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Evaluating in-person, social and news media engagement of a community-based programme Brown ButtaBean Motivation (BBM): a mixed methods research protocol

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Manuscripts
Evaluating in-person, social and news media engagement of a community-based programme Brown ButtaBean Motivation (BBM): a mixed methods research protocol

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Abstract

Introduction The community group Brown Buttabean Motivation (BBM) initially began to assist Auckland Pacific and Māori people to manage weight problems predominantly through community-based exercise sessions and social support. BBM’s activities have expanded over time to include many other components of healthy living in response to community need. Outreach expanded with advent of COVID-19 pandemic to include a Food Bank distributing a growing amount of donated healthy food to families in need, a community kitchen and influenza and COVID-19 vaccine drives. A strong social media has served as the main means of communication with the BBM community as well use of traditional news media (written, radio, television) to further engage with the vulnerable members of the community.

Methods and Analysis Aim to conduct mixed method process evaluation of BBM’s community engagement through its in-person, social and news media outreach activities with respect to health and wellbeing of Pasifika and Māori people in their community over time. Project uses co-design approach and is informed by theoretical constructs including Pacific Fa’afaletui and Fonofale and Māori Te Whare Tapa Whā Māori research frameworks and principles of Kaupapa Māori. Further framed using concept of community-driven diffusion of knowledge and engagement through social networks. Data sources include in-person community engagement databases, social and news media outreach data from archived documents and online resources. Empirical data will undergo longitudinal and time series statistical analyses. Qualitative text thematic analyses will be conducted using the software NVivo, Leximancer, and AntConc. Image and video visual data will be randomly sampled from two social media platforms over three timeframes, categorised and analytically coded.

Ethics and dissemination Ethics approval obtained from University of Auckland Human Participants Ethics Committee (UAHPEC) UAHPEC 23456. Findings will be published in peer-reviewed publications, disseminated through community meetings and conferences and via BBM social network platforms.

Article summary

Strengths and limitations of this study

- A major strength of this study is that the team comprises a number of researchers with different skills and expertise
- The project combines a mix of research methodologies, and uses different theoretical frameworks, weaving together these different perspectives to answer the research questions.

- Sampling strategies for the extensive social media data are required which may introduce some bias despite efforts to minimise these.

- The empirical is collated from a variety of sources and there will be instances of missing data.

**Key words**
Community outreach; Social media; Obesity; Physical activity; Pacific Islander; Māori; Social participation

**Word count**
3264 (text)
Introduction

Buttabean Motivation (BBM) is an organisation set up in 2014 by Dave Letele, a part-Samoan, part-Māori man who has a personal weight loss journey from his peak weight of 210 kg to less than half that amount. He wanted to inspire and support other Pacific and Māori people to manage their weight problems predominantly through community-based exercise sessions and social support. While physical activity was the entry point, BBM’s activities have expanded over time to include healthy eating and, indeed, all components of healthy living, which are woven into a collective journey towards health and wellbeing.

BBM has been responsive to other community wellbeing need. The advent of COVID-19 has seen an acceleration of BBM outreach. Many people lost their livelihoods in the wake of the pandemic and associated lockdowns, with Māori and Pacific communities being disproportionately affected. This situation has resulted in many people in these communities struggling with food insecurity and physical isolation causing mental health issues. From March 2020, BBM has been running a Food Bank, distributing a growing amount of donated healthy food parcels to families in need. In 2021, they opened a community kitchen providing hot meals at $2 koha (gift). Other activities include influenza vaccine drives and free health checks in collaboration with the Stroke Foundation of New Zealand.

BBM has always had a strong social media presence with Facebook and Instagram accounts. These social media channels have served as the main means of communication with the BBM community. Letele posts very regularly with motivational tips and videos, and other members also use social media to support and encourage each other. The cessation of face-to-face BBM classes during lockdown led to BBM rapidly running streaming exercise classes on their public Facebook page. The private BBM Facebook page has a 15.1k membership and interaction on this page strongly suggests that BBM’s social engagement with the community, and members with each other, are strong and wide-ranging. Letele’s public Facebook page has 61k followers and the BBM Instagram account has 32.9k followers, with postings on workouts, meal plans and BBM community out-reach. All these social media platforms are very active with regular, usually daily, postings. BBM’s outreach also includes engaging through traditional news media (written, radio, television) to further engage with the vulnerable members of the community, and to engage with the growing number of...
sponsors and corporate partners who donate money and resources to support BBM and its outreach activities.

BBM can be described as a network of people and organisations who want to improve the health and wellbeing of Pasifika and Māori, especially in the South Auckland region.

Networks, in general, are the relationships between entities, and they are conceptualised as the principal means of diffusing of community-level health and wellbeing innovations like BBM.\(^1\) Across such network flows ‘knowledge’ (characterised as knowing the what, why, who, how, where of actions to address an issue) and ‘engagement’ (dimensions such as influence, energy, confidence, power, trust, and leadership).\(^1\) In the context of BBM, the knowledge flows from the BBM team about classes, programmes, events, stories and information as well as between people in the network through the sharing of their stories. The engagement flows from BBM, especially from David Letele’s charismatic leadership, and between people as they share their enthusiasm and boost each other’s commitment to health and wellbeing. In any community programme which aims to influence health behaviours, the critical indicator of success is the sustained participation and engagement with the programme. We postulate that it is the active BBM network transmitting high levels of ‘knowledge’ and ‘engagement’ which is at the core of BBM’s high participation and success. The network links to the various BBM outreach activities and programmes which have been developed and provided in an ongoing and organic process in response to perceived community needs towards achieving the goal of their improved health and wellbeing.

**Aim, research questions and objectives**

The aim of this project is to conduct a process evaluation of BBM’s community engagement through its in-person, social and news media outreach activities with respect to the health and wellbeing of Pasifika and Māori people in their community over time. This paper describes the mixed methods protocol for that evaluation.

The specific research questions are:

**Research question 1:** What is the scope (breadth and depth) of outreach of the in-person programmes and activities, specifically delivery of exercise programmes, vaccination drives, food parcels and health screening events, over time?

Corresponding objectives for research question 1 are:
(1) To describe the frequency, number of participants, geographical locations and specific characteristics of BBM exercise programmes from 2015 to the present.

(2) To describe the numbers of people vaccinated against influenza and COVID-19 at specific points in time.

(3) To describe the numbers of people attending: the Kai nutrition programme for the ‘From the Couch’ (FTC) programme for those with severe obesity, from Oct 2020; the Community Kitchen (since Dec 2020, with 1000 hot meals served), and then; the updated Community Kitchen (opened July 2021).

(4) To describe the number of people, their ethnicities, household composition and geographical location receiving food parcel support over time.

(5) To describe the nature of health screening events and numbers screened at specific points in time.

Research question 2: How have the social media platforms enabled the BBM community to engage with the organisation and with each other over time?

The corresponding objectives for research question 2 are:

(1) To assess the degree and nature of online interaction with posts, and individuals or families receiving services provided by BBM.

(2) To analyse video and text data for themes of messaging and how the messages change over time.

(3) To analyse how the BBM community engages with each other through social media.

Research question 3: How has BBM increased its community engagement through the use of news media (such as newspapers, magazines, radio, television)?

The corresponding objective for research question 3 is:

(1) Describe the media outlet, audience, type and topic of the content over time.

Methods and analysis

Research design and theoretical frameworks

This mixed methods research project uses a co-design approach and is informed by a number of theoretical constructs. Firstly, the use of a mixed methods approach with a range of different types and sources of data fits with the Pacific Fa’afaletui research framework, whereby different perspectives are woven together to create new knowledge (from ‘ways of’
[fa’a] ‘weaving together’ [tui] deliberations of different groups or ‘houses’ [fale]). This is derived from the Pacific philosophy of connectiveness and a collective holistic approach. Our team reflects this research framework as it is led by a Senior Research Fellow of Samoan and Māori descent, and includes Māori researchers to advise in Māori research, senior researchers with expertise in co-design and in research aimed at reducing obesity, and researchers from a marketing background bringing experience in social media data analyses, in collaboration with BBM staff as co-researchers. Each person brings a different body of knowledge that is woven together to create this protocol.

Kaupapa Māori research prioritises Māori knowledge, language, customs, and practices in research. Its main goal is to ensure that research conducted has positive outcomes for Māori communities. Kaupapa Māori has five key principles; tino rangatiratanga (self-determination), taonga tuku iho (cultural aspirations), ako Māori (Māori world view), “Kia piki ake i nga raruraru o te kainga” (socio-economic mediation), and whānau (family). This study is aligned with the last two principles. Firstly, “Kia piki ake i nga raruraru o te kainga”, acknowledges that there are socio-economic disadvantages that Māori face. Kaupapa Māori is often used to challenge the socio-economic disadvantages, demeaning ideologies and power relations with which Māori are far too familiar. For this study “kia piki ake i nga raruraru o te kainga” is embodied by ensuring that care is taken when the data is extracted and analysed to ensure that Māori participants of BBM experience no harm from this study. Secondly, whānau is not limited to the people in a family (immediate and extended); it is also how Māori practice whanaungatanga, which is the way a family interacts and be with each other. Knowledge is shared and guarded by all whānau members; it is a collective approach that places greater value on the research because of the shared vision and support. This principle supports the Pasifika framework in the weaving together of different skills and perspectives within the research team to work towards a shared goal. Overall, the use of Kaupapa Māori ensures that everyone involved in this study are working towards creating positive health outcomes for Māori communities.

In line with the World Health Organization declaration that ‘health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity’, the health and wellbeing of the Pasifika and Māori community are viewed through the lens of the Pacific (Fonofale) and Māori (Te Whare Tapa Whā) holistic frameworks for interpreting people's dimensions of health and wellbeing. These frameworks use the
metaphor of a Samoan or Māori meeting-house. Fonofale has extended family and community as the floor, and cultural practices, beliefs and values that shelter people, as the roof. The four house pillars or pou represent physical, mental, spiritual and other components (such as sexuality, age, gender and socioeconomic status) of health and wellbeing. The meeting house (fonofale) is surrounded by the physical environment, the socio-political context, and the point in time.

The Māori health Te Whare Tapa Whā model\textsuperscript{12} is very similar. The foundation of the house (whare) is the land and place of belonging (taha whenua), and the four posts are physical (taha tinana), mental (taha hinengaro), spiritual (taha wairua) and family (taha whānau) wellbeing. Māori believe that these four walls must be balanced and in harmony with each other to achieve good health.\textsuperscript{13}

These dynamic models promote a holistic approach to health and wellbeing, with interaction between the components. This helps guide our understanding of the different types of outreach BBM develops in response to social need aimed at improving the overall health and wellbeing of their community. The consolidated criteria for strengthening the reporting of health research involving indigenous peoples (CONSIDER) statement\textsuperscript{14} will also guide the conducting of the study.

The study is further framed using the concept of the community-driven diffusion of knowledge and engagement through social networks.\textsuperscript{1} BBM constitutes, at least in part, an online community which can be characterised as a ‘consumer tribe’\textsuperscript{15,16} – a group of consumers with shared values, passions and beliefs who are linked together by the activities/products of a brand i.e. BBM. Although BBM is not a commercial brand, it is a branded organisation and its charismatic leader, Dave Letele, could be considered a “human brand”.\textsuperscript{17} Researchers have mainly explored consumer tribes from a Western perspective, however, Māori and indigenous perspectives have much to contribute to understanding consumer tribes.\textsuperscript{18}

In summary, this project team comprises a number of researchers with different skills and expertise, combines a mix of research methodologies, and uses different theoretical frameworks, weaving together these different perspectives to answer the research questions.
**Patient and Public Involvement**

This is a co-designed study with members of the community group BBM who have been actively involved in the design of this study, and will contribute to data collection, analyses, paper writing and dissemination.

**Timeframe and setting**

The aim is to describe the evolution of BBM’s networks and outreach activities in Auckland and beyond over time from its inception in 2014 to 2022.

**Data sources**

All data is from secondary datasets and no consent will be sought. All in-person and social media data from the BBM closed group data will be de-identified prior to extraction from existing datasets. Data contained in BBM open social media platforms and news media will include identified individuals, as these is already in the public domain. However the analyses will focus on key themes covered in media stories, not named individuals.

1. **In-person community engagement data** (exercise programmes, vaccination drives, food parcels, health screening events) collated from existing BBM in-house databases and documents.

2. **Social media data** provided by BBM staff who are both page administrators and co-researchers from the following sites:
   - BBM Motivation, private Facebook group [https://www.facebook.com/groups/Buttabean](https://www.facebook.com/groups/Buttabean) 15.1k members (metrics only data)
   - Open BBM website, [https://www.thebbmprogram.com/](https://www.thebbmprogram.com/) Workouts, classes, information about programmes
   - Buttabean Motivation, [https://www.bbm.fit/](https://www.bbm.fit/) Programmes website
   - @buttabean_motivation, public Instagram account. Videos, photos [https://www.instagram.com/buttabean_motivation/?hl=en](https://www.instagram.com/buttabean_motivation/?hl=en)
3. Traditional news media outreach data from BBM archived documents and online resources such as Newztext Plus media database.

**Nature of the data**

1. **In-person activities**
   a. Exercise class data includes date, type and location of classes, numbers of attendees
   b. Vaccination data includes date, nature of vaccine, number delivered
   c. Food parcel distribution data includes date, number distributed, household composition, ethnicity, location (suburb)
   d. Health event data includes date, type of event, number of recipients

2. **Social media outreach and engagement**
   a) Social media metrics of activity and interaction includes audience and page insights to measure size of the audience (e.g., Facebook followers) and impact of postings (e.g., likes, comments, sharing). Backend traffic data from Facebook and Instagram can be extracted by page administrators without identifiable data of the persons linked to the data. De-identified metric data will be obtained from public and closed group pages, and will be received by university researchers as numeric data.
   b) **Specific postings of particular types** for in-depth (qualitative) analyses. Possible criteria for selection of posts for case studies include evidence of high level of engagement by the community, for example high frequency of posts, page views, responses (comments), reactions (emojis/emojis), shares.

