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Fit4YAMs: Structuring a Lifestyle Intervention for Rural Overweight and Obese Young Adult Males Using Participatory Design



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ABSTRACT

Purpose: Young adult males (YAMs) are understudied with respect to lifestyle interventions to address overweight and obesity in this group. This study reports on the participatory design of the structure and delivery of the Fit4YAMs text message–based lifestyle intervention for 18- to 25-year-old rural YAMs in Australia.

Methods: Two semi-structured focus group discussions were held with six overweight or obese YAMs. Sessions explored their preferences for the structure and delivery of a weight loss intervention. Focus groups were recorded, and the contents transcribed verbatim for thematic analysis.

Results: The YAMs were unanimous in their preference for a highly personalized intervention program, complete with personalized goal setting, personalized motivation and engagement strategies, and personalized text message content. A text message frequency of three–four messages per week was deemed optimal for this group. Minimal direct contact by the intervention team was requested, but with clear guidelines and reminders of key contacts whom they could contact should they require help and guidance. The YAMs also agreed that a comprehensive goal setting session and personalization session prior to commencement of the intervention would be best.

Conclusions: To engage rural YAMs in lifestyle interventions, a high degree of personalization of the program appears important. Although initially more time and resource intensive than a less personalized approach, it is essential to identify strategies to prevent and reverse weight gain in this hard to engage group. Maximizing their engagement using a more personalized approach could be the key to promoting long-term health outcomes in this group.

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IMPLICATIONS AND CONTRIBUTION

This study explores the preferences of rural young adult males for the structure and delivery of a text message–based lifestyle intervention. A high degree of personalization of all aspects of the intervention appears to be the key to engaging this underserved and understudied group.

Conflicts of Interest: The authors have no conflicts of interest to disclose.

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Significant and rapid weight gain now tends to occur most often during young adulthood [1–3], with males gaining more weight at an earlier age than females [4]. Preventing or reversing obesity at this age is thus vital to reducing both current morbidity and the associated future chronic disease burden and increased mortality risk if the obesity persists into the later adult years [4–7]. In spite of this, young adult males (YAMs) are

understudied in weight loss research as compared to their female counterparts [8–11].

YAMs are a difficult group to engage in health promotion as they are less engaged with primary health care than young adult females [12]. However, YAMs are high users of mobile communication technology [13,14]. Increasing evidence suggests that text messaging support is effective at promoting weight loss in some population groups [15–17] and may be particularly successful in traditionally hard to engage groups, such as YAMs, because it utilizes push technology [18–20]. Our previous research with YAMs suggested that text messaging was a potentially useful source of support and motivation to adopt and maintain healthy lifestyle practices around weight loss [21].

There is limited understanding of why YAMs do not engage in health interventions and weight loss research [8,22,23], as well as a paucity of evidence regarding their preferences for a lifestyle intervention program in terms of both structure and content [11]. Interventions designed and implemented by content experts, without taking into account the perspective and preferences of the end user, run the risk of failing to engage and retain their participants, thus reducing the impact of the intervention [23,24]. To maximize engagement of YAMs in a lifestyle intervention, a participatory design process that incorporates their perspective on both the intervention structure and content is crucial [22,23]. The aim of this foundational study was to explore YAMs preferences for the structure and delivery of a text message-based lifestyle intervention for weight loss using participatory design processes. Rural YAMs in Australia have a higher prevalence of overweight and obesity than both urban YAMs and rural young adult females [25,26]; the study targeted this participant group.

Methods

This study was approved by the Western Sydney University Human Research Ethics Committee (H10687). Pseudonyms are used to maintain confidentiality. Direct quotes are presented in italics.

Participants and setting

Six overweight or obese YAMs were recruited by purposive sampling methods using traditional print media (flyers and advertisements) and face-to-face approaches. Inclusion criteria included males aged 18–24 years; currently living in a rural center (Bathurst, New South Wales, Australia); body mass index (BMI) greater than 25; waist circumference greater than 94 cm [27]; fluent in English; and cell phone ownership and ability to text. All participants provided written, informed consent.

Fit4YAMs participatory design process—intervention structure and delivery

Two semi-structured focus groups, each of 60 minutes in duration, were held with the six YAMs. A series of open-ended questions were used to prompt discussions (Supplementary File 1) while allowing flexibility for the interviewer to explore responses in more detail. The interactive group setting allowed participants to react and build on the responses of others, resulting in the production of data that might not be revealed in individual interviews [28,29]. Throughout the focus group, the

interviewer provided periodic verbal summaries of the participant's responses for confirmation purposes and to facilitate capture of dissenting viewpoints from among the group.

