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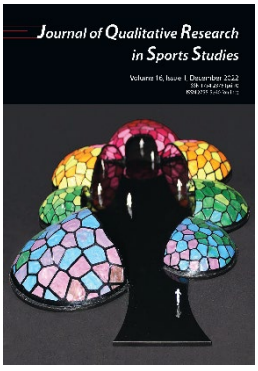

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[1] Emily Lomax, and (Staffordshire University)

[2] Alison Owen (Staffordshire University)

[3] Jennifer Taylor (Staffordshire University)

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Everyday experiences of using fitness devices: A thematic analysis

Emily Lomax, Alison Owen and Jennifer Taylor
(Staffordshire University)

Keywords: *daily exercise habits, technology: Fitbit and Apple Watch, fitness, health*

Abstract

Fitness devices such as Fitbits and Apple watches are designed to motivate people and their fitness, and are commonly worn on the wrist to help increase physical activity by monitoring aspects of health such as step count, energy expenditure and calories consumed. Previous research has quantitatively measured elements of fitness devices such as effectiveness and reliability, however, there has been a lack of research exploring people's experiences of using these devices. Therefore, in this qualitative study, semi-structured interviews were conducted with thirteen adults (eleven females, two males) aged 24-60 years old to explore their experiences of using these devices. Four themes were identified: 1) Part of the individual, 2) Monitoring and validating health conditions, 3) Like a personal trainer and 4) Competition: with yourself and others. Whilst experiences of using fitness devices were mainly positive, there is potential for these devices to lead to a range of negative emotions. The importance of setting realistic and appropriate goals is highlighted to avoid potentially negative implications of not meeting personal targets. Implications for health promotion are discussed including the need for increased education and training on appropriate goal setting for fitness device users.

Introduction

According to the World Health Organization (WHO, 2020) physical activity (PA) is defined as any bodily movement produced by skeletal muscles that requires energy expenditure. WHO (2020) reports that regular physical activity is proven to help prevent and manage physical health diseases such as heart disease, stroke, diabetes and several cancers, as well as helping to improve psychological factors such as mental health, quality of life and well-being. However, across the United Kingdom (UK), physical inactivity is rapidly becoming a problem (Dumith *et al.,* 2011). The consequences of inadequate PA are well documented (Preston and Stokes 2011), with physical inactivity increasing the risk of coronary heart disease, high blood pressure, obesity, and diabetes (González, Fuentes and Márquez, 2017). According to public health surveillance, only 54% of adults aged 18-75 years old are meeting the minimum PA guidelines of >150 minutes moderate-intensity exercise a week or >75 minutes of vigorous-intensity exercise a week (Centre for Disease

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Control and Prevention, 2018). Thus, it is evident that a high percentage of adults are not engaging in PA, and therefore increasing their risk of developing illnesses and disease. Research indicates that lack of PA is due to a number of factors including poor social support, a lack of motivation, and anxiety (Conroy *et al.*, 2010; Lovell, Ansari and Parker, 2010).

Digital technologies are ubiquitous and embedded in our everyday lives (Goodyear and Bundon, 2021). Over the past decade, companies such as Garmin, Fitbit and Apple introduced digital fitness devices to try and overcome some of the barriers to PA (Benson *et al.,* 2018), and have gained widespread popularity, with new models continually released (Lynch *et al.,* 2020) These devices are commonly worn on the wrist, and aim to provide real-time feedback on aspects of daily activities, such as number of steps taken, energy expenditure, amount of sleep and calories consumed (Canhoto and Arp, 2017). Fitness devices are aimed at primarily health and fitness conscious consumers and are designed to motivate individuals to self-monitor and increase their daily PA based on personalised fitness goals (Rupp *et al.,* 2018).