3. **Traditional (mass and Māori) news media outreach**
   Metrics include date, media type, outlet, numbers of interviews conducted, reported readership (circulation).

**Notes on the social media data**

1) The closed group Facebook page (15.1K membership) is the best source for engagement not only by BBM to its members, but between BBM members. We can analyse the data quantitatively but are limited in what we can analyse in terms of the content of the posts for ethical reasons. We will explore whether we can examine key themes of postings without informed consent of members.

2) Testimonials on open Facebook pages - best examples for video case analyses
(3) BBM Healing project
(4) Before-after stories

Visual Data Sampling Plan
Visual data in the form of images and videos are posted by both BBM and its community members (“members”) on both Facebook and Instagram. Since Instagram is the most popular visual social media platform globally, a critical visual content analysis of a sample of posts from both BBM and from community members will be conducted using the following steps.

Step 1: Sampling Plan
As of 12 December 2021, the Instagram site instagram.com/buttabean_motivation had 7,974 posts and 33.1k followers. Some posts have multiple visual artifacts. These posts largely contain polyphonic data (eg one or more photographic images, videos and textual comments made by poster and other members of the community). Clearly, it is not feasible to analyse all the visual data. Instead, it is suggested that visual artifacts be randomly selected from the following categories: two sources of posts (BBM and members) x two types of visual artifact (images, video) x three time frames (2017, 2019 and 2021).

Step 2: Selecting Analytical Categories
The coding framework will be holistic to incorporate tenets of the Māori and Pasifika models mentioned earlier. Analytical themes will include social (eg family, community, whanau, team), mental wellbeing (eg happiness); environment (eg COVID-19, lockdown) and economic (eg poverty, income, employment) terms.

One third of the sample will be open coded – it will be read closely and iteratively to identify codes describing, naming or classifying the phenomena under consideration. These open codes augmented with insights from the textual comments made in reaction to the posts, as well as media, popular culture material, and academic literature related to BBM, fitness programmes, and relevant theories (eg consumer tribes). Each analytic category will be clearly explained/defined. For example, a likely initial analytical category might be whether a post is informational or motivational and whether it is about exercise, or nutrition or both. As coding progresses, it is likely that other analytical categories might emerge.
Step 3: Coding
The analytical coding scheme will then be applied to coding the remaining two-thirds of the sample of visual artifacts posted by both BBM and community members.

Step 4: Outputs
To better disseminate our results, while also protecting the privacy of community members, we anticipate that our verbal descriptions of the themes elicited by the coding could be augmented by artist-rendered depictions of example posts\(^{21}\) to preserve privacy and avoid breaching copyright.

Data analyses
This project incorporates different types of data including empirical, narrative text, images and videos. As outlined above, the analyses will be guided by the holistic Pacific and Māori models of health, Fonofale and Te Whare Tapa Whā, with a weaving together of different methodologies in line with Fa’aafuelutui. The data also be viewed through the lenses of BBM as a ‘consumer tribe’.

1. **In-person outreach activity analysis** Statistical analyses of these data will use the statistics package R describing the trends over time. For the exercise classes this will include monthly registrations and attendances at various classes including recording of repeat attendances.

2. **Social media engagement analysis**
   
   Quantitative: Data imported from Facebook Insights platform.\(^{22}\)
   
   - Longitudinal analyses with time series data.
   - Use of Facebook analytics Application Programming Interface (API), a software intermediary that allows two applications to communicate with each other, to identify engagement patterns on Facebook pages and how they’ve changed over time.\(^{23}\)
   - Determination of popular posts from which to construct case studies using a qualitative methodology.

   Qualitative: Examination of key themes within BBM’s highly active virtual environment examining text, video, and image-related data will use a combination of content and corpus...
analysis techniques. Qualitative text analyses will be conducted using the software NVivo, Leximancer, and AntConc. NVivo will primarily be used to analyse images. Leximancer will be used to conduct a content analysis of the textual data including the large amount of social media text data to identify key themes develop and change over time. These insights are displayed within Leximancer as a visual a map showing the main themes and sub-concepts contained within the text as well as information about how they are related. To supplement the insights Leximancer will provide, a corpus analysis of the same data will be conducted using AntConc, a freeware corpus analysis toolkit for concordancing and text analysis. Corpus analysis enables analysis of a large volume of data as a whole and in regard to synchronous variation by carrying out analysis of key word frequencies and collocations within the entire or different sub-corpora. The advantage of using content analysis (Leximancer) and corpus analysis (AntConc) for text analysis, as opposed to more interpretive methods such as NVivo, is not only that the analysis will be less subjective but also verbatim comments can be avoided thereby protecting the identity of posters.

Outputs may include multi-media collage of findings (textual themes, videos, media) posted on a timeline or some other mapping metaphor as a visual narrative.

3 News media analysis: These data will also undergo both statistical analysis using R looking at volume over time and thematic analyses of the content.

Ethics and dissemination

Ethics approval has been obtained from the University of Auckland Human Participants Ethics Committee (UAHPEC) UAHPEC 23456 expiry date 04/11/2024.

Fonofale, Te Whare Tapa Whā and the CONSIDER statement will guide the writing and dissemination of the findings. The findings will be published in appropriate peer-reviewed publications, as well as disseminated through community fono and hui (meetings) and conferences. BBM will further disseminate the findings via their social network platforms to BBM members and followers. All team members who meet authorship criteria will be eligible for authorship. No professional writers will be used. Publication of the protocol in an open access journal will grant public access to the full protocol.
**Author Contributions**

FS, FG, WB, BS, DL, AB and FG were involved in initial conceptualisation and study design. SS and KF contributed the sections on analysis of social media data. AB identified datasets and extracted data. ML collated and cleaned data. TH provided a Māori lenses. FG drafted the initial paper for publication. All authors contributed to the writing of the paper, and all have read and approved the final manuscript.

**Funding statement**

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**Acknowledgements**

We express our gratitude to Fuatino Laban and other BBM staff who have helped access and collate data from a variety of databases and other sources.

**Competing interests statement**

DL is the Founder and AB is the Marketing Communications Associate of BBM Motivation, and both are integral members of the research team. WB’s wife is a Pilates instructor at BBM. No other authors have any conflict of interest to declare.

**Data availability statement**

The data for this study belong to BBM and are still being collated. They have not been archived into a repository to date.

**Trial registration**

The overall study to evaluate BBM has been registered with the Australian New Zealand Clinical Trial Registry ACTRN12621000931875 1 July 2021, (BBM general members); ACTRN12621001676808 7 December 2021 (From the Couch).
References


24. Wilk V, Soutar GN, Harrigan PJQMRAIJ. Tackling social media data analysis. 2019


## SPIRIT 2013 Checklist: Recommended items to address in a clinical trial protocol and related documents*

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### Introduction

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml
Background and rationale 6a Description of research question and justification for undertaking the trial, including summary of relevant studies (published and unpublished) examining benefits and harms for each intervention 4-5

6b Explanation for choice of comparators N/A

Objectives 7 Specific objectives or hypotheses 5-6

Trial design 8 Description of trial design including type of trial (eg, parallel group, crossover, factorial, single group), allocation ratio, and framework (eg, superiority, equivalence, noninferiority, exploratory) 6-8

Methods: Participants, interventions, and outcomes

Study setting 9 Description of study settings (eg, community clinic, academic hospital) and list of countries where data will be collected. Reference to where list of study sites can be obtained 9

Eligibility criteria 10 Inclusion and exclusion criteria for participants. If applicable, eligibility criteria for study centres and individuals who will perform the interventions (eg, surgeons, psychotherapists) N/A

Interventions 11a Interventions for each group with sufficient detail to allow replication, including how and when they will be administered N/A

11b Criteria for discontinuing or modifying allocated interventions for a given trial participant (eg, drug dose change in response to harms, participant request, or improving/worsening of disease) N/A

11c Strategies to improve adherence to intervention protocols, and any procedures for monitoring adherence (eg, drug tablet return, laboratory tests) N/A

11d Relevant concomitant care and interventions that are permitted or prohibited during the trial N/A
Outcomes 12 Primary, secondary, and other outcomes, including the specific measurement variable (e.g., systolic blood pressure), analysis metric (e.g., change from baseline, final value, time to event), method of aggregation (e.g., median, proportion), and time point for each outcome. Explanation of the clinical relevance of chosen efficacy and harm outcomes is strongly recommended.

Participant timeline 13 Time schedule of enrolment, interventions (including any run-ins and washouts), assessments, and visits for participants. A schematic diagram is highly recommended (see Figure).

Sample size 14 Estimated number of participants needed to achieve study objectives and how it was determined, including clinical and statistical assumptions supporting any sample size calculations.

Recruitment 15 Strategies for achieving adequate participant enrolment to reach target sample size.

Methods: Assignment of interventions (for controlled trials) N/A

Allocation:

Sequence generation 16a Method of generating the allocation sequence (e.g., computer-generated random numbers), and list of any factors for stratification. To reduce predictability of a random sequence, details of any planned restriction (e.g., blocking) should be provided in a separate document that is unavailable to those who enrol participants or assign interventions.

Allocation concealment mechanism 16b Mechanism of implementing the allocation sequence (e.g., central telephone; sequentially numbered, opaque, sealed envelopes), describing any steps to conceal the sequence until interventions are assigned.

Implementation 16c Who will generate the allocation sequence, who will enrol participants, and who will assign participants to interventions.

Blinding (masking) 17a Who will be blinded after assignment to interventions (e.g., trial participants, care providers, outcome assessors, data analysts), and how.
If blinded, circumstances under which unblinding is permissible, and procedure for revealing a participant’s allocated intervention during the trial

**Methods: Data collection, management, and analysis**

**Data collection methods**

18a Plans for assessment and collection of outcome, baseline, and other trial data, including any related processes to promote data quality (eg, duplicate measurements, training of assessors) and a description of study instruments (eg, questionnaires, laboratory tests) along with their reliability and validity, if known. Reference to where data collection forms can be found, if not in the protocol

18b Plans to promote participant retention and complete follow-up, including list of any outcome data to be collected for participants who discontinue or deviate from intervention protocols

**Data management**

19 Plans for data entry, coding, security, and storage, including any related processes to promote data quality (eg, double data entry; range checks for data values). Reference to where details of data management procedures can be found, if not in the protocol

**Statistical methods**

20a Statistical methods for analysing primary and secondary outcomes. Reference to where other details of the statistical analysis plan can be found, if not in the protocol

20b Methods for any additional analyses (eg, subgroup and adjusted analyses)

20c Definition of analysis population relating to protocol non-adherence (eg, as randomised analysis), and any statistical methods to handle missing data (eg, multiple imputation)

**Methods: Monitoring**

**Data monitoring**

21a Composition of data monitoring committee (DMC); summary of its role and reporting structure; statement of whether it is independent from the sponsor and competing interests; and reference to where further details about its charter can be found, if not in the protocol. Alternatively, an explanation of why a DMC is not needed
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<td>Description of any interim analyses and stopping guidelines, including who will have access to these interim results and make the final decision to terminate the trial</td>
<td>21b</td>
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<td>Harms</td>
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<td>Plans for collecting, assessing, reporting, and managing solicited and spontaneously reported adverse events and other unintended effects of trial interventions or trial conduct</td>
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<td>Frequency and procedures for auditing trial conduct, if any, and whether the process will be independent from investigators and the sponsor</td>
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<tr>
<td>Research ethics approval</td>
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<td>Plans for communicating important protocol modifications (eg, changes to eligibility criteria, outcomes, analyses) to relevant parties (eg, investigators, REC/IRBs, trial participants, trial registries, journals, regulators)</td>
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<tr>
<td>Protocol amendments</td>
<td>26a</td>
<td>Who will obtain informed consent or assent from potential trial participants or authorised surrogates, and how (see Item 32)</td>
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<td>Consent or assent</td>
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<td>Confidentiality</td>
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<td>Declaration of interests</td>
<td>28</td>
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<tr>
<td>Access to data</td>
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<td>Statement of who will have access to the final trial dataset, and disclosure of contractual agreements that limit such access for investigators</td>
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<td>30</td>
<td>Ancillary and post-trial care</td>
<td>Provisions, if any, for ancillary and post-trial care, and for compensation to those who suffer harm from trial participation</td>
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<td>31a</td>
<td>Dissemination policy</td>
<td>Plans for investigators and sponsor to communicate trial results to participants, healthcare professionals, the public, and other relevant groups (eg, via publication, reporting in results databases, or other data sharing arrangements), including any publication restrictions</td>
</tr>
<tr>
<td>31b</td>
<td>Authorship eligibility guidelines and any intended use of professional writers</td>
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<tr>
<td>31c</td>
<td>Plans, if any, for granting public access to the full protocol, participant-level dataset, and statistical code</td>
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*It is strongly recommended that this checklist be read in conjunction with the SPIRIT 2013 Explanation & Elaboration for important clarification on the items. Amendments to the protocol should be tracked and dated. The SPIRIT checklist is copyrighted by the SPIRIT Group under the Creative Commons “Attribution-NonCommercial-NoDerivs 3.0 Unported” license.*
# BMJ Open

## Process evaluation of in-person, news and social media engagement of a community-based programme Brown ButtaBean Motivation (BBM): a research protocol

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<td>Date Submitted by the Author:</td>
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<td>Complete List of Authors:</td>
<td>Savila, Fa'asisila; The University of Auckland, Pacific Health Bamber, Anele; BBM Smith, Sandra; The University of Auckland, Department of Marketing Fernandez, Karen V; The University of Auckland, Department of Marketing Harding, Truely; The University of Auckland Letele, Dave; BBM Motivation van der Werf, Bert; The University of Auckland, Epidemiology and Biostatistics Loheni, Mia; The University of Auckland, Pacific Health Bagg, Warwick; The University of Auckland, Department of Medicine Swinburn, Boyd; The University of Auckland, Epidemiology &amp; Biostatistics Goodyear-Smith, Felicity; The University of Auckland, Department of General Practice &amp; Primary Health Care</td>
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<td>Keywords:</td>
<td>COVID-19, General diabetes &lt; DIABETES &amp; ENDOCRINOLOGY, PREVENTIVE MEDICINE, PRIMARY CARE, PUBLIC HEALTH, QUALITATIVE RESEARCH</td>
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Process evaluation of in-person, news and social media engagement of a community-based programme Brown ButtaBean Motivation (BBM): a research protocol

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Abstract

Introduction The community group Brown Buttabean Motivation (BBM) initially began to assist Auckland Pasifika and Māori to manage weight problems, predominantly through community-based exercise sessions and social support. BBM’s activities expanded over time to include many other components of healthy living in response to community need. With advent of the COVID-19 pandemic BBM outreach grew to include a foodbank distributing a increasing amount of donated healthy food to families in need, a community kitchen, and influenza and COVID-19 vaccine drives. A strong social media presence has served as the main means of communication with the BBM community, as well as use of traditional news media (written, radio, television) to further engage with vulnerable members of the community.