Focus groups were facilitated by C.D., an experienced qualitative researcher. K.M. and J.B. assisted with moderation, note-taking, and time management. The focus groups were recorded and transcribed verbatim for analysis. Primary thematic analysis was conducted by C.D., with a secondary independent analysis by J.B. The interpretive phase allowed for the identification of overarching themes and subthemes relating to perspectives and preferences of participants.

Results

Participants

The mean age of the six participating YAMs was 23 years (standard deviation [SD]: 1.5), with a mean waist circumference of 104 cm (SD: 7.4) and mean BMI of 29 (SD: 3.7). Two YAMs were obese (category 1) with BMIs between 30.0 and 34.9. The remaining 4 had a BMI between 25.0 and 29.9 and were thus overweight.

Two YAMs identified as indigenous. One had completed a trade qualification; a further two had completed university degrees; and three were currently at university.

Five had unlimited texting with their cell phone plan, with the other YAM on a text-limited monthly plan. The YAMs reported sending, on average, 10 text messages per day. They regularly exceeded their cell phone data allowance and had to pay additional costs.

A personalized intervention program

The YAMs desired a completely personalized intervention program covering goal setting, motivation and engagement strategies, and text message content:

The more personal the better it is.

YAMs want text messages to be purposely linked to their own weight, diet, and fitness goals. Texts should use their first name, personal data such as weight loss per week, and individual goals such as number of gym visits per week, or number of football games played per week. Text messages should not read like a generic message from a database:

But not fake personalized, anyone can stick my name in front of a message and I know that you didn't really, especially when they spell the name wrong!

YAMs also requested a personalized intervention plan with structured exercise and diet goals, taking into consideration their likes and dislikes (Table 1, theme 1).

The ability to set personal goals before the intervention begins and have these integrated into the intervention appealed. They requested realistic time frames with their larger goals segmented into shorter time frames. Two YAMs in particular commented on the relationship between the time frame given in an example text message "A year from now you will wish you had started today" and reaching their goals:

... a year from now, [expletive] I don't know what I'm going to be doing. It's too big a timeframe for me. A week from now yes, I wish I started a week ago, like it makes it more instant for me,

Table 1
YAMs' preferences for the structure and content of a text messaging intervention (Fit4YAMs)