Various studies have objectively measured the effectiveness of fitness devices in terms of their accuracy and reliability. For instance, Takacs *et al.* (2014) examined the number of steps recorded, and tested the validity and reliability of a Fitbit One. The authors concluded that Fitbit One monitors are valid and reliable devices for measuring step counts, which is supported by Nelson *et al.* (2016) who state that fitness devices are an accurate measure of PA to motivate individuals to exercise. In terms of engagement with a fitness device, research has found that individuals who were inactive and reported sitting for prolonged periods of time felt more engaged with and motivated to exercise when wearing a device and found the social elements of the device made exercising more enjoyable by exercising with other people (King *et al.* 2016).

Whilst the number of people who own and use fitness devices is on the rise (Strain, Wijndaele and Brage, 2019), research by Alley *et al.,* (2016) indicates that there are barriers to wearing a fitness device whilst exercising, including the high cost of the devices, no interest, being too old, and not being comfortable with the new technology. Related to this, individuals who were more physically active rated their wearable fitness device as having a greater number of motivational aspects than less physically active individuals did.

Research on the topic of fitness devices has been dominated by a quantitative approach, focused on the technical features and exploring the barriers and facilitators to using them, factors that affect the likelihood that people will use fitness devices, and how effective fitness devices can be in terms of motivating individuals to

exercise (e.g. Rupp *et al.,* 2018). Qualitative research has been conducted in the use of fitness trackers and has explored how fitness devices shape interaction between users, including factors which lead to product acceptance or rejection (Michaelis *et al.,* 2016), and experiences of the elderly using fitness devices, particularly in terms of the health, technical and consumer attributes (Dehghani *et al.,* 2020). Esmonde (2018) carried out 'running interviews' and semi-structured interviews with self-tracking female runners, and found that they were keen to resist the 'datafication' of the fitness devices, and focus on how they felt, alongside the numbers on their devices.

Goodyear and Bundon (2021) suggest that future research will be most productive when the focus is on how digital technologies are being used, to what ends they are being used and how this use shapes behaviours, societies, research and research practices. To our knowledge, there has been no research exploring the day-to-day experiences of adults in the UK who use fitness devices to monitor their daily activities. We therefore feel that it is important for this gap in research to be addressed, given the lack of PA and the need to encourage people to not only take up exercising but also to maintain it, and fitness devices offer considerable potential in being used for these purposes (Lee and Lee 2018). Therefore, the purpose of this study is to obtain insight into individuals' day to day experiences of using a fitness device through a qualitative approach. Semi-structured interviews will be conducted, to encourage participants to share their experiences through discussion.

Materials and Methods

Participants

Participants were recruited using posters and word of mouth based on an opportunistic, purposive sample. Participants were aged 24-60 years (mean age=36), predominantly female (eleven females, two males). Ten participants classified their ethnicity as 'White British' and one classified their ethnicity as 'White Asian'. All participants had an interest in fitness, and described themselves as being physically active, engaging in some form of daily exercise. All participants owned and used a fitness device prior to the study taking place.

Materials

A semi-structured interview schedule was used to guide the format of the interviews. There were 10 questions in total, which were all designed to be open-ended to allow the participants to explore the topic by talking openly about their personal experience (Braun and Clarke 2013). Questions asked were:

1. What fitness device you own?
2. What are the key purposes you use your fitness device for?
3. What are the positives of using your fitness device?

4. How would you say that using your fitness device makes you feel?
5. Has your fitness device had an impact on your daily life?
6. Thinking back to before you owned a fitness device, has there been an impact on your life since owning one?
7. Do you feel your fitness device affects or contributes to your overall well-being?
8. Do you feel there are any negatives associated with your fitness device?
9. Have you ever recommended or encouraged people to use a fitness device in the past?
10. Have you got anything else that you'd like to add that we haven't covered today?