Methods and Analysis The study aims to conduct mixed method process evaluation of BBM’s community engagement through in-person, social and news media outreach activities with respect to the health and wellbeing of Pasifika and Māori over time. The project is informed by theoretical constructs including Pacific Fa’afaletui and Fonofale, and Māori Te Whare Tapa Whā Māori research frameworks and principles of Kaupapa Māori. It is further framed using the concept of community-driven diffusion of knowledge and engagement through social networks. Data sources include in-person community engagement databases, social and news media outreach data from archived documents and online resources. Empirical data will undergo longitudinal and time series statistical analyses. Qualitative text thematic analyses will be conducted using the software NVivo, Leximancer, and AntConc. Image and video visual data will be randomly sampled from two social media platforms. The social media dataset contains almost 8000 visual artifacts.

Ethics and dissemination Ethics approval obtained from University of Auckland Human Participants Ethics Committee UAHPEC 23456. Findings will be published in peer-reviewed publications, disseminated through community meetings and conferences and via BBM social network platforms.

Article summary

Strengths and limitations of this study

- A major strength of this study is that the team comprises a range of researchers incorporating community-based experts with different skills, expertise, and relevant ethnic backgrounds.
• The project combines a mix of research methodologies, and uses different theoretical frameworks, weaving together these different perspectives in innovative, novel and holistic ways to answer the research questions.

• By combining datasets of in-person, social and news media outreach activities, the study will illustrate community engagement over time, and may serve as a model for other research investigating complex community-led interventions.

• Sampling strategies for the extensive social media data are required which may introduce some bias despite efforts to minimise these.

• The empirical data are collated from a variety of sources and there will be instances of missing data.

**Key words**
Community outreach; Social media; Obesity; Physical activity; Oceanic ancestry group; Social participation
Introduction

Brown Buttabeean Motivation (BBM) is an organisation set up in 2014 by Dave Letele, a part-Samoan, part-Māori man with a personal weight loss journey from his peak weight of 210 kg to less than half that amount. He wanted to inspire and support other Pasifika (people from Pacific nations living in Aotearoa New Zealand (NZ)) and Māori to manage their weight problems predominantly through community-based exercise sessions and social support. Despite numerous community and government attempts to address the issue, Pasifika and Māori have much greater rates of obesity and weight-related diseases than non-Pacific, non-Māori. Most interventions are delivered by ‘experts’ without community leadership and input, and may only last the duration of the research grant. After initial weight loss success, weight increases often return.

While physical activity was the entry point, BBM’s activities have expanded over time to include healthy eating and, indeed, all components of healthy living, which are woven into a collective journey towards health and wellbeing. BBM is still led by its founder, Dave Letele. It is a limited liability company with Letele as sole director and shareholder. It has a diverse funding model including philanthropic funding to cover free boot camps and its fitness facilities, intermittent Ministry of Health contracts, user-pays for online fitness programmes, and donations through its Just Move Charitable Health Trust funding arm. The operation involves both paid employees and volunteers.

BBM has been responsive to other community wellbeing need. The advent of COVID-19 has seen an acceleration of BBM outreach. Many people lost their livelihoods in the wake of the pandemic and associated lockdowns, with Pasifika and Māori communities being disproportionately affected. This situation has resulted in many people in these communities struggling with food insecurity and physical isolation causing mental health issues. From March 2020, BBM has been running a Food Bank, distributing a growing amount of donated healthy food parcels to families in need. In 2021, they opened a community kitchen providing hot meals at $2 koha (gift). Other activities include influenza vaccine drives and free health checks in collaboration with the Stroke Foundation of New Zealand. See Table 1 for a timeline of events including changes in response to the COVID-19 pandemic.
BBM has always had a strong social media presence with Facebook and Instagram accounts. These social media channels have served as the main means of communication with the BBM community. Letele posts very regularly with motivational tips and videos, and other members also use social media to support and encourage each other. The cessation of face-to-face BBM classes during lockdown led to BBM rapidly running streaming exercise classes on their public Facebook page. The private BBM Facebook page has a 15.1k membership and interaction on this page strongly suggests that BBM’s social engagement with the community, and members with each other, are strong and wide-ranging. Letele’s public Facebook page has 61k followers and the BBM Instagram account has 32.9k followers, with postings on workouts, meal plans and BBM community out-reach. All these social media platforms are very active with regular, usually daily, postings. BBM’s outreach also includes engaging through traditional news media (written, radio, television) to connect with Pasifika and Māori, and to engage with the growing number of sponsors and corporate partners who donate money and resources to support BBM and its outreach activities.

BBM can be described as a network of people and organisations who want to improve the health and wellbeing of Pasifika and Māori, especially in the South Auckland region. Networks, in general, are the relationships between entities, and they are conceptualised as the principal means of diffusion of community-level health and wellbeing innovations like BBM. Across such network flows ‘knowledge’ (characterised as knowing the what, why, who, how, where of actions to address an issue) and ‘engagement’ (dimensions such as influence, energy, confidence, power, trust, and leadership).6 In the context of BBM, the knowledge flows from the BBM team about classes, programmes, events, stories and information as well as between people in the network through the sharing of their stories. The engagement flows from BBM, especially from David Letele’s charismatic leadership, and between people as they share their enthusiasm and boost each other’s commitment to health and wellbeing. In any community programme which aims to influence health behaviours, the critical indicator of success is the sustained participation and engagement with the programme. We postulate that it is the active BBM network transmitting high levels of ‘knowledge’ and ‘engagement’ which is at the core of BBM’s high participation and success. The network links to the various BBM outreach activities and programmes which have been developed and provided in an ongoing and organic process in response to perceived community needs towards achieving the goal of their improved health and wellbeing.
**Aim, research questions and objectives**

The aim of this project is to conduct a process evaluation of BBM’s community engagement through its in-person, social and news media outreach activities with respect to the health and wellbeing of Pasifika and Māori people in their community over time. This paper describes the mixed methods protocol for that evaluation.

The specific research questions are:

Research question 1: What is the scope (breadth and depth) of outreach of the in-person programmes and activities, specifically delivery of exercise programmes, vaccination drives, food parcels and health screening events, over time?

Corresponding objectives for research question 1 are:

1. To describe the frequency, number of participants, geographical locations and specific characteristics of BBM exercise programmes from 2015 to the present.
2. To describe the numbers of people vaccinated against influenza and COVID-19 at specific points in time.
3. To describe the numbers of people attending: the Kai nutrition programme for the ‘From the Couch’ (FTC) programme for those with severe obesity, from Oct 2020; the Community Kitchen (since Dec 2020, with 1000 hot meals served), and then; the updated Community Kitchen (opened July 2021).
4. To describe the number of people, their ethnicities, household composition and geographical location receiving food parcel support over time.
5. To describe the nature of health screening events and numbers screened at specific points in time.

Research question 2: How have the social media platforms enabled the BBM community to engage with the organisation and with each other over time?

The corresponding objectives for research question 2 are:

1. To assess the degree and nature of online interaction with posts, and individuals or families receiving services provided by BBM.
2. To analyse video and text data for themes of messaging and how the messages change over time.
3. To analyse how the BBM community engages with each other through social media.
Research question 3: How has BBM increased its community engagement through the use of news media (such as newspapers, magazines, radio, television)?

The corresponding objective for research question 3 is:

(1) Describe the media outlet, audience, type and topic of the content over time.

Methods and analysis

Research design, theoretical frameworks and principles

This mixed methods research project is co-produced by university researchers and BBM team members, and is informed by a number of theoretical constructs.

Fa’afelutu

Firstly, the use of a mixed methods approach with a range of different types and sources of data fits with the Pacific Fa’afelutu research framework, whereby different perspectives are woven together to create new knowledge (from ‘ways of’ [fa’a] ‘weaving together’ [tui] deliberations of different groups or ‘houses’ [fale]). This is derived from the Pacific philosophy of connectiveness and a collective holistic approach. Our team reflects this research framework as it is led by a Senior Research Fellow of Samoan and Māori descent, and includes Māori researchers to advise in Māori research, senior researchers with expertise in co-design and in research aimed at reducing obesity, and researchers from a marketing background bringing experience in social media data analyses, in collaboration with BBM staff as co-researchers. Each person brings a different body of knowledge that is woven together to create this protocol.

Kaupapa Māori

Kaupapa Māori research prioritises Māori knowledge, language, customs, and practices in research. Its main goal is to ensure that research conducted has positive outcomes for Māori communities. Kaupapa Māori has five key principles; tino rangatiratanga (self-determination), taonga tuku iho (cultural aspirations), ako Māori (Māori world view), “Kia piki ake i nga rarurau o te kainga” (socio-economic mediation), and whānau (family). This study is aligned with the last two principles. Firstly, “Kia piki ake i nga rarurau o te kainga”, acknowledges that there are socio-economic disadvantages that Māori face. Kaupapa Māori is often used to challenge the socio-economic disadvantages, demeaning ideologies and power relations with which Māori are far too familiar. For this study ‘kia
piki ake i nga raruraru o te kainga” is embodied by ensuring that care is taken when the data is extracted and analysed to ensure that Māori participants of BBM experience no harm from this study.

Secondly, whānau is not limited to the people in a family (immediate and extended); it is also how Māori practice whanaungatanga, which is the way a family interacts and be with each other. Knowledge is shared within the whānau and guarded by all whānau members from those who may misuse or exploit the body of knowledge. For this study, everyone who is involved is a part of the research whanau. This research whanau is a collective approach that places greater value on the research because of the shared vision and support of all members (researcher, community workers, and community members). This principle supports the Pasifika framework in the weaving together of different skills and perspectives within the research team to work towards a shared goal. Overall, the use of Kaupapa Māori ensures that everyone involved in this study are working towards creating positive health outcomes for Māori communities. Our Māori researcher will oversee these processes using a Kaupapa Māori lens and the non-Māori researchers are aware of the Kaupapa Māori principles and the importance of their implementation.

Fonofale and Te Whare Tapa Whā
In line with the World Health Organization declaration that ‘health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity’, the health and wellbeing of the Pasifika and Māori community are viewed through the lens of the Pacific (Fonofale) and Māori (Te Whare Tapa Whā) holistic frameworks for interpreting people's dimensions of health and wellbeing. These frameworks use the metaphor of a Samoan or Māori meeting-house. Fonofale has extended family and community as the floor, and cultural practices, beliefs and values that shelter people, as the roof. The four house pillars or pou represent physical, mental, spiritual and other components (such as sexuality, age, gender and socioeconomic status) of health and wellbeing. The meeting house (fonofale) is surrounded by the physical environment, the socio-political context, and the point in time.

The Māori health Te Whare Tapa Whā model is very similar. The foundation of the house (whare) is the land and place of belonging (taha whenua), and the four posts are physical (taha tinana), mental (taha hinengaro), spiritual (taha wairua) and family (taha whānau)
wellbeing. Māori believe that these four walls must be balanced and in harmony with each other to achieve good health.\textsuperscript{18}

**CONSIDER statement**

These dynamic models promote a holistic approach to health and wellbeing, with interaction between the components. This helps guide our understanding of the different types of outreach BBM develops in response to social need aimed at improving the overall health and wellbeing of their community. The consolidated criteria for strengthening the reporting of health research involving indigenous peoples (CONSIDER) statement\textsuperscript{19} will also guide the conducting of the study.

**Consumer tribe**

The study is further framed using the concept of the community-driven diffusion of knowledge and engagement through social networks.\textsuperscript{6} BBM constitutes, at least in part, an online community which can be characterised as a “consumer tribe”\textsuperscript{20,21} – a group of consumers with shared values, passions and beliefs who are linked together by the activities/products of a brand i.e. BBM. Although BBM is not a commercial brand, it is a branded organisation and its charismatic leader, Dave Letele, could be considered a “human brand”.\textsuperscript{22} Researchers have mainly explored consumer tribes from a Western perspective, however, Māori and indigenous perspectives have much to contribute to understanding consumer tribes.\textsuperscript{23}

In summary, this project team comprises a number of researchers with different skills and expertise, combines a mix of research methodologies, and uses different theoretical frameworks, weaving together these different perspectives to answer the research questions.