Theme	Exemplar quotes
1. Personalized intervention plan with structured exercise and diet goals, taking into consideration their likes and dislikes.	<i>We talked about making it practical but I think having a plan is always helpful, a personalized plan, I know even when I go to the gym, I have no idea what I'm doing and I just sort of walk around and go oh I know how to use that one and I give that one a crack—there's no sort of structure to it and I think it's the same with diet plans. I looked at meal plans and things for example and I'm allergic to seafood and they always have seafood in them so you just write off the whole thing.</i>
2. Personalized motivational text content according to the sports they watch and/or play.	<i>Just association with sport, especially like show rugby players and something like that, I don't know if it was something like a kind of a rhetorical question or something like 'were you not happy with your last season's performance?' especially over summer before the season and maybe lead into how you can better yourself in the forthcoming seasons.</i>
3. Preferred frequency of delivery of the different message types (diet, exercise, and motivational).	<i>I think diet could be one [message] a day, I mean you eat 3 times a day roughly so if you're just getting it once in the morning and it's a lunch or a dinner option, I think once a day is fine.</i>
4. YAMs preference for when they want to receive the diet messages and the exercise messages.	<i>For me I want them both at the same time. About the same time as the gym message I think on the way home. For fitness I want it after work, if I sit down on the couch I'm not going to the gym for the rest of the day.</i>
5. Text message delivery on weekends should occur in the morning.	<i>Yeah again I think all mornings ... Sunday I don't generally do much exercise, Saturday I'm more likely to. So Saturday morning for motivation or exercise would be for me. I think it'd set the tone in the morning though, it's such an open thing on the weekend, like you have plans but if you set the tone then you already have that freedom, whereas if you don't set the tone to work to have that time to do it then you're not thinking about it.</i>
6. Text messages sent on a Friday could have an impact on choices they will make on the weekend.	<i>What about before the weekend's started like maybe Friday. Yeah like maybe on a Friday, like oh prepare a meal for Saturday lunch or something. I think Friday night for me about the weekend so you get something that was to be like you know you've got to do this on the weekend...</i>
7. Diet and exercise can be challenging when YAMs do not have a structured work/study day.	<i>Mine changes every semester, like I struggle with my diet when I'm not doing anything for a day, like if I've got a full day of class I can stick to my meals or whatever but I'm just sitting round the dorm I'll just eat out of boredom like there's nothing to do I might as well have a mars bar [chocolate bar] or something like that. So when I'm actually doing something, that's a good day, and when I'm not doing anything that's a bad day. I think most of the time it depends on your schedule like I've got the tutorial in the morning for example that I need to prepare for, I can't be bothered cooking food that takes forever, I just get something quick and gross whereas if I finish uni at 2pm and I've got nothing the next day, I might as well go do something healthy.</i>
8. The YAMs want some brief initial contact with the intervention team to feel equipped with suitable knowledge, information and understanding to participate in the intervention.	<i>In the first stage when you're kind of getting enrolled, I don't know how you would work this out but [...] my dietary knowledge is lacking or my gym knowledge is lacking, exercise knowledge is lacking and go right, you should talk to a dietitian about this and they will follow up in a month with another phone call. But I guess talking to a dietitian, physiologist, psychologist, whatever...</i>
9. A small amount of text message contact from the intervention team would be acceptable, particularly if it was following up on some advice given.	<i>I'd be kind of tempted, especially if you had say your dietitian, if you were assigned to a dietitian not just a dietitian service, say a text message from them—'Hey "Robert", it's your dietitian here just seeing how you're going with XYZ so give me a call if you want to talk about it or something'. Being prompted but not being called. Yeah I'm the same as "Jack", I'd like to be the one making initial contact but I think if they're giving me some advice and it's great if they follow up within a week or two weeks then yeah.</i>
10. Personalized reminders and motivational messages should be used to respond to the rating messages.	<i>If you know their goals, even though if the person might not be that motivated that day, they might kind of like want motivation ... [if] someone replies back with a 4 out of 10, they might be like 'oh aren't you working to achieve this goal' a reminder kind of thing—[I] think that could help. Just make it a question they don't have to answer but in their head they think 'oh yeah maybe I want to exercise because I want to lose my barge ass or something' so they're thinking about it and okay now I'm going to get up.</i>
11. There should be a clear and simple opt-out process	<i>Being able to opt out I think is important, having at the bottom 'reply stop to opt out' you get really annoyed when there's not those and people keep messaging you, just leave me alone—call these people to opt out—man I don't want to call just leave me alone sort of thing.</i>

like you should have done that a week ago or a few days from now or something like that.

Maybe more a month? A week you can make progress but you can't make that much progress and a year as you said is probably too far in the future to be looking at it realistically, whereas in a month you can make some pretty good progress and it's not that far away at all.

The YAMs want motivational text content personalized according to their sporting interests; this could be seasonal and performance based (Table 1, theme 2). Motivational messages could also incorporate an interactive component whereby the YAMs respond to personalized, goal-based motivational questions. Such messages allow them to track their individual progress:

I reckon just questions like just open questions like 'what have you done today... what do you think you've achieved today?' or 'what are you going to do today?'

I think goal orientated as well specific to that person so say at the beginning when they sign up for these things they tell you that they want to lose 10 kgs, now look you're halfway there...

Multiple weekly text messages as an optimal frequency with targeted delivery of diet, exercise, and motivation messages.

There was general consensus that a text message frequency of three–four messages per week would be optimal for an intervention. Any more than this would be considered “nagging,” and this would reduce the effectiveness of the intervention and disengage the YAM. Any less would not be engaging enough at the outset.

When queried specifically about the different message types (diet, exercise, and motivational), the YAMs offered up alternative message frequencies, highlighting that personalization of message frequency could be a crucial component of an intervention (Table 1, theme 3).

To have an impact on meal choice at lunchtime, the YAMs thought that they would need to receive a text message the afternoon or night before. To have an impact on their dinner choices, the YAMs want to receive a text message just after they finish work.

Most YAMs agreed that they want the diet prompt and the exercise prompt at the same time, after they finish work. In order to send text messages at the optimum time, however, the YAMs would need to be consulted about their schedules (Table 1, theme 4).

The YAMs want to receive motivational text messages at the beginning and toward the end of a working week. Motivating them to get their working week off to a good start by sending a motivational message at that time was favored:

I'd say Mondays, to kick off on a good note.

The YAMs were all positive about receiving messages on the weekends, although messages might not be read immediately. The YAMs were less likely to make healthy food choices on the weekends so support would be welcomed:

That's prime time to get Maccas...