Procedure

Ethical approval was obtained through the university ethics process for supervised research. Prior to data collection, participants were asked to read an information sheet which stated the nature and purpose of the study. Written consent was obtained from participants before each interview. The sessions lasted for an average of 25 minutes and were audio-recorded using an electronic recording device. All voice-recorded interviews were transcribed using pseudonyms to ensure anonymity. Participants were fully debriefed after the interview and were provided with relevant contact details for any additional questions or support.

Data analysis

The data was analysed thematically using the six stage guidelines of Braun and Clarke (2006). Thematic analysis (TA) emphasises identifying, analysing, and interpreting patterns of meaning within qualitative data. TA holds many strengths, as it is a flexible approach that can be widely used across a range of research settings, and provide a means to detailed data analysis (Braun and Clarke 2006). Cassell and Symon (2004) state that TA is a useful method for exploring different perspectives of individuals' experiences and generates unanticipated insights of subjective data. The research was underpinned from a critical realist position (Willig, 2000), with fitness devices and the data displayed on them being an observable truth, but people's experiences of using them being varied and influenced by a range of different social factors.

Results

Following thematic analysis of the data, four themes were identified, which capture the experiences of using fitness devices:

1) Part of the individual,
2) Monitoring and validating health conditions,
3) Like a personal trainer, and
4) Competition: with yourself and others.

The themes will be discussed with illustrative quotes as examples, accompanied by participant pseudonyms.

1. Part of the individual

This theme captures how participants talk about the connection they have formed since wearing their fitness device and how it has had a positive impact on their lifestyle. Many of the participants spoke about how they could not imagine living without their device, as they have formed an emotional attachment with it. More specifically, several participants admitted to feeling lost without it. For example:

> Say, if ever my Fitbit breaks or like the strap breaks and I don't have it and I think 'Oh no!' I'm like really gutted (Abi, 34, Fitbit Charge 3).

> If I haven't got it on, I feel lost! (Bethany, 23, Apple Watch Series 2).

This sense of loss that is referred to suggests that participants feel a sense of uncertainty and disconnected from themselves compared to when the devices are worn. Similarly, Sarah talked about not being able to live without her fitness device, indicating that the device is an integral part of her:

> Really, really good erm, yeah, I never really wanted one before but now I can't live without it (Sarah, 25, Fitbit Blaze).

It is emphasised in this quote how good this participant's fitness device makes her feel when she repeats the word 'really'. Later in the interview, Sarah highlights her change of mindset on having a fitness device, as she talks about not being interested at first, however, since having one she became impressed and her opinion had changed significantly. She admits she feels she could not live without her fitness device, which implies a high dependence on her device. Another participant, Ellie talked about how she feels when she does not wear her device, indicating that she feels a range of negative emotions without it:

> Good! (laughs) it makes me feel happy, erm but if it is not charged or it doesn't work it makes me feel a bit sad or if I've forgotten it makes me feel annoyed. One time the strap broke so I couldn't wear it and I felt so lost without it (Ellie, 27, Fitbit Charge 2).

Ellie reports how she feels lost without wearing her fitness device, which again implies an emotional dependence on it. Orth, Thurgood and Van Den Hoven (2018) found that objects often become cherished as ties to experiences that are significant to their owner. They highlight the potential of an object to bring emotional value to a person by embodying significant aspects of self-identity. This relates to how Ellie talks about how she has become attached to her fitness device:

> Erm, I think it's a good thing, it's like my best friend. It's always there for me (laughs) erm, yeah, I think it has a really positive effect on my wellbeing. Erm, I would say that

> if I didn't wear it would feel a bit lost and maybe that would make me feel a bit anxious (Ellie, 27, Fitbit Charge 2).

Here, Ellie associates her device as her best friend, which highlights a bond with her device as she feels as though it is there to support her. Not wearing her device makes her feel lost and anxious which suggests that she likes the fact that she can rely on her fitness device to keep her on track.

Throughout this theme, participants talked about how they have become reliant on and attached to their fitness device. Several participants talked about feeling lost without their device, suggesting that fitness devices can become an integral part of the self.