**Patient and Public Involvement**

The evaluation is co-produced with members of the community group BBM, including Letele, the founder, who have been actively involved in the design of this study, and will contribute to data collection, analyses, paper writing and dissemination. BBM members sit on the steering committee and attend all researcher meetings as equal partners in decision-making.

**Timeframe and setting**
The aim is to describe the evolution of BBM’s networks and outreach activities in Auckland and beyond over time from its inception in 2014 to December 2021.

Nature and source of data
The data for this study are derived from a number of sources and include datasets derived from BBM’s records, social media text, audio and video postings on Facebook and Instagram, and written, audio and video news media material. Because all data are from secondary datasets, no consent will be sought. All in-person data will be de-identified prior to extraction from existing datasets. The social media data from the BBM closed group data will obtained by BBM from Facebook in de-identified form and provided to the researchers for analysis. Data contained in BBM open social media platforms and news media will include identified individuals, as these are already in the public domain. However the analyses will focus on key themes covered in media stories, not named individuals.

1. In-person community engagement data will be collated from existing BBM in-house databases and documents.
   a. Exercise class data include date, type and location of classes, number of attendees.
   b. Vaccination data include date, nature of vaccine, number delivered.
   c. Food parcel distribution data include date, number distributed, household composition, ethnicity, location (suburb).
   d. Health event data include date, type of event, number of recipients.

2. Social media data will be provided by BBM staff who are both page administrators and co-researchers from the following sites:
     61k followers. Videos, comments
   - BBM Motivation, private Facebook group https://www.facebook.com/groups/Buttabean
     15.1k members (metrics only data)
   - Open BBM website, https://www.thebbmprogram.com/ Workouts, classes, information about programmes
   - Buttabean Motivation, https://www.bbm.fit/ Programmes website
• @buttabean_motivation, public Instagram account. Videos, photos
  https://www.instagram.com/buttabean_motivation/?hl=en

a) Social media metrics of activity and interaction includes audience and page insights to
measure size of the audience (e.g., Facebook followers) and impact of postings (e.g., likes,
comments, sharing). Backend traffic data from Facebook and Instagram can be
extracted by page administrators without identifiable data of the persons linked to the
data. Facebook will provide de-identified metric data from public and closed group
pages, and will be received by university researchers as numeric data.

b) Specific postings of particular types for in-depth (qualitative) analyses. Possible
criteria for selection of posts for case studies include evidence of high level of
engagement by the community, for example high frequency of posts, page views,
responses (comments), reactions (emojis/emojis), shares.

• The closed group Facebook page (15.1K membership) is the best source for
  engagement not only by BBM to its members, but between BBM members. We
can analyse the data quantitatively but are limited in what we can analyse in terms
  of the content of the posts for ethical reasons. We will explore whether we can
  examine key themes of postings without informed consent of members.

• Testimonials on open Facebook pages - best examples for video case analyses

• BBM Healing project

• Before-after stories

3. Traditional news media outreach data from BBM archived documents and online resources
such as Newztext Plus media database. The quantitative news media metrics include date,
media type, outlet, numbers of interviews conducted, reported readership (circulation). Text
and transcripts of audio recordings will also be analysed.

**Data analyses**

This project incorporates different types of data including empirical, narrative text, images
and videos. As outlined above, the analyses will be guided by the holistic Pacific and Māori
models of health, Fonofale and Te Whare Tapa Whā, with a weaving together of different
methodologies in line with Fa’afaletui. The data also be viewed through the lenses of BBM as a ‘consumer tribe’.

1 In-person outreach activity analysis A statistical analysis of time series weekly averages will be conducted using the statistics package R to demonstrate the trends over time. These will be analysed using a generalised linear (log-linear) model. For the exercise classes this will include weekly registrations and attendances at various classes including recording of repeat attendances, and for the Foodbank, the number of family food parcels distributed weekly will be plotted in a graph over time, with the pertinent COVID-19 events, especially lockdowns, identified in the timeline, and differentiated into three time periods: 2014 to 2019 (pre-COVID-19), 2020 (first COVID-19 lockdowns) and 2021. Key activities and changes to BBM will be indicated in the timeline graph.

2 Social media engagement analysis Quantitative data imported from Facebook Insights platform will include:

- Longitudinal analyses with time series data.
- Use of Facebook analytics Application Programming Interface (API), a software intermediary that allows two applications to communicate with each other, to identify engagement patterns on Facebook pages and how they’ve changed over time.
- Determination of popular posts from which to construct case studies using a qualitative methodology.

We will use the following sampling plan: Visual data in the form of images and videos are posted by both BBM and its community members (“members”) on both Facebook and Instagram. Since Instagram is the most popular visual social media platform globally, a critical visual content analysis of a sample of posts from both BBM and from community members will be conducted using the following steps:

Step 1 Sampling Plan: As of 12 December 2021, the Instagram site instagram.com/buttabean_motivation had 7,974 posts and 33.1k followers. Some posts have multiple visual artifacts. These posts largely contain polyphonic data (eg one or more photographic images, videos and textual comments made by poster and other members of the community). Clearly, it is not feasible to analyse all the visual data as the dataset contains almost 8000 visual artifacts.
Instead, it is suggested that visual artifacts be randomly selected from the following categories: two sources of posts (BBM and members) times two types of visual artifact (images, video) x three time frames (2017, 2019 and 2021). These three time frames were selected because they provide an every-other-year rationale for selecting the visual artifacts, while also spanning the entire period of operation, and include three years of particular interest – 2017 (first year of Butterbean Motivation BBM Facebook), 2019 (last full year prior to COVID-19) and 2021 (first full year of COVID-19). We intend to randomly select 24 posts from each of the two data types (Facebook; Instagram) for each of the three years (2017, 2019, 2021), totalling 144 posts in total. This systematically drawn random sample will be drawn from each of the six data subsets by dividing the number of possible posts in each subset by 24. For example, if there are 480 posts on Instagram in 2021, then every 20th (480/24) post will be selected for analysis.

Step 2 Selecting Analytical Categories: The coding framework will be holistic to incorporate tenets of the Pasifika and Māori models. Analytical themes will map to the Fonofale and Te Whare Tapa Whā frameworks. A third of the data will be open coded – it will be read closely and iteratively to identify codes describing, naming or classifying the phenomena under consideration. These open codes will be augmented with insights from the textual comments made in reaction to the posts, as well as media, popular culture material, and academic literature related to BBM, fitness programmes, and relevant theories (eg consumer tribes). Each analytic category will be clearly explained/defined. For example, a likely initial analytical category might be whether a post is informational or motivational and whether it is about exercise, or nutrition or both. As coding progresses, it is likely that other analytical categories might emerge. For example, one might envisage categories and sub-codes such as source (Dave Letele, BBM staff, BBM community members) and valence (positive or negative) of influence on outcomes (fitness, health, nutrition, other support received) to emerge. We are unable to specifically name the codes and categories at this stage, as the analytical process will be iterative and these will depend on the emerging themes as we progress.

Step 3 Coding: The analytical coding scheme will then be applied to coding the remaining two-thirds of the sample of visual artifacts posted by both BBM and community members.
Step 4 Outputs: To better disseminate our results, while also protecting the privacy of community members, we anticipate that our verbal descriptions of the themes elicited by the coding might be augmented by artist-rendered depictions of example posts to preserve privacy and avoid breaching copyright.

Examination of key themes within BBM’s highly active virtual environment examining text, video, and image-related data will use a combination of content and corpus analysis techniques. Qualitative text analyses will be conducted using the software NVivo, Leximancer, and AntConc. NVivo will primarily be used to analyse images. Leximancer will be used to conduct a content analysis of the textual data including the large amount of social media text data to identify key themes develop and change over time. These insights are displayed within Leximancer as a visual a map showing the main themes and sub-concepts contained within the text as well as information about how they are related. To supplement the insights Leximancer will provide, a corpus analysis of the same data will be conducted using AntConc, a freeware corpus analysis toolkit for concordancing and text analysis. Corpus analysis enables analysis of a large volume of data as a whole and in regard to synchronous variation by carrying out analysis of key word frequencies and collocations within the entire or different sub-corpora. The advantage of using content analysis (Leximancer) and corpus analysis (AntConc) for text analysis, as opposed to more interpretive methods such as NVivo, is not only that the analysis will be less subjective but also verbatim comments can be avoided, thereby protecting the identity of posters.

The social media analyses will look at ‘Consumer Tribe’ and Letele as a ‘Human brand’. The focus will be on capturing the context of how BBM has grown, conscious of the power of Dave’s personality, to see whether the ‘collective’ can overcome the ‘individual’ in BBM’s timeline/evolution to become self-sustaining (system). The analysis will also examine the initial feature of BBM of physical activity being of utmost importance and nutrition secondary, has changed over time.

3 News media analysis: A corpus analysis of news media data over time according to three COVID-19 time periods (pre-COVID, 1 year and 2 years after start of COVID pandemic) will be conducted and compared with real world in-person activities. The data will include audio-transcripts. This multi-modal approach will facilitate understanding of the evolution of the identity of the tribe/community which is variable and changeable over time.
In discourse analysis there is a social self, which may apply to organisations and its communities, how we want to be seen, in line with identity theory.\textsuperscript{32} We will look at the change in themes, such as how the ‘Letele’ brand gets replaced with other important themes. The analysis will use Leximancer software.

Outputs may include multi-media collage of findings (textual themes, videos, media) posted on a timeline or some other mapping metaphor as a visual narrative.

**Ethics and dissemination**

Ethics approval has been obtained from the University of Auckland Human Participants Ethics Committee (UAHPEC) UAHPEC 23456 expiry date 04/11/2024.

Fonofale,\textsuperscript{16} Te Whare Tapa Whā\textsuperscript{17} and the CONSIDER statement\textsuperscript{19} will guide the writing and dissemination of the findings. The findings will be published in appropriate peer-reviewed publications, as well as disseminated through community fono and hui (meetings) and conferences. BBM will further disseminate the findings via their social network platforms to BBM members and followers. All team members who meet authorship criteria will be eligible for authorship. No professional writers will be used. Publication of the protocol in an open access journal will grant public access to the full protocol.

**Discussion**

We are currently conducting a longitudinal cohort study to measure the weight changes in BBM participants over time.\textsuperscript{33} However this current project aims to conduct a process evaluation of BBM’s community engagement over time through its in-person, social and news media outreach activities to investigate the changing nature of BBM’s response to the health and wellbeing needs of Pasifika and Māori people in their community.

Because far more news and social media data are available than can be fully analysed, decisions will need to be made about where we conduct a ’deep dive’. The analytical processes will be iterative and initial findings will help direct the progress of our analyses.
Author Contributions
FS, FG, WB, BS, DL, AB and FG were involved in initial conceptualisation and study design. SS and KF contributed the sections on analysis of social media data. AB identified datasets and extracted data. ML collated and cleaned data. TH provided a Māori lenses. FG drafted the initial paper for publication. All authors contributed to the writing of the paper, and all have read and approved the final manuscript.

Funding statement
This work is supported by a Health Research Council of New Zealand through a Pacific Health Research Postdoctoral Fellowship awarded to Fa’asisila Savilla, Grant number 21-280; University of Auckland project number 3722251. The funding body plays no role in the design of the study and collection, analysis, and interpretation of data nor in writing the manuscript.

Acknowledgements
We express our gratitude to Fuatino Laban and other BBM staff who have helped access and collate data from a variety of databases and other sources.

Competing interests statement
DL is the Founder and AB is the Marketing Communications Associate of BBM Motivation, and both are integral members of the research team. WB’s wife is a Pilates instructor at BBM. No other authors have any conflict of interest to declare.

Data availability statement
The data for this study belong to BBM. They have not been archived into a repository to date.

