential knowledge as a strong inner facilitator.
- *Strong partnerships and networks:* A common facilitator was relationships and connections which facilitated implementation (be it within the organisation or external to). Project teams could place greater emphasis on leveraging these relationships for enhancing implementation outcomes.
- *Dissemination planning:* There is a need for a strong dissemination plan at the outset of a project. There are advantages for Projects to enhance recruitment rates, if they have a Project team member experienced in marketing/social media marketing or recruit an external person to support the team.
- *Funders and organisations funded should differentiate the duration of contract versus the recruitment period.* For the Projects up to 54 % of the time taken in implementation research was not time taken to recruit participants and provide the intervention. It involved time to undertake activities for the implementation such as ethics, planning preparation, intervention development or adaptation, data collection and analysis. Issues with recruitment should be considered likely for every project rather than unusual.
- *Implementation research is possible for any organisation:* Evaluation of implementation Projects should be conducted by people with the appropriate skills but in a range of organisations, not only academic or research institutions. In the Grant Program, there were the same number of not-for-profit organisations as Academic institutions/Universities, which conducted the Project. Some organisations were not identified as ‘research’ institutions (e.g. First Responder employer), yet a number of these were rated high on implementation outcomes. Implementation research is and should be conducted by a range of organisations with the appropriate skills.
- *Importance of defining the target audience:* Project teams need to ensure they have a clear definition of their target audience (e.g. age range, gender, occupation, job title, geographic location). It is critical for monitoring recruitment progress and evaluating uptake.
- *Track and measure complexity and context domains:* Implementation of an intervention in the real world is always complex with many interdependent and dependent components. The Complexity Index and Barriers and Facilitators Index enable a better understanding of the challenges and risks associated with the Project.

The substantial heterogeneity among the projects, including their target audiences, organisation and intervention characteristics, complexity and contextual factors posed significant challenges to the application of quantitative methods, and required an ecosystem approach over a typical evidence-based methodology, allowing for a more comprehensive and context-sensitive analysis. The results from the implementation processes and impact analysis components provided unique insights and benchmarks useful for implementation researchers, funders and organisational learnings for all stakeholders. The outputs from these evaluation components also reduced the heterogeneity of the

Projects and standardised the data to enable further components of analysis (e.g. efficiency and performance analyses reported in other papers).

5. Limitations

It was not possible to impose homogenous criteria across the 23 Projects for multiple reasons, essentially due to practicalities and purpose. First, the funder sought to identify which Projects (and further characteristics of Projects) were of value and sustainable. Second, the level of heterogeneity of the Projects, organisations and contexts limited the use of standard evaluation approaches. The Projects significantly differed across all domains, indicators and contexts with no common characteristics across the intervention, target audience, implementation team, organisational structure, level of funding, country and context. Whilst the UC team attempted to work with Projects to have at the least one common outcome measure, the intervention characteristics and genealogy made this unattainable.

Additional limitations included the timing of the involvement of the UC evaluation team, which limited the preparation and thereby opportunities to develop greater measurement consistency across the projects as well as opportunities for knowledge sharing across the Projects (e.g. planning for recruitment strategies).

Projects did not always provide requested information or documents in the format requested nor the time requested. The UC team needed to undertake internal progress audits to follow up as needed to obtain information from all Projects. The implementation indicators required UC to develop several new indicators, categories and two indices. Whilst there was preliminary prototype testing of these new tools, it was not possible to pilot test. Whilst considered relevant and useful, the tools and concepts would benefit from further testing for future use.

6. Conclusion

The evaluation approach utilised multiple indicators and their measurement and ultimately a range of mixed methods that enabled comparisons of the implementation processes and impacts between the 15 organisations and the 23 Projects (interventions). The organisations either developed or adapted the Projects (interventions) to meet local contexts and conditions, and then implemented the intervention in the real world. Extensive quantitative and qualitative data were collected by Projects and the UC evaluation team, and systematically compared to identify associations between specific implementation processes and contextual factors on the one hand, and real-world implementation outcomes on the other. The results of the Projects implementation process and impacts, and sustainability are reported in this paper. The results from the implementation processes and impact analysis components provided unique insights useful for implementation researchers, funders and organisational learnings for all stakeholders. They highlight the following key implications for projects aimed at prevention and early intervention of mental ill-health:

The importance of pre-engagement with stakeholders and potential end-users/end user organisations. These practices can significantly improve the relevance, recruitment, engagement, and overall effectiveness of projects, especially in diverse and cross-national contexts.

To maximise the impact and outcomes of complex, heterogeneous projects, it is essential to ensure sufficient contract and recruitment durations, particularly for interventions targeting hard-to-reach populations.

Future projects should prioritise fostering strong internal and external connections, as this will be key to enhancing project success, minimising some barriers and improving implementation outcomes.

These findings contribute to the growing body of evidence that emphasises the need for adaptive, collaborative approaches to multi-project implementation, evaluation and learning, particularly in settings that are diverse and contextually complex. The study demonstrates

that, despite challenges in evaluating complex projects, employing a systematic approach with key benchmarks and an ecosystem framework provides valuable insights for improving the design, implementation, and evaluation of future initiatives.

The outputs from these evaluation components also reduced the heterogeneity of the Projects and standardised the data to enable further components of analysis e.g. efficiency and performance (reported in other papers). Results from the UC evaluation on intervention effectiveness for the Project's participants (individual outcomes), efficiency of the Projects, the funders return on investment and overall performance comparison is reported in other papers under development. The extensive and complex evaluation affirms the need for multiple domains to be considered, measured and evaluated in any multi-project/study and international evaluation. Further the evaluation highlights the importance of using novel methods to accommodate the heterogeneity, enable benchmarking and gain organisational learnings for Project teams, funders and evaluators.

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Ethics

Ethical approval was received on the 18 February 2022 by the University of Canberra Human Research Ethics Committee #9346.

Availability of data and materials

Each project signed a data sharing agreement between their organisation and UC. UC and Movember will receive de-identified data only from the Projects. At this point, the data will not be available for use by others beyond the Grant program.

Author contribution

SL made substantial contributions drafting the manuscript. All authors contributed to writing sections of the manuscript and revisions. All authors gave final approval of the version to be published and agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Study Registration

The impact analysis of the Movember Veterans and First Responders Grant Program was registered on the Open Science Framework (OSF) Registration doi.org/10.17605/OSF.IOVNK89

CRediT authorship contribution statement

S. Lukersmith: Writing – original draft, Supervision, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Conceptualization. **C. Woods:** Writing – review & editing, Methodology, Investigation, Formal analysis, Conceptualization. **T. Niyonsenga:** Writing – review & editing, Methodology, Formal analysis. **I. Mohanty:** Writing – review & editing, Methodology, Formal analysis. **M.R. Gutierrez-Colosia:** Writing – review & editing, Formal analysis. **D. Diaz-Milanes:** Writing - review & editing, formal analysis. **C.R. Garcis-Alonso:** Review and editing, formal analysis. **C.J. Büsst:** Writing – review & editing, Conceptualization.

Declaration of competing interest

The authors declare they have no known competing interests. Whilst C. Büsst is employed by the Funder, she collaborated with Projects and provided Grant program insights but was not involved in the evaluation's data collection nor analysis.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.comppsy.2025.152599>.

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