I don't have much structure on the weekends at all so I tend to get lazier, [...] I've got less on and I just get lazier and I'd rather buy something takeaway instead of going and bothering to cook something.

When you're out Saturday night or Friday night, it can be Saturday morning or Sunday morning really I guess, depending on what you do at night time, if you're hung-over or not feeling great, I'm not about to start cooking salad.

To keep YAMs engaged in an intervention program over the weekend, they would prefer to receive messages in the morning to set the tone for the day (Table 1, theme 5). Messages sent on a Friday could also have an impact on choices they make on the weekend (Table 1, theme 6).

Saturday nights were perceived as particularly challenging with regard to making health food choices:

Saturday night's kind of a write off, it's just one of those things not worth trying to fix.

When challenged about how they could make healthier meal choices on a Saturday night, by for example, swapping steak and fries, for steak and salad, the YAMs said that receiving a text message at 5 P.M. may impact upon their meal choice decision-making.

Tailoring of the program to suit YAMs' schedules

For most participants, the weekend is the most challenging time in relation to healthy lifestyle choices. However, YAMs who work on weekends experienced other days in the week as challenging:

Yeah, well I like to have a beer on Thursdays. So I usually work most weekends so it's sort of... [difficult]

For this YAM, a shift of message delivery to complement his personal timeline would be optimal.

Some YAMs find diet and exercise challenging when they do not have a structured work/study day (Table 1, theme 7).

The YAMs reported shopping for food every day or every other day with minimal meal planning occurring ahead of time making it difficult to avoid temptation (fast food or take away). A text message with a healthy shopping list and subsequent messages with healthy recipes guiding them in food preparation and cooking would be well received.

Participant-driven contact with the intervention team

The YAMs prefer to initiate contact with the intervention team, rather than the team contacting them without notice:

I would rather call.

Sometimes you get a call and you're like urgh...

The YAMs agreed that they want some education about diet and exercise before they begin the program because their knowledge in these areas is lacking. Although the YAMs do not want constant contact from the intervention team, they do want to feel equipped with suitable knowledge, information, and understanding to participate in the intervention (Table 1, theme 8).

However, the YAMs do not want each of these experts contacting them throughout the program but suggested that one contact person could liaise with a program participant when necessary.

Although most YAMs wanted to make first contact, another approach suggested was a friendly message from a member of the intervention team (Table 1, theme 9).

Another YAM suggested that at the end of each month of the intervention, participants could be sent a reminder message. A reminder message served as a way of retaining the YAMs' agency in the weight loss process:

Even having like an end of the month— having a message that just reminds you, if you're having any issues you can talk to these people— here are some links or numbers of people you can talk to if you're having issues with these certain things. Just as a reminder that you can talk to these people.

When the YAMs were asked how the intervention team should respond if participants were not answering any of the text messages, they suggested another text message rather than a phone call which would seem “like it'd be coming up in your case too much”.

One participant suggested a rating system that would be subject to review but also warned to be careful not to send too many reminder messages if no response was received:

I think the idea of review and like saying how are you feeling about this or getting some kind of feedback from someone, you know, rate yourself out of 1–5 and then they give you a few numbers on a few quick things and to see if they're still on board and thinking about it, but not to the point where you've got to respond, here's another message, oh you've forgotten to respond—here's another message. Just like ahh I don't want to do this anymore.

Reminders and motivational messages sent as a result of the rating message should be linked to their personalized goals (Table 1, theme 10).

Another participant suggested that he would rather comment on his progress across the program, rather than a single day:

I don't know how I feel about singling out a day, like I'd rather get a message saying how do you feel about your progress to this point - reply with a rating out of 10 or whatever. Because if I just had like a bad day or whatever and I'm just going to write 1 and you send me back something motivational...

Overall, the YAMs agreed that it was more beneficial for the intervention team to gauge their motivation over time:

[If] you're getting consistent 1s [out of 10] and you kind of scope the kind of message that you're giving. You can give a more motivational [message] than the ones who are giving you 10s, you can just keep them going with the certain type of messages, you can kind of socially engineer it to what kind of responses you're getting.

With regard to being able to opt out of the intervention program, the YAMs agreed that a reminder text message to start with, followed by a phone call from the intervention team, would be the most suitable approach for the intervention team, should a participant appear to have become disengaged with the program. The YAMs also wanted the opt-out process clearly defined at the start of the program so that they knew how to withdraw without fear of being further bombarded with text messages or phone calls from the intervention team (Table 1, theme 11).