Trial registration
The overall study to evaluate BBM has been registered with the Australian New Zealand Clinical Trial Registry ACTRN12621000931875 1 July 2021, (BBM general members); ACTRN12621001676808 7 December 2021 (From the Couch).
References


29. Wilk V, Soutar GN, Harrigan PJQMRAIJ. Tackling social media data analysis. 2019


<table>
<thead>
<tr>
<th>Date</th>
<th>Alert Level</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Mar 2014</td>
<td></td>
<td>Letele starts BBM</td>
</tr>
<tr>
<td>14 Nov 2014</td>
<td></td>
<td>BBM Facebook group set up</td>
</tr>
<tr>
<td>20 Feb 2017</td>
<td></td>
<td>Facebook name changed to Butterbean Motivation BBM</td>
</tr>
<tr>
<td>28 Aug 2018</td>
<td></td>
<td>Facebook group changed to BBM Motivation</td>
</tr>
<tr>
<td>1 Jun 2019</td>
<td></td>
<td>BBM move into Manukau headquarters</td>
</tr>
<tr>
<td>1 Aug 2019</td>
<td></td>
<td>Hire of administrators, marketing, training development. Diversification of community classes</td>
</tr>
<tr>
<td>29 Nov 2019</td>
<td></td>
<td>Free health checks -BP &amp; diabetes Stroke Foundation of New Zealand</td>
</tr>
<tr>
<td>1 Jan 2020</td>
<td></td>
<td>Mindbody software rollout &amp; BBM launch website</td>
</tr>
<tr>
<td>1 Feb 2020</td>
<td></td>
<td>School programmes to deliver mindset and cultural activities</td>
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<td>21 Mar 2020</td>
<td>2</td>
<td>COVID-19 pandemic begins. Move to Alert level 2 Maximum 100 people can gather</td>
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<td>23 Mar 2020</td>
<td>3</td>
<td>Move to Level 3 Move to online classes</td>
</tr>
<tr>
<td>25 Mar 2020</td>
<td>4</td>
<td>Move to Level 4</td>
</tr>
<tr>
<td>28 Apr 2020</td>
<td>3</td>
<td>Move to Level 3</td>
</tr>
<tr>
<td>2 May 2020</td>
<td>3</td>
<td>Drive-through ‘flu vaccine at BBM HQ</td>
</tr>
<tr>
<td>14 May 2020</td>
<td>2</td>
<td>Move to Level 2</td>
</tr>
<tr>
<td>9 Jun 2020</td>
<td>1</td>
<td>Move to Level 1 Class size cap 70</td>
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<tr>
<td>16 May 2020</td>
<td>1</td>
<td>‘Flu vaccine drive-through &gt;500 in one day</td>
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<tr>
<td>19 Jun 2020</td>
<td>1</td>
<td>BBM free food parcel drive-through</td>
</tr>
<tr>
<td>18 July 2021</td>
<td>1</td>
<td>BBM Foodbank and Community Kitchen</td>
</tr>
<tr>
<td>1 Aug 2020</td>
<td>1</td>
<td>22 leaders accredited via Skills Active Aotearoa</td>
</tr>
<tr>
<td>12 Aug 2020</td>
<td>3</td>
<td>Move to Level 3</td>
</tr>
<tr>
<td>31 Aug 2020</td>
<td>2</td>
<td>Move to Level 2</td>
</tr>
<tr>
<td>1 Oct 2020</td>
<td>1</td>
<td>BBM Kai Nutrition programme for From the Couch cohorts</td>
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<tr>
<td>8 Oct 2021</td>
<td>1</td>
<td>Move to Level 1. In person classes re-open</td>
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<td>Date</td>
<td>Event</td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>-----------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>1 Dec 2020</td>
<td>Community Kitchen serves 1000 hot meals</td>
<td></td>
</tr>
<tr>
<td>1 Jan 2021</td>
<td>Start of 3 year study with University of Auckland</td>
<td></td>
</tr>
<tr>
<td>15 Feb 2021</td>
<td>Move to Level 3</td>
<td></td>
</tr>
<tr>
<td>18 Feb 2021</td>
<td>Move to Level 2 COVID-19 vaccination begins - border workers initially</td>
<td></td>
</tr>
<tr>
<td>23 Feb 2021</td>
<td>Move to Level 1</td>
<td></td>
</tr>
<tr>
<td>12 Mar 2021</td>
<td>Relocation headquarters to Manukau - includes classroom and meeting space</td>
<td></td>
</tr>
<tr>
<td>1 Apr 2021</td>
<td>Launch of Youth Programme</td>
<td></td>
</tr>
<tr>
<td>1 May 2021</td>
<td>&gt;10,000 food parcels to vulnerable families in past year</td>
<td></td>
</tr>
<tr>
<td>1 July 2021</td>
<td>BBM West Hub opens. 9,354 bookings in 90 days. Class size capped at 70</td>
<td></td>
</tr>
<tr>
<td>1 Aug 2021</td>
<td>BBM Community kitchen opens with full time chef to cook 250 healthy meals/day, 5 days/week for $2 koha</td>
<td></td>
</tr>
<tr>
<td>18 Aug 2021</td>
<td>Move to Level 4 BBM gives out lunches intended for schools</td>
<td></td>
</tr>
<tr>
<td>1 Sep 2021</td>
<td>Increased operations of Foodbank service. Gym turned into foodbank serving community groups of 500 families with sufficient food for a week</td>
<td></td>
</tr>
<tr>
<td>23 Sep 2021</td>
<td>Move to Level 3</td>
<td></td>
</tr>
<tr>
<td>3 Dec 2021</td>
<td>Move to COVID-19 Protection Framework. Classes re-open. Gatherings limited to 100 people</td>
<td></td>
</tr>
</tbody>
</table>

NZ four-tier alert level restrictions system:

- **Level 1** No restrictions on personal movement or gatherings
- **Level 2** No more than 100 people at indoor or outdoor gatherings; sport and recreation activities allowed, subject to conditions on gatherings, contact tracing, and where practical physical distancing
- **Level 3** Low risk local recreation activities allowed; public venues closed including gyms, pools, playgrounds. Gatherings up to 10 people allowed for weddings and funerals with physical distancing and public health measures
- **Level 4** Lockdown. People must stay home other than for essential personal movement. Safe recreational activity allowed in local area. All gatherings cancelled and all public venues closed
<table>
<thead>
<tr>
<th>Section/item</th>
<th>Item No</th>
<th>Description</th>
<th>Page number</th>
</tr>
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<td>Descriptive title identifying the study design, population, interventions, and, if applicable, trial acronym</td>
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<tr>
<td>Trial registration</td>
<td>2a</td>
<td>Trial identifier and registry name. If not yet registered, name of intended registry: ANZCTR</td>
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<td></td>
<td>2b</td>
<td>All items from the World Health Organization Trial Registration Data Set</td>
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<tr>
<td>Protocol version</td>
<td>3</td>
<td>Date and version identifier</td>
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<td>Funding</td>
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<td>Sources and types of financial, material, and other support</td>
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<td>Roles and</td>
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<td>Names, affiliations, and roles of protocol contributors</td>
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<tr>
<td>responsibilities</td>
<td>5b</td>
<td>Name and contact information for the trial sponsor</td>
<td>14</td>
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<tr>
<td></td>
<td>5c</td>
<td>Role of study sponsor and funders, if any, in study design; collection, management, analysis, and interpretation of data; writing of the report; and the decision to submit the report for publication, including whether they will have ultimate authority over any of these activities</td>
<td>14</td>
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<tr>
<td></td>
<td>5d</td>
<td>Composition, roles, and responsibilities of the coordinating centre, steering committee, endpoint adjudication committee, data management team, and other individuals or groups overseeing the trial, if applicable (see Item 21a for data monitoring committee)</td>
<td>N/A</td>
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**Introduction**
<table>
<thead>
<tr>
<th>Section</th>
<th>Page(s)</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>Background and rationale</td>
<td>6a</td>
<td>Description of research question and justification for undertaking the trial, including summary of relevant studies (published and unpublished) examining benefits and harms for each intervention.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4-5</td>
</tr>
<tr>
<td></td>
<td>6b</td>
<td>Explanation for choice of comparators</td>
</tr>
<tr>
<td></td>
<td>N/A</td>
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<tr>
<td>Objectives</td>
<td>7</td>
<td>Specific objectives or hypotheses</td>
</tr>
<tr>
<td></td>
<td>5-6</td>
<td></td>
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<tr>
<td>Trial design</td>
<td>8</td>
<td>Description of trial design including type of trial (eg, parallel group, crossover, factorial, single group), allocation ratio, and framework (eg, superiority, equivalence, noninferiority, exploratory).</td>
</tr>
<tr>
<td></td>
<td>6-8</td>
<td></td>
</tr>
</tbody>
</table>

Methods: Participants, interventions, and outcomes

| Study setting         | 9       | Description of study settings (eg, community clinic, academic hospital) and list of countries where data will be collected. Reference to where list of study sites can be obtained. |
|                       | 9       |                                                                                                                                                                                                             |
| Eligibility criteria  | 10      | Inclusion and exclusion criteria for participants. If applicable, eligibility criteria for study centres and individuals who will perform the interventions (eg, surgeons, psychotherapists). |
|                       | N/A     |                                                                                                                                                                                                             |
| Interventions         | 11a     | Interventions for each group with sufficient detail to allow replication, including how and when they will be administered.                                                                           |
|                       | N/A     |                                                                                                                                                                                                             |
|                       | 11b     | Criteria for discontinuing or modifying allocated interventions for a given trial participant (eg, drug dose change in response to harms, participant request, or improving/worsening disease). |
|                       | N/A     |                                                                                                                                                                                                             |
|                       | 11c     | Strategies to improve adherence to intervention protocols, and any procedures for monitoring adherence (eg, drug tablet return, laboratory tests).                                                        |
|                       | N/A     |                                                                                                                                                                                                             |
|                       | 11d     | Relevant concomitant care and interventions that are permitted or prohibited during the trial.                                                                                                                |
|                       | N/A     |                                                                                                                                                                                                             |
**Outcomes**  
Primary, secondary, and other outcomes, including the specific measurement variable (e.g., systolic blood pressure), analysis metric (e.g., change from baseline, final value, time to event), method of aggregation (e.g., median, proportion), and time point for each outcome. Explanation of the clinical relevance of chosen efficacy and harm outcomes is strongly recommended.

**Participant timeline**  
Time schedule of enrolment, interventions (including any run-ins and washouts), assessments, and visits for participants. A schematic diagram is highly recommended (see Figure).

**Sample size**  
Estimated number of participants needed to achieve study objectives and how it was determined, including clinical and statistical assumptions supporting any sample size calculations.

**Recruitment**  
Strategies for achieving adequate participant enrolment to reach target sample size.

### Methods: Assignment of interventions (for controlled trials)

**Allocation:**

<table>
<thead>
<tr>
<th>Component</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sequence generation</strong></td>
<td>16a</td>
</tr>
<tr>
<td>Method of generating the allocation sequence (e.g., computer-generated random numbers), and list of any factors for stratification. To reduce predictability of a random sequence, details of any planned restriction (e.g., blocking) should be provided in a separate document that is unavailable to those who enrol participants or assign interventions.</td>
<td></td>
</tr>
<tr>
<td><strong>Allocation concealment mechanism</strong></td>
<td>16b</td>
</tr>
<tr>
<td>Mechanism of implementing the allocation sequence (e.g., central telephone; sequentially numbered, opaque, sealed envelopes), describing any steps to conceal the sequence until interventions are assigned</td>
<td></td>
</tr>
<tr>
<td><strong>Implementation</strong></td>
<td>16c</td>
</tr>
<tr>
<td>Who will generate the allocation sequence, who will enrol participants, and who will assign participants to interventions</td>
<td></td>
</tr>
<tr>
<td><strong>Blinding (masking)</strong></td>
<td>17a</td>
</tr>
<tr>
<td>Who will be blinded after assignment to interventions (e.g., trial participants, care providers, outcome assessors, data analysts), and how</td>
<td></td>
</tr>
</tbody>
</table>
If blinded, circumstances under which unblinding is permissible, and procedure for revealing a participant’s allocated intervention during the trial

Methods: Data collection, management, and analysis

Data collection methods

18a  Plans for assessment and collection of outcome, baseline, and other trial data, including any related processes to promote data quality (e.g., duplicate measurements, training of assessors) and a description of study instruments (e.g., questionnaires, laboratory tests) along with their reliability and validity, if known. Reference to where data collection forms can be found, if not in the protocol.

18b  Plans to promote participant retention and complete follow-up, including list of any outcome data to be collected for participants who discontinue or deviate from intervention protocols.

Data management

19  Plans for data entry, coding, security, and storage, including any related processes to promote data quality (e.g., double data entry; range checks for data values). Reference to where details of data management procedures can be found, if not in the protocol.

Statistical methods

20a  Statistical methods for analysing primary and secondary outcomes. Reference to where other details of the statistical analysis plan can be found, if not in the protocol.

20b  Methods for any additional analyses (e.g., subgroup and adjusted analyses).

20c  Definition of analysis population relating to protocol non-adherence (e.g., as randomised analysis), and any statistical methods to handle missing data (e.g., multiple imputation).

Methods: Monitoring

Data monitoring

21a  Composition of data monitoring committee (DMC); summary of its role and reporting structure; statement of whether it is independent from the sponsor and competing interests; and reference to where further details about its charter can be found, if not in the protocol. Alternatively, an explanation of why a DMC is not needed.