2. Monitoring and validating health conditions

This theme encompasses the importance of fitness devices for participants in relation to being able to identify and monitor potential health conditions. In particular, some participants used their fitness devices to validate suspected health concerns. Some participants stated that having their device encouraged them to exercise, which also helped to improve other health conditions. For example, Di has diabetes, and her fitness device helps her to maintain her blood sugars at the correct level:

> I find with being diabetic if I do between 8,000 and 10,000 steps a day, along with diet, it helps keeps my sugars at the right level (Di, 60, Fitbit Inspire).

Fitness devices have helped to improve physical health for some participants, for example Ellie talks about a reduction of her cholesterol:

> Having it has definitely helped and increased my activity so yeah, it's helped the reduction of my cholesterol because when I had it tested a few years ago it was a little bit high and I've had it done recently and its come down (Ellie, 27, Fitbit Charge 2).

Another participant, Sarah, talks about how her device helped her identify a low heart rate:

> People can't always notice health problems, but with my Fitbit, I now know that my resting heart rate is really low, so that's something I need to get checked out, I mean it could turn out to be nothing but if there was, I wouldn't of know anything without having my Fitbit (Sarah, 25, Fitbit Blaze).

For this participant, Sarah seems thankful for her Fitbit as she talks about it in a fond, affective way and refers to it as 'my Fitbit'. She highlights the unique and invaluable information that her Fitbit has been able to provide her, which she appears grateful for. For Sarah, her fitness device helped to identify that she has a low resting heart rate which is an invisible condition and is often not recognised (Joachim and Acorn, 2000).

Alongside helping people to monitor and potentially validate physical health conditions, several participants also talked about their fitness devices in relation to them being able to identify and validate psychological stresses on the body. Tracy said:

> I looked at my stress level like my heart rate because I was in a stressful job, so I just looked at what my heart rate was working there, and it was really increased! Like my normal heart rate is in the 60s but some days working there it was in the 80s and 90s, I mean I thought I was stressed but that just showed me that I was. I felt I was aware of it, but it gave me that evidence (Tracy, 51, Fitbit Charge).

Ferne also talked about her fitness device in relation to work stress, and talked about how she used it as a way of acknowledging stressful times, and then implementing coping strategies to help deal with the stress:

> With the heart rate things as well you can see when your heart rate goes up so you know what's like stressful for you and things like that to try and minimize that…say when I'm working when I'm working it would be really stressful at lunchtime, when I know it's something that makes you stressed you can think of the coping strategies and then make it easier on yourself, rather than working yourself up for lunch (Fearne, 31, Huawei Pro).

Most participants had a positive experience using their fitness device in allowing them to recognise, validate and monitor potential health concerns. For some participants it acted as evidence to take action to help improve their health.

3. Like a personal trainer

Participants described their experience of using a fitness device as being like a personal trainer, giving them added motivation to achieve fitness goals, not only in terms of exercise but other health-enhancing behaviours. For example, Arianna compared her fitness device to having a personal assistant, that motivated her and kept her on track in terms of both exercise, as well as other behaviours such as drinking more water:

> Definitely feels like I have my own personal assistant that keeps me on track, erm wakes me up, keeps an eye on my steps, it even tells me every hour to drink more water and I do feel that it just motivates me throughout the day to keep consistent (Arianna, 33, Apple Watch Series 5).

The majority of the participants reported being more motivated to exercise since having their device, as it sends reminders for them to exercise which helps to keep them on track. For example, when asked about how often she wears her device, Jackie replied:

> All the time! Its constantly on my wrist! So because I sit down at work all day, and It buzzes and then I've got to like try and get some steps in as and when I can, because I work in a busy environment, so it gives you that notification to like move and motivates you in a way (Jackie, 56, Fitbit Charge 2).