E-technology for future recruitment of YAMs

The YAMs believed that Facebook was the best online social network through which to recruit other YAMs for an

intervention. Twitter was also mentioned but was less popular and less used than Facebook. As one YAM commented:

Every single person I know is on Facebook.

Discussion

The results of this study provide a framework for developing, and pilot-testing, a text message–based lifestyle intervention for overweight YAMs. To our knowledge, this is the first ever study to report on the preferences of rural YAMs for the structure and delivery of a text message–based lifestyle intervention designed to promote weight loss in this underserved and understudied population group. The most significant finding of this foundational study was the YAMs' preference for a fully personalized intervention, including goal setting, motivation and engagement strategies, and text message content. This high degree of personalization demands additional resources in automated systems and service delivery. Nevertheless, if it successfully engages YAMs in weight loss, this approach is still likely to be cost-effective. The YAMs also indicated a preference for timely reminders given on specific days and at specific times suited to their schedules; tools for quick response when the intervention team seeks to gauge their motivation/engagement with the program; and a clearly defined, simple opt-out process.

YAMs expressed a desire for consistent and ongoing personalization of the Fit4YAMs intervention program and suggested starting the program with a scheduled personalization session with the intervention team. This would include goal setting and logging of their personal preferences and interests and could potentially be completed face to face through e-technology rather than physically face to face. Virtual versus physical face-to-face conditions are not necessarily considered different by young adults [30,31].

Personalization is distinct from tailored text messages where the content is influenced by some personal characteristics of the recipient [19]. For instance, sending a football-related message to someone who expressed interest in football. Personalized messages go further and include personal details such as the recipient's name, their individual goals, or their weight loss to date [19]. The YAMs were clear about what they considered to be personalized messages. Simply using their name within a message was considered to be “fake” or computer-generated personalization. To be effective, the personalization of messages needs to also include other important details to be highly personalized. A recent qualitative study in older men found that participants did not feel engaged with, or supported by, study text messages they received because these were not personalized enough [32]. This may speak to the program details required to successfully engage males in general.

The YAMs were clear about optimal text message frequency, three–four messages per week. This is in contrast to a recent meta-analysis of published randomized controlled trials of text messaging to promote health behavior change which reported that multiple text messages per day were more effective at changing health behavior than lower doses [19]. This meta-analysis included a wide range of studies targeting different health behavior activities and did not include YAMs. A recent Australian study of a text messaging nutrition intervention in urban adults aged 18–35 years [33] reported participant

acceptance of eight text messages per week. The majority of participants in that study were young adult females from socioeconomically advantaged areas [33].

The YAMs in our study indicated a preference for ongoing contact by means of two-way text messages with their feedback messages further informing future messages directed to them. This finding concurs with a recommendation made by Orr and King [19], who stated that text messaging interventions should attempt to obtain regular feedback from participants to inform adjustments to the program to maximize engagement and limit dropout.

The strength of this study is that it is in depth and gender specific. Females are over-represented in similar studies [20]. Moreover, this study supports a recent qualitative study of the barriers and facilitators of healthy lifestyles in young men [23], which identified that the development of interventions for this group needs to occur in a consultative and participatory fashion. We have achieved this. The main limitation of this study is the relatively small sample size with a possible over-representation of more educated YAMs within the focus group design sessions, highlighting the difficulty of engaging with YAMs. Although there may be variations in other YAM populations, we consider that the responses in our study point to developmental stage similarities rather than particular differences. Future research utilizing Facebook recruitment is anticipated to lead to greater recruitment of rural YAMs for a definitive lifestyle intervention, as it was considered by the YAMs in this study to be the best option for recruiting their age group into research. Another potential limitation is that none of the researchers involved in the focus groups (C.D., J.B., and K.M.) were themselves YAMs, and this may have influenced the preferences and opinions voiced by the participants.

This qualitative study explored the opinions of rural YAMs about the content and structure of a text message-based lifestyle weight loss program designed specifically for them. This foundational study has found that a high degree of personalization of the communication is a crucial element. Although more time and resource intensive than a less personalized approach it is imperative to find strategies to prevent and reverse weight gain in this hard to engage group. The e-technologies in use are only going to improve and should make this type of personalization simpler. Future research will add to the present study by exploring their preferences for the text message content of an intervention of this type.

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Supplementary Data

Supplementary data related to this article can be found at <http://dx.doi.org/10.1016/j.jadohealth.2017.06.019>.

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