N/A
21b Description of any interim analyses and stopping guidelines, including who will have access to these interim results and make the final decision to terminate the trial

Harms

22 Plans for collecting, assessing, reporting, and managing solicited and spontaneously reported adverse events and other unintended effects of trial interventions or trial conduct

Auditing

23 Frequency and procedures for auditing trial conduct, if any, and whether the process will be independent from investigators and the sponsor

Ethics and dissemination

Research ethics approval

24 Plans for seeking research ethics committee/institutional review board (REC/IRB) approval

Protocol amendments

25 Plans for communicating important protocol modifications (eg, changes to eligibility criteria, outcomes, analyses) to relevant parties (eg, investigators, REC/IRBs, trial participants, trial registries, journals, regulators)

Consent or assent

26a Who will obtain informed consent or assent from potential trial participants or authorised surrogates, and how (see Item 32)

26b Additional consent provisions for collection and use of participant data and biological specimens in ancillary studies, if applicable

Confidentiality

27 How personal information about potential and enrolled participants will be collected, shared, and maintained in order to protect confidentiality before, during, and after the trial

Declaration of interests

28 Financial and other competing interests for principal investigators for the overall trial and each study site

Access to data

29 Statement of who will have access to the final trial dataset, and disclosure of contractual agreements that limit such access for investigators
Ancillary and post-trial care

30 Provisions, if any, for ancillary and post-trial care, and for compensation to those who suffer harm from trial participation

Dissemination policy

31a Plans for investigators and sponsor to communicate trial results to participants, healthcare professionals, the public, and other relevant groups (eg, via publication, reporting in results databases, or other data sharing arrangements), including any publication restrictions

31b Authorship eligibility guidelines and any intended use of professional writers

31c Plans, if any, for granting public access to the full protocol, participant-level dataset, and statistical code

*It is strongly recommended that this checklist be read in conjunction with the SPIRIT 2013 Explanation & Elaboration for important clarification on the items. Amendments to the protocol should be tracked and dated. The SPIRIT checklist is copyrighted by the SPIRIT Group under the Creative Commons “Attribution-NonCommercial-NoDerivs 3.0 Unported” license.*
# Process evaluation of in-person, news and social media engagement of a community-based programme Brown ButtaBean Motivation (BBM): a research protocol

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<th><em>BMJ Open</em></th>
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<td>Article Type:</td>
<td>Protocol</td>
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<td>Date Submitted by the Author:</td>
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Complete List of Authors: Savila, Fa’asisila; The University of Auckland, Pacific Health Bamber, Anele; BBM Smith, Sandra; The University of Auckland, Department of Marketing Fernandez, Karen V; The University of Auckland, Department of Marketing Harding, Truely; The University of Auckland Letele, Dave; BBM Motivation van der Werf, Bert; The University of Auckland, Epidemiology and Biostatistics; Loheni, Mia; The University of Auckland, Pacific Health Bagg, Warwick; The University of Auckland, Department of Medicine Swinburn, Boyd; The University of Auckland, Epidemiology & Biostatistics Goodyear-Smith, Felicity; The University of Auckland, Department of General Practice & Primary Health Care

- **Primary Subject Heading**: Public health
- **Secondary Subject Heading**: Diabetes and endocrinology

Keywords: COVID-19, General diabetes < DIABETES & ENDOCRINOLOGY, PREVENTIVE MEDICINE, PRIMARY CARE, PUBLIC HEALTH, QUALITATIVE RESEARCH
Process evaluation of in-person, news and social media engagement of a community-based programme Brown ButtaBean Motivation (BBM): a research protocol

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Abstract

Introduction The community group Brown Buttabean Motivation (BBM) initially began to assist Auckland Pasifika and Māori to manage weight problems, predominantly through community-based exercise sessions and social support. BBM’s activities expanded over time to include many other components of healthy living in response to community need. With advent of the COVID-19 pandemic BBM outreach grew to include a foodbank distributing an increasing amount of donated healthy food to families in need, a community kitchen, and influenza and COVID-19 vaccine drives. A strong social media presence has served as the main means of communication with the BBM community, as well as use of traditional news media (written, radio, television) to further engage with vulnerable members of the community.

Methods and Analysis The study aims to conduct mixed method process evaluation of BBM’s community engagement through in-person, social and news media outreach activities with respect to the health and wellbeing of Pasifika and Māori over time. The project is informed by theoretical constructs including Pacific Fa’afaletui and Fonofale, and Māori Te Whare Tapa Whā Māori research frameworks and principles of Kaupapa Māori. It is further framed using the concept of community-driven diffusion of knowledge and engagement through social networks. Data sources include in-person community engagement databases, social and news media outreach data from archived documents and online resources. Empirical data will undergo longitudinal and time series statistical analyses. Qualitative text thematic analyses will be conducted using the software NVivo, Leximancer, and AntConc. Image and video visual data will be randomly sampled from two social media platforms. The social media dataset contains almost 8000 visual artifacts.

Ethics and dissemination Ethics approval obtained from University of Auckland Human Participants Ethics Committee UAHPEC 23456. Findings will be published in peer-reviewed publications, disseminated through community meetings and conferences and via BBM social network platforms.

Article summary

Strengths and limitations of this study

- A major strength of this study is that the team comprises a range of researchers incorporating community-based experts with different skills, expertise, and relevant ethnic backgrounds.
• The project combines a mix of research methodologies, and uses different theoretical frameworks, weaving together these different perspectives in innovative, novel and holistic ways to answer the research questions.

• By combining datasets of in-person, social and news media outreach activities, the study will illustrate community engagement over time, and may serve as a model for other research investigating complex community-led interventions.

• Sampling strategies for the extensive social media data are required which may introduce some bias despite efforts to minimise these.

• The empirical data are collated from a variety of sources and there will be instances of missing data.

**Key words**

Community outreach; Social media; Obesity; Physical activity; Oceanic ancestry group; Social participation
Introduction

Brown Buttabeean Motivation (BBM) is an organisation set up in 2014 by Dave Letele, a part-Samoan, part-Māori man with a personal weight loss journey from his peak weight of 210 kg to less than half that amount. He wanted to inspire and support other Pasifika (people from Pacific nations living in Aotearoa New Zealand (NZ)) and Māori to manage their weight problems predominantly through community-based exercise sessions and social support. Despite numerous community and government attempts to address the issue, Pasifika and Māori have much greater rates of obesity and weight-related diseases than non-Pacific, non-Māori.¹ Most interventions are delivered by ‘experts’ without community leadership and input, and may only last the duration of the research grant. After initial weight loss success, weight increases often return.²

While physical activity was the entry point, BBM’s activities have expanded over time to include healthy eating and, indeed, all components of healthy living, which are woven into a collective journey towards health and wellbeing.³ BBM is still led by its founder, Dave Letele. It is a limited liability company with Letele as sole director and shareholder. It has a diverse funding model including philanthropic funding to cover free boot camps and its fitness facilities, intermittent Ministry of Health contracts, user-pays for online fitness programmes, and donations through its Just Move Charitable Health Trust funding arm. The operation involves both paid employees and volunteers.

BBM has been responsive to other community wellbeing need. The advent of COVID-19 has seen an acceleration of BBM outreach. Many people lost their livelihoods in the wake of the pandemic and associated lockdowns, with Pasifika and Māori communities being disproportionately affected.⁴ This situation has resulted in many people in these communities struggling with food insecurity and physical isolation causing mental health issues.⁵ From March 2020, BBM has been running a Food Bank, distributing a growing amount of donated healthy food parcels to families in need. In 2021, they opened a community kitchen providing hot meals at $2 koha (gift). Other activities include influenza vaccine drives and free health checks in collaboration with the Stroke Foundation of New Zealand. See Table 1 for a timeline of events including changes in response to the COVID-19 pandemic.
BBM has always had a strong social media presence with Facebook and Instagram accounts. These social media channels have served as the main means of communication with the BBM community. Letele posts very regularly with motivational tips and videos, and other members also use social media to support and encourage each other. The cessation of face-to-face BBM classes during lockdown led to BBM rapidly running streaming exercise classes on their public Facebook page. The private BBM Facebook page has a 15.1k membership and interaction on this page strongly suggests that BBM’s social engagement with the community, and members with each other, are strong and wide-ranging. Letele’s public Facebook page has 61k followers and the BBM Instagram account has 32.9k followers, with postings on workouts, meal plans and BBM community out-reach. All these social media platforms are very active with regular, usually daily, postings. BBM’s outreach also includes engaging through traditional news media (written, radio, television) to connect with Pasifika and Māori, and to engage with the growing number of sponsors and corporate partners who donate money and resources to support BBM and its outreach activities.

BBM can be described as a network of people and organisations who want to improve the health and wellbeing of Pasifika and Māori, especially in the South Auckland region. Networks, in general, are the relationships between entities, and they are conceptualised as the principal means of diffusion of community-level health and wellbeing innovations like BBM. Across such network flows ‘knowledge’ (characterised as knowing the what, why, who, how, where of actions to address an issue) and ‘engagement’ (dimensions such as influence, energy, confidence, power, trust, and leadership). In the context of BBM, the knowledge flows from the BBM team about classes, programmes, events, stories and information as well as between people in the network through the sharing of their stories. The engagement flows from BBM, especially from David Letele’s charismatic leadership, and between people as they share their enthusiasm and boost each other’s commitment to health and wellbeing. In any community programme which aims to influence health behaviours, the critical indicator of success is the sustained participation and engagement with the programme. We postulate that it is the active BBM network transmitting high levels of ‘knowledge’ and ‘engagement’ which is at the core of BBM’s high participation and success. The network links to the various BBM outreach activities and programmes which have been developed and provided in an ongoing and organic process in response to perceived community needs towards achieving the goal of their improved health and wellbeing.
Aim, research questions and objectives

The aim of this project is to conduct a process evaluation of BBM’s community engagement through its in-person, social and news media outreach activities with respect to the health and wellbeing of Pasifika and Māori people in their community over time. This paper describes the mixed methods protocol for that evaluation.

The specific research questions are:

Research question 1: What is the scope (breadth and depth) of outreach of the in-person programmes and activities, specifically delivery of exercise programmes, vaccination drives, food parcels and health screening events, over time?

Corresponding objectives for research question 1 are:

1. To describe the frequency, number of participants, geographical locations and specific characteristics of BBM exercise programmes from 2015 to the present.
2. To describe the numbers of people vaccinated against influenza and COVID-19 at specific points in time.
3. To describe the numbers of people attending: the Kai nutrition programme for the ‘From the Couch’ (FTC) programme for those with severe obesity, from Oct 2020; the Community Kitchen (since Dec 2020, with 1000 hot meals served), and then; the updated Community Kitchen (opened July 2021).
4. To describe the number of people, their ethnicities, household composition and geographical location receiving food parcel support over time.
5. To describe the nature of health screening events and numbers screened at specific points in time.

Research question 2: How have the social media platforms enabled the BBM community to engage with the organisation and with each other over time?

The corresponding objectives for research question 2 are:

1. To assess the degree and nature of online interaction with posts, and individuals or families receiving services provided by BBM.
2. To analyse video and text data for themes of messaging and how the messages change over time.
3. To analyse how the BBM community engages with each other through social media.
Research question 3: How has BBM increased its community engagement through the use of news media (such as newspapers, magazines, radio, television)?

The corresponding objective for research question 3 is:

(1) Describe the media outlet, audience, type and topic of the content over time.

Methods and analysis

Research design, theoretical frameworks and principles

This mixed methods research project is co-produced by university researchers and BBM team members, and is informed by a number of theoretical constructs.

Fa’aafetui

Firstly, the use of a mixed methods approach with a range of different types and sources of data fits with the Pacific Fa’afetui research framework, whereby different perspectives are woven together to create new knowledge (from ‘ways of’ [fa’a] ‘weaving together’ [tui] deliberations of different groups or ‘houses’ [fale]). This is derived from the Pacific philosophy of connectiveness and a collective holistic approach. Our team reflects this research framework as it is led by a Senior Research Fellow of Samoan and Māori descent, and includes Māori researchers to advise in Māori research, senior researchers with expertise in co-design and in research aimed at reducing obesity, and researchers from a marketing background bringing experience in social media data analyses, in collaboration with BBM staff as co-researchers. Each person brings a different body of knowledge that is woven together to create this protocol.

Kaupapa Māori

Kaupapa Māori research prioritises Māori knowledge, language, customs, and practices in research. Its main goal is to ensure that research conducted has positive outcomes for Māori communities. Kaupapa Māori has five key principles; tino rangatiratanga (self-determination), taonga tuku iho (cultural aspirations), ako Māori (Māori world view), “Kia piki ake i nga rarururu o te kainga” (socio-economic mediation), and whānau (family). This study is aligned with the last two principles. Firstly, “Kia piki ake i nga rarururu o te kainga”, acknowledges that there are socio-economic disadvantages that Māori face. Kaupapa Māori is often used to challenge the socio-economic disadvantages, demeaning ideologies and power relations with which Māori are far too familiar. For this study “kia
“piki ake i nga raruraru o te kainga” is embodied by ensuring that care is taken when the data is extracted and analysed to ensure that Māori participants of BBM experience no harm from this study.

Secondly, whānau is not limited to the people in a family (immediate and extended); it is also how Māori practice whanaungatanga, which is the way a family interacts and be with each other.\(^\text{13}^{14}\) Knowledge is shared within the whānau and guarded by all whānau members from those who may misuse or exploit the body of knowledge. For this study, everyone who is involved is a part of the research whanau. This research whanau is a collective approach that places greater value on the research because of the shared vision and support of all members (researcher, community workers, and community members).\(^9\) This principle supports the Pasifika framework in the weaving together of different skills and perspectives within the research team to work towards a shared goal. Overall, the use of Kaupapa Māori ensures that everyone involved in this study are working towards creating positive health outcomes for Māori communities. Our Māori researcher will oversee these processes using a Kaupapa Māori lens and the non-Māori researchers are aware of the Kaupapa Māori principles and the importance of their implementation.

**Fonofale and Te Whare Tapa Whā**

In line with the World Health Organization declaration that ‘health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity’,\(^\text{15}\) the health and wellbeing of the Pasifika and Māori community are viewed through the lens of the Pacific (Fonofale)\(^\text{16}\) and Māori (Te Whare Tapa Whā)\(^\text{17}\) holistic frameworks for interpreting people's dimensions of health and wellbeing. These frameworks use the metaphor of a Samoan or Māori meeting-house. Fonofale has extended family and community as the floor, and cultural practices, beliefs and values that shelter people, as the roof. The four house pillars or pou represent physical, mental, spiritual and other components (such as sexuality, age, gender and socioeconomic status) of health and wellbeing. The meeting house (fonofale) is surrounded by the physical environment, the socio-political context, and the point in time.

The Māori health Te Whare Tapa Whā model\(^\text{17}\) is very similar. The foundation of the house (whare) is the land and place of belonging (taha whenua), and the four posts are physical (taha tinana), mental (taha hinengaro), spiritual (taha wairua) and family (taha whānau)
wellbeing. Māori believe that these four walls must be balanced and in harmony with each other to achieve good health.¹⁸

CONSIDER statement
These dynamic models promote a holistic approach to health and wellbeing, with interaction between the components. This helps guide our understanding of the different types of outreach BBM develops in response to social need aimed at improving the overall health and wellbeing of their community. The consolidated criteria for strengthening the reporting of health research involving indigenous peoples (CONSIDER) statement¹⁹ will also guide the conducting of the study.