Here, Jackie talks about her personal struggle to increase her step count whilst at work due to her sedentary job. She states that her device is constantly on her wrist which alerts her to exercise and provides her with constant motivation, as though exercise cannot be forgotten about because of the device. Similarly, Tracy talked about how her device motivates her to exercise:

> Erm…you know it's a bit like having your own personal trainer, I mean, I don't know if anybody else thinks that. I look at it as a motivator like a personal trainer, I guess. I definitely prefer having one cos again, it's the goal setting, the motivating goal setting that's how I look at the Fitbit now to when I didn't have one (Tracy, 51, Fitbit Charge).

For many of the participants, their fitness device acted as a motivator, a mentor and gave them encouragement to exercise, which are all similar skills to a personal trainer (Möller *et al.,* 2012). Tracy talked specifically about the importance of goal setting that was possible with a fitness device, particularly how she finds this motivating as it helps her to achieve her goals. Another participant, Bethany, talked about how she keeps on track using her device:

> Erm… I think (pause) it helps me stay focused, so... I don't know how explain, so, if I start work at 2pm and I go a fitness class at the gym at 10am, if I can see I've worked out for 1 hour and done 1 hours activity, it helps me then to keep on track all day, like healthy eating and that because I look at it and think well, I've already done this, so like it keeps me motivated for the day (Bethany, 23, Apple Watch Series 2).

For Bethany, seeing the amount of activity she has done in the morning on her fitness device keeps her on a positive track for the rest of the day, not only in terms of her exercise but other healthy practices. Also, it keeps her motivated as she can see her immediate progress from her workouts. When asked about the positives associated with her fitness device, Ellie explained:

> It's stopped me from being lazy (laughs) like if I've been sat down for a while it encourages me to move, so it buzzes if I've been sat down for longer than an hour… so that buzz makes me think, right, I need to move and that encourages me to get up and move about, whether its jogging or even marching around the room (Ellie, 27, Fitbit Charge 2).

For this participant, a positive of her fitness device is it has prevented her from being 'lazy'. Notifications from the device encourage her to move and prevent her from sitting down for long periods of time. Seeing the lack of PA motivates her to increase her activity levels, as her device alerts her when she has not been as active.

Most participants talked about their device as being motivating and a useful gauge of fitness levels, with others directly comparing it to being like a personal trainer. Fitness devices are talked about as being a useful reminder to exercise, as well as a reminder for other behaviours such as drinking water and eating healthily.

4. Competition: with yourself and others

The final theme encompasses the idea of competitiveness encouraged by the use of fitness devices. The participants talked about how they felt pressured to meet their daily fitness target, for themselves, and for some in competition with other people. This was talked about in both a positive and negative way. Gretel explicitly talked about using her fitness device competitively with herself:

> I kinda see it to be like a bit of a competition with myself? I do like a long run say like a half marathon then I would say if I've done more steps like from the last half marathon that I did on a particular day so it's like a bit of a game (Gretel, 29, Fitbit Inspire HR).

Gretel refers to the competitive aspect of the fitness device in a positive manner, alluding to it even as something that is fun. Despite the positive of being able to work towards personal goals, many participants reported negative feelings when their daily targets were not met and feeling more positive when they had achieved their goal. Participants talked about the pressure to push themselves to meet their goals each day and the effect of not meeting them, for example:

> Yeah, a bit rubbish, erm, so if I look at it, like today I haven't really done anything today so, it says I've only burnt 189 calories, so now I thinking like, I'm really lazy like, but I don't let it get in control of my life or get in the way of things if you understand? I guess it's just always there, to look at (Bethany, 23, Apple Watch Series 2).

Here, Bethany highlights how she feels when seeing the number of calories burnt which can lead to negative perceptions of herself as 'lazy.' Bethany also mentions that her device is 'always there to look at', which indicates that that she feels there is no way to escape looking at her activity throughout the day, even when she would perhaps rather not know. Despite these negative feelings, Bethany highlights the importance of not letting her fitness device take 'control of my life', suggesting that there is potential for it to do this. Chris similarly refers to the negative potential of using a fitness device if the 'recommended amount of steps' are not met.