Consumer tribe
The study is further framed using the concept of the community-driven diffusion of knowledge and engagement through social networks.⁶ BBM constitutes, at least in part, an online community which can be characterised as a “consumer tribe”²⁰ ²¹ – a group of consumers with shared values, passions and beliefs who are linked together by the activities/products of a brand i.e. BBM. Although BBM is not a commercial brand, it is a branded organisation and its charismatic leader, Dave Letele, could be considered a “human brand”.²² Researchers have mainly explored consumer tribes from a Western perspective, however, Māori and indigenous perspectives have much to contribute to understanding consumer tribes.²³

In summary, this project team comprises a number of researchers with different skills and expertise, combines a mix of research methodologies, and uses different theoretical frameworks, weaving together these different perspectives to answer the research questions.

Patient and Public Involvement
The evaluation is co-produced with members of the community group BBM, including Letele, the founder, who have been actively involved in the design of this study, and will contribute to data collection, analyses, paper writing and dissemination. BBM members sit on the steering committee and attend all researcher meetings as equal partners in decision-making.

Timeframe and setting
The aim is to describe the evolution of BBM’s networks and outreach activities in Auckland and beyond over time from its inception in 2014 to December 2021.

**Nature and source of data**

The data for this study are derived from a number of sources and include datasets derived from BBM’s records, social media text, audio and video postings on Facebook and Instagram, and written, audio and video news media material. Because all data are from secondary datasets, no consent will be sought. All in-person data will be de-identified prior to extraction from existing datasets. The social media data from the BBM closed group data will obtained by BBM from Facebook in de-identified form and provided to the researchers for analysis. Data contained in BBM open social media platforms and news media will include identified individuals, as these are already in the public domain. However the analyses will focus on key themes covered in media stories, not named individuals.

1. **In-person community engagement data** will be collated from existing BBM in-house databases and documents.
   a. Exercise class data include date, type and location of classes, number of attendees.
   b. Vaccination data include date, nature of vaccine, number delivered.
   c. Food parcel distribution data include date, number distributed, household composition, ethnicity, location (suburb).
   d. Health event data include date, type of event, number of recipients.

2. **Social media data** will be provided by BBM staff who are both page administrators and co-researchers from the following sites:
   - BBM Motivation, private Facebook group [https://www.facebook.com/groups/Buttabean](https://www.facebook.com/groups/Buttabean) 15.1k members (metrics only data)
   - Open BBM website, [https://www.thebbmprogram.com/](https://www.thebbmprogram.com/) Workouts, classes, information about programmes
   - Buttabean Motivation, [https://www.bbm.fit/](https://www.bbm.fit/) Programmes website
• @buttabean_motivation, public Instagram account. Videos, photos
  https://www.instagram.com/buttabean_motivation/?hl=en

a) Social media metrics of activity and interaction includes audience and page insights to measure size of the audience (eg Facebook followers) and impact of postings (eg likes, comments, sharing). Backend traffic data from Facebook and Instagram can be extracted by page administrators without identifiable data of the persons linked to the data. Facebook will provide de-identified metric data from public and closed group pages, and will be received by university researchers as numeric data.

b) Specific postings of particular types for in-depth (qualitative) analyses. Possible criteria for selection of posts for case studies include evidence of high level of engagement by the community, for example high frequency of posts, page views, responses (comments), reactions (emoticons/emojis), shares.

• The closed group Facebook page (15.1K membership) is the best source for engagement not only by BBM to its members, but between BBM members. We can analyse the data quantitatively but are limited in what we can analyse in terms of the content of the posts for ethical reasons. We will explore whether we can examine key themes of postings without informed consent of members.

• Testimonials on open Facebook pages - best examples for video case analyses

• BBM Healing project

• Before-after stories

3. Traditional news media outreach data from BBM archived documents and online resources such as Newztext Plus media database. The quantitative news media metrics include date, media type, outlet, numbers of interviews conducted, reported readership (circulation). Text and transcripts of audio recordings will also be analysed.

Data analyses
This project incorporates different types of data including empirical, narrative text, images and videos. As outlined above, the analyses will be guided by the holistic Pacific and Māori models of health, Fonofale and Te Whare Tapa Whā, with a weaving together of different
methodologies in line with Fa’afaletui. The data also be viewed through the lenses of BBM as a ‘consumer tribe’.

1 In-person outreach activity analysis A statistical analysis of time series weekly averages will be conducted using the statistics package R to demonstrate the trends over time. These will be analysed using a generalised linear (log-linear) model. For the exercise classes this will include weekly registrations and attendances at various classes including recording of repeat attendances, and for the Foodbank, the number of family food parcels distributed weekly will be plotted in a graph over time, with the pertinent COVID-19 events, especially lockdowns, identified in the timeline, and differentiated into three time periods: 2014 to 2019 (pre-COVID-19), 2020 (first COVID-19 lockdowns) and 2021. Key activities and changes to BBM will be indicated in the timeline graph.

2 Social media engagement analysis Quantitative data imported from Facebook Insights platform will include:24
   - Longitudinal analyses with time series data.
   - Use of Facebook analytics Application Programming Interface (API), a software intermediary that allows two applications to communicate with each other, to identify engagement patterns on Facebook pages and how they’ve changed over time.25
   - Determination of popular posts from which to construct case studies using a qualitative methodology.

We will use the following sampling plan: Visual data in the form of images and videos are posted by both BBM and its community members (“members”) on both Facebook and Instagram. Since Instagram is the most popular visual social media platform globally,26 a critical visual content analysis20 of a sample of posts from both BBM and from community members will be conducted using the following steps:

Step 1 Sampling Plan: As of 12 December 2021, the Instagram site instagram.com/buttabean_motivation had 7,974 posts and 33.1k followers. Some posts have multiple visual artifacts. These posts largely contain polyphonic data (eg one or more photographic images, videos and textual comments made by poster and other members of the community). Clearly, it is not feasible to analyse all the visual data as the dataset contains almost 8000 visual artifacts.
Instead, it is suggested that visual artifacts be randomly selected from the following
categories: two sources of posts (BBM and members) times two types of visual artifact
(images, video) x three time frames (2017, 2019 and 2021). These three time frames were
selected because they provide an every-other-year rationale for selecting the visual artifacts,
while also spanning the entire period of operation, and include three years of particular
interest – 2017 (first year of Butterbean Motivation BBM Facebook), 2019 (last full year
prior to COVID-19) and 2021 (first full year of COVID-19). We intend to randomly select 24
posts from each the two data types (Facebook; Instagram) for each of the three years (2017,
2019, 2021), totalling 144 posts in total. This systematically drawn random sample will be
drawn from each of the six data subsets by dividing the number of possible posts in each
subsets by 24. For example, if there are 480 posts on Instagram in 2021, then every 20th
(480/24) post will be selected for analysis.

Step 2 Selecting Analytical Categories: The coding framework will be holistic to incorporate
tenets of the Pasifika and Māori models. Analytical themes will map to the Fonofale and Te
Whare Tapa Whā frameworks. A third of the data will be open coded – it will be read closely
and iteratively to identify codes describing, naming or classifying the phenomena under
consideration. These open codes will be augmented with insights from the textual
comments made in reaction to the posts, as well as media, popular culture material, and
academic literature related to BBM, fitness programmes, and relevant theories (eg consumer
tribes). Each analytic category will be clearly explained/defined. For example, a likely initial
analytical category might be whether a post is informational or motivational and whether it is
about exercise, or nutrition or both. As coding progresses, it is likely that other analytical
categories might emerge. For example, one might envisage categories and sub-codes such as
source (Dave Letele, BBM staff, BBM community members) and valence (positive or
negative) of influence on outcomes (fitness, health, nutrition, other support received) to
emerge.

Step 3 Coding: The analytical coding scheme will then be applied to coding the remaining
two-thirds of the sample of visual artifacts posted by both BBM and community members.

Step 4 Outputs: To better disseminate our results, while also protecting the privacy of
community members, we anticipate that our verbal descriptions of the themes elicited by the
coding might be augmented by artist-rendered depictions of example posts\textsuperscript{21} to preserve privacy and avoid breaching copyright.

Examination of key themes within BBM’s highly active virtual environment examining text, video, and image-related data will use a combination of content and corpus analysis techniques. Qualitative text analyses will be conducted using the software NVivo, Leximancer, and AntConc. NVivo will primarily be used to analyse images. Leximancer will be used to conduct a content analysis of the textual data including the large amount of social media text data to identify key themes develop and change over time.\textsuperscript{28, 29} These insights are displayed within Leximancer as a visual a map showing the main themes and sub-concepts contained within the text as well as information about how they are related.\textsuperscript{25} To supplement the insights Leximancer will provide, a corpus analysis of the same data will be conducted using AntConc, a freeware corpus analysis toolkit for concordancing and text analysis.\textsuperscript{30} Corpus analysis enables analysis of a large volume of data as a whole and in regard to synchronous variation by carrying out analysis of key word frequencies and collocations within the entire or different sub-corpora.\textsuperscript{31} The advantage of using content analysis (Leximancer) and corpus analysis (AntConc) for text analysis, as opposed to more interpretive methods such as NVivo, is not only that the analysis will be less subjective\textsuperscript{24} but also verbatim comments can be avoided, thereby protecting the identity of posters.

The social media analyses will look at ‘Consumer Tribe’ and Letele as a ‘Human brand’. The focus will be on capturing the context of how BBM has grown, conscious of the power of Dave’s personality, to see whether the ‘collective’ can overcome the ‘individual’ in BBM’s timeline/evolution to become self-sustaining (system). The analysis will also examine the initial feature of BBM of physical activity being of utmost importance and nutrition secondary, has changed over time.

3 News media analysis: A corpus analysis of news media data over time according to three COVID-19 time periods (pre-COVID, 1 year and 2 years after start of COVID pandemic) will be conducted and compared with real world in-person activities. The data will include audio-transcripts. This multi-modal approach will facilitate understanding of the evolution of the identity of the tribe/community which is variable and changeable over time. In discourse analysis there is a social self, which may apply to organisations and its communities, how we want to be seen, in line with identity theory.\textsuperscript{32} We will look at the
change in themes, such as how the ‘Letele’ brand gets replaced with other important themes. The analysis will use Leximancer software.

Outputs may include multi-media collage of findings (textual themes, videos, media) posted on a timeline or some other mapping metaphor as a visual narrative.

**Ethics and dissemination**

Ethics approval has been obtained from the University of Auckland Human Participants Ethics Committee (UAHPEC) UAHPEC 23456 expiry date 04/11/2024.

Fonofale, Te Whare Tapa Whā and the CONSIDER statement will guide the writing and dissemination of the findings. The findings will be published in appropriate peer-reviewed publications, as well as disseminated through community fono and hui (meetings) and conferences. BBM will further disseminate the findings via their social network platforms to BBM members and followers. All team members who meet authorship criteria will be eligible for authorship. No professional writers will be used. Publication of the protocol in an open access journal will grant public access to the full protocol.

**Discussion**

We are currently conducting a longitudinal cohort study to measure the weight changes in BBM participants over time. However this current project aims to conduct a process evaluation of BBM’s community engagement over time through its in-person, social and news media outreach activities to investigate the changing nature of BBM’s response to the health and wellbeing needs of Pasifika and Māori people in their community.

Because far more news and social media data are available than can be fully analysed, decisions will need to be made about where we conduct a ’deep dive’. The analytical processes will be iterative and initial findings will help direct the progress of our analyses.
Author Contributions
FS, FG, WB, BS, DL, AB and FG were involved in initial conceptualisation and study design. SS and KF contributed the sections on analysis of social media data. AB identified datasets and extracted data. ML collated and cleaned data. TH provided a Māori lenses. FG drafted the initial paper for publication. All authors contributed to the writing of the paper, and all have read and approved the final manuscript.

Funding statement
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Acknowledgements
We express our gratitude to Fuatino Laban and other BBM staff who have helped access and collate data from a variety of databases and other sources.

Competing interests statement
DL is the Founder and AB is the Marketing Communications Associate of BBM Motivation, and both are integral members of the research team. WB’s wife is a Pilates instructor at BBM. No other authors have any conflict of interest to declare.

Data availability statement
The data for this study belong to BBM. They have not been archived into a repository to date.

Trial registration
The overall study to evaluate BBM has been registered with the Australian New Zealand Clinical Trial Registry ACTRN12621000931875 1 July 2021, (BBM general members); ACTRN12621001676808 7 December 2021 (From the Couch).
References


29. Wilk V, Soutar GN, Harrigan PJQMRAIJ. Tackling social media data analysis. 2019


Table 1 BBM timeline

<table>
<thead>
<tr>
<th>Date</th>
<th>Alert Level</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Mar 2014</td>
<td></td>
<td>Letele starts BBM</td>
</tr>
<tr>
<td>14 Nov 2014</td>
<td></td>
<td>BBM Facebook group set up</td>
</tr>
<tr>
<td>20 Feb 2017</td>
<td></td>
<td>Facebook name changed to Butterbean Motivation BBM</td>
</tr>
<tr>
<td>28 Aug 2018</td>
<td></td>
<td>Facebook group changed to BBM Motivation</td>
</tr>
<tr>
<td>1 Jun 2019</td>
<td></td>
<td>BBM move into Manukau headquarters</td>
</tr>
<tr>
<td>1 Aug 2019</td>
<td></td>
<td>Hire of administrators, marketing, training development. Diversification of community classes</td>
</tr>
<tr>
<td>29 Nov 2019</td>
<td></td>
<td>Free health checks -BP &amp; diabetes Stroke Foundation of New Zealand</td>
</tr>
<tr>
<td>1 Jan 2020</td>
<td></td>
<td>Mindbody software rollout &amp; BBM launch website</td>
</tr>
<tr>
<td>1 Feb 2020</td>
<td></td>
<td>School programmes to deliver mindset and cultural activities</td>
</tr>
<tr>
<td>21 Mar 2020</td>
<td>2</td>
<td>COVID-19 pandemic begins. Move to Alert level 2 Maximum 100 people can gather</td>
</tr>
<tr>
<td>23 Mar 2020</td>
<td>3</td>
<td>Move to Level 3 Move to online classes</td>
</tr>
<tr>
<td>25 Mar 2020</td>
<td>4</td>
<td>Move to Level 4</td>
</tr>
<tr>
<td>28 Apr 2020</td>
<td>3</td>
<td>Move to Level 3</td>
</tr>
<tr>
<td>2 May 2020</td>
<td>3</td>
<td>Drive-through ‘flu vaccine at BBM HQ</td>
</tr>
<tr>
<td>14 May 2020</td>
<td>2</td>
<td>Move to Level 2</td>
</tr>
<tr>
<td>9 Jun 2020</td>
<td>1</td>
<td>Move to Level 1 Class size cap 70</td>
</tr>
<tr>
<td>16 May 2020</td>
<td>1</td>
<td>‘Flu vaccine drive-through &gt;500 in one day</td>
</tr>
<tr>
<td>19 Jun 2020</td>
<td>1</td>
<td>BBM free food parcel drive-through</td>
</tr>
<tr>
<td>18 July 2021</td>
<td></td>
<td>BBM Foodbank and Community Kitchen</td>
</tr>
<tr>
<td>1 Aug 2020</td>
<td>1</td>
<td>22 leaders accredited via Skills Active Aotearoa</td>
</tr>
<tr>
<td>12 Aug 2020</td>
<td>3</td>
<td>Move to Level 3</td>
</tr>
<tr>
<td>31 Aug 2020</td>
<td>2</td>
<td>Move to Level 2</td>
</tr>
<tr>
<td>1 Oct 2020</td>
<td>1</td>
<td>BBM Kai Nutrition programme for From the Couch cohorts</td>
</tr>
<tr>
<td>8 Oct 2021</td>
<td>1</td>
<td>Move to Level 1. In person classes re-open</td>
</tr>
<tr>
<td>Date</td>
<td>Event Description</td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>1 Dec 2020</td>
<td>Community Kitchen serves 1000 hot meals</td>
<td></td>
</tr>
<tr>
<td>1 Jan 2021</td>
<td>Start of 3 year study with University of Auckland</td>
<td></td>
</tr>
<tr>
<td>15 Feb 2021</td>
<td>Move to Level 3</td>
<td></td>
</tr>
<tr>
<td>18 Feb 2021</td>
<td>Move to Level 2 COVID-19 vaccination begins - border workers initially</td>
<td></td>
</tr>
<tr>
<td>23 Feb 2021</td>
<td>Move to Level 1</td>
<td></td>
</tr>
<tr>
<td>12 Mar 2021</td>
<td>Relocation headquarters to Manukau - includes classroom and meeting space</td>
<td></td>
</tr>
<tr>
<td>1 Apr 2021</td>
<td>Launch of Youth Programme</td>
<td></td>
</tr>
<tr>
<td>1 May 2021</td>
<td>&gt;10,000 food parcels to vulnerable families in past year</td>
<td></td>
</tr>
<tr>
<td>1 July 2021</td>
<td>BBM West Hub opens. 9,354 bookings in 90 days. Class size capped at 70</td>
<td></td>
</tr>
<tr>
<td>1 Aug 2021</td>
<td>BBM Community kitchen opens with full time chef to cook 250 healthy meals/day, 5 days/week for $2 koha</td>
<td></td>
</tr>
<tr>
<td>18 Aug 2021</td>
<td>Move to Level 4 BBM gives out lunches intended for schools</td>
<td></td>
</tr>
<tr>
<td>1 Sep 2021</td>
<td>Increased operations of Foodbank service. Gym turned into foodbank serving community groups of 500 families with sufficient food for a week</td>
<td></td>
</tr>
<tr>
<td>23 Sep 2021</td>
<td>Move to Level 3</td>
<td></td>
</tr>
<tr>
<td>3 Dec 2021</td>
<td>Move to COVID-19 Protection Framework. Classes re-open. Gatherings limited to 100 people</td>
<td></td>
</tr>
</tbody>
</table>

**NZ four-tier alert level restrictions system:**

- **Level 1** No restrictions on personal movement or gatherings
- **Level 2** No more than 100 people at indoor or outdoor gatherings; sport and recreation activities allowed, subject to conditions on gatherings, contact tracing, and where practical physical distancing
- **Level 3** Low risk local recreation activities allowed; public venues closed including gyms, pools, playgrounds. Gatherings up to 100 people allowed for weddings and funerals with physical distancing and public health measures
- **Level 4** Lockdown. People must stay home other than for essential personal movement. Safe recreational activity allowed in local area. All gatherings cancelled and all public venues closed
<table>
<thead>
<tr>
<th>Section/item</th>
<th>Item No</th>
<th>Description</th>
<th>Page number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative information</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Title</td>
<td>1</td>
<td>Descriptive title identifying the study design, population, interventions, and, if applicable, trial acronym</td>
<td>1</td>
</tr>
<tr>
<td>Trial registration</td>
<td>2a</td>
<td>Trial identifier and registry name. If not yet registered, name of intended registry</td>
<td>ANZCTR</td>
</tr>
<tr>
<td></td>
<td>2b</td>
<td>All items from the World Health Organization Trial Registration Data Set</td>
<td>N/A</td>
</tr>
<tr>
<td>Protocol version</td>
<td>3</td>
<td>Date and version identifier</td>
<td>N/A</td>
</tr>
<tr>
<td>Funding</td>
<td>4</td>
<td>Sources and types of financial, material, and other support</td>
<td>14</td>
</tr>
<tr>
<td>Roles and responsibilities</td>
<td>5a</td>
<td>Names, affiliations, and roles of protocol contributors</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>5b</td>
<td>Name and contact information for the trial sponsor</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>5c</td>
<td>Role of study sponsor and funders, if any, in study design; collection, management, analysis, and interpretation of data; writing of the report; and the decision to submit the report for publication, including whether they will have ultimate authority over any of these activities</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>5d</td>
<td>Composition, roles, and responsibilities of the coordinating centre, steering committee, endpoint adjudication committee, data management team, and other individuals or groups overseeing the trial, if applicable (see Item 21a for data monitoring committee)</td>
<td>N/A</td>
</tr>
<tr>
<td>Introduction</td>
<td></td>
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</tbody>
</table>
### Background and rationale

6a Description of research question and justification for undertaking the trial, including summary of relevant studies (published and unpublished) examining benefits and harms for each intervention

4-5

6b Explanation for choice of comparators

N/A

### Objectives

7 Specific objectives or hypotheses

5-6

### Trial design

8 Description of trial design including type of trial (eg, parallel group, crossover, factorial, single group), allocation ratio, and framework (eg, superiority, equivalence, noninferiority, exploratory)

6-8

### Methods: Participants, interventions, and outcomes

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study setting</td>
<td>9</td>
</tr>
<tr>
<td>Description of study settings (eg, community clinic, academic hospital) and list of countries where data will be collected. Reference to where list of study sites can be obtained</td>
<td></td>
</tr>
<tr>
<td>Eligibility criteria</td>
<td>10</td>
</tr>
<tr>
<td>Inclusion and exclusion criteria for participants. If applicable, eligibility criteria for study centres and individuals who will perform the interventions (eg, surgeons, psychotherapists)</td>
<td></td>
</tr>
<tr>
<td>Interventions</td>
<td>11a</td>
</tr>
<tr>
<td>Interventions for each group with sufficient detail to allow replication, including how and when they will be administered</td>
<td></td>
</tr>
<tr>
<td>11b Criteria for discontinuing or modifying allocated interventions for a given trial participant (eg, drug dose change in response to harms, participant request, or improving/worsening of disease)</td>
<td></td>
</tr>
<tr>
<td>11c Strategies to improve adherence to intervention protocols, and any procedures for monitoring adherence (eg, drug tablet return, laboratory tests)</td>
<td></td>
</tr>
<tr>
<td>11d Relevant concomitant care and interventions that are permitted or prohibited during the trial</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td>N/A</td>
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<tr>
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<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Outcomes 12 Primary, secondary, and other outcomes, including the specific measurement variable (eg, systolic blood pressure), analysis metric (eg, change from baseline, final value, time to event), method of aggregation (eg, median, proportion), and time point for each outcome. Explanation of the clinical relevance of chosen efficacy and harm outcomes is strongly recommended.

Participant timeline 13 Time schedule of enrolment, interventions (including any run-ins and washouts), assessments, and visits for participants. A schematic diagram is highly recommended (see Figure).

Sample size 14 Estimated number of participants needed to achieve study objectives and how it was determined, including clinical and statistical assumptions supporting any sample size calculations.

Recruitment 15 Strategies for achieving adequate participant enrolment to reach target sample size.

**Methods: Assignment of interventions (for controlled trials)**

Allocation:

Sequence generation 16a Method of generating the allocation sequence (eg, computer-generated random numbers), and list of any factors for stratification. To reduce predictability of a random sequence, details of any planned restriction (eg, blocking) should be provided in a separate document that is unavailable to those who enrol participants or assign interventions.

Allocation concealment mechanism 16b Mechanism of implementing the allocation sequence (eg, central telephone; sequentially numbered, opaque, sealed envelopes), describing any steps to conceal the sequence until interventions are assigned.

Implementation 16c Who will generate the allocation sequence, who will enrol participants, and who will assign participants to interventions.

Blinding (masking) 17a Who will be blinded after assignment to interventions (eg, trial participants, care providers, outcome assessors, data analysts), and how.
If blinded, circumstances under which unblinding is permissible, and procedure for revealing a participant’s allocated intervention during the trial

**Methods: Data collection, management, and analysis**

**Data collection methods**
- **18a** Plans for assessment and collection of outcome, baseline, and other trial data, including any related processes to promote data quality (e.g., duplicate measurements, training of assessors) and a description of study instruments (e.g., questionnaires, laboratory tests) along with their reliability and validity, if known. Reference to where data collection forms can be found, if not in the protocol. (9-10)

- **18b** Plans to promote participant retention and complete follow-up, including list of any outcome data to be collected for participants who discontinue or deviate from intervention protocols. (N/A)

**Data management**
- **19** Plans for data entry, coding, security, and storage, including any related processes to promote data quality (e.g., double data entry; range checks for data values). Reference to where details of data management procedures can be found, if not in the protocol. (11-12)

**Statistical methods**
- **20a** Statistical methods for analysing primary and secondary outcomes. Reference to where other details of the statistical analysis plan can be found, if not in the protocol. (N/A)

- **20b** Methods for any additional analyses (e.g., subgroup and adjusted analyses). (N/A)

- **20c** Definition of analysis population relating to protocol non-adherence (e.g., as randomised analysis), and any statistical methods to handle missing data (e.g., multiple imputation). (N/A)

**Methods: Monitoring**

**Data monitoring**
- **21a** Composition of data monitoring committee (DMC); summary of its role and reporting structure; statement of whether it is independent from the sponsor and competing interests; and reference to where further details about its charter can be found, if not in the protocol. Alternatively, an explanation of why a DMC is not needed. (N/A)
21b Description of any interim analyses and stopping guidelines, including who will have access to these interim results and make the final decision to terminate the trial

Harms
22 Plans for collecting, assessing, reporting, and managing solicited and spontaneously reported adverse events and other unintended effects of trial interventions or trial conduct

Auditing
23 Frequency and procedures for auditing trial conduct, if any, and whether the process will be independent from investigators and the sponsor

Ethics and dissemination
Research ethics approval
24 Plans for seeking research ethics committee/institutional review board (REC/IRB) approval

Protocol amendments
25 Plans for communicating important protocol modifications (eg, changes to eligibility criteria, outcomes, analyses) to relevant parties (eg, investigators, REC/IRBs, trial participants, trial registries, journals, regulators)

Consent or assent
26a Who will obtain informed consent or assent from potential trial participants or authorised surrogates, and how (see Item 32)

26b Additional consent provisions for collection and use of participant data and biological specimens in ancillary studies, if applicable

Confidentiality
27 How personal information about potential and enrolled participants will be collected, shared, and maintained in order to protect confidentiality before, during, and after the trial

Declaration of interests
28 Financial and other competing interests for principal investigators for the overall trial and each study site

Access to data
29 Statement of who will have access to the final trial dataset, and disclosure of contractual agreements that limit such access for investigators
<table>
<thead>
<tr>
<th>Ancillary and post-trial care</th>
<th>30</th>
<th>Provisions, if any, for ancillary and post-trial care, and for compensation to those who suffer harm from trial participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dissemination policy</td>
<td>31a</td>
<td>Plans for investigators and sponsor to communicate trial results to participants, healthcare professionals, the public, and other relevant groups (eg, via publication, reporting in results databases, or other data sharing arrangements), including any publication restrictions</td>
</tr>
<tr>
<td></td>
<td>31b</td>
<td>Authorship eligibility guidelines and any intended use of professional writers</td>
</tr>
<tr>
<td></td>
<td>31c</td>
<td>Plans, if any, for granting public access to the full protocol, participant-level dataset, and statistical code</td>
</tr>
</tbody>
</table>

*It is strongly recommended that this checklist be read in conjunction with the SPIRIT 2013 Explanation & Elaboration for important clarification on the items. Amendments to the protocol should be tracked and dated. The SPIRIT checklist is copyrighted by the SPIRIT Group under the Creative Commons “Attribution-NonCommercial-NoDerivs 3.0 Unported” license.*