> Erm, it does make me feel good, but like it can make me paranoid that I haven't hit the recommended steps that I've set up on this to do (Chris, 31, Garmin Vivo Active).

The reference to paranoia suggests that Chris feels under surveillance and pressure to meet his goals. Although when he does achieve his steps, Chris described how makes him feel good. Similarly, Amy talks about the ability of her device to make her feel a range of emotions:

> Good on good days, bad on bad days (laughs) if I hit my 10,000 steps then I'm a happy Larry but if I don't then I'm so annoyed with myself but in a way I guess that's what it's there for to show you what you've done throughout the day, but seeing it on a screen makes you feel worse sometimes (Amy, 24, Fitbit).

For this participant, she talks about how she feels about her daily fitness goals. It appears there is a fine line with her fitness device in term of emotions, as she can

feel happy or annoyed, dependent on the number of steps she has walked. Seeing the number of steps below the 10,000 figure perhaps reflects a deeper sense of guilt and added pressure to increase the number of steps, which is validated by her device. Amy then explains how her device impacts on her life:

> If I don't do that, I can become hmm, yeah, miserable, annoyed with myself but then if you don't hit your step count regularly and your attitude towards fitness is negative, then you kind of go into a slump … I work in events sometimes and the days are so long I can't fit it in and whenever I don't, guilt is trigger which makes me feel so bad and lazy (Amy, 24, Fitbit).

Similarly, when asked about the negatives associated with her fitness device, Sarah explained:

> It's like a competition like today I've done this much walking, I've burnt this amount of calories, so tomorrow I want to do more and more and it can become quite obsessive like you could be pushing yourself too hard, which isn't safe really your body might not be ready to do exercise like that each day. to get things green on my screen. So, I'd say it has positives and negatives (Sarah, 25, Fitbit Blaze).

As illustrated in this quote, seeing the amount of exercise carried out per day encourages this participant to set higher goals. It seems that Sarah's satisfaction with the amount of exercise is controlled by the data and the number she sees on her device, as she will push herself to do more exercise to achieve her daily goal, however she highlights that this can result in over exercising and an obsession with meeting goals. For Sarah, she feels as though she is in competition with herself to meet her goals and the importance of ensuring each goal is met seems to be more important for her than listening to what her body can handle. Similarly, Ellie talks about the potential to become addicted to exercise. Ellie does though talk about this in third person, suggesting that this is not something that specifically applies to her:

> But I dunno if you've got like an addictive personality, I think a Fitbit could be an obsessive tool to become addicted to exercise because you know, there's competition with yourself (Ellie, 27, Fitbit Charge 2).

This participant believes that individuals with an 'addictive personality' are more likely to become addicted to exercise using a fitness device as they may be unable to self-regulate, which is supported by Hofmann *et al.,* (2012), who found that addictive personalities have a lower behavioural inhibition control.

As well as in competition with themselves, several participants used their fitness device as a method of competing with friends and family, and comparing the number of steps that they did, for example, Abi said, 'I bought my mom a Fitbit and we used to do competitions as to who could get the most steps in, in a week'. While some participants saw it as a positive, and a way of maintaining their step count, participants also mentioned that this could go too far. For example:

> When I linked mine to my daughters and we were in competition, and so I think then I literally did get a bit obsessive with it about how many steps I was doing, and at that stage was probably doing between 12 and 14,000 steps but that actually didn't make me feel great, I did make my legs ache, it wasn't great (Di, 60, Fitbit Inspire).

Here, Di talks about how the competitive aspect of comparing her step count with her daughter, and how competing against her actually had a negative impact on her health.

Feeling pressure to meet goals was common amongst all participants who saw this in a positive and negative way. The importance of staying in control was emphasised given the potentially addictive, controlling nature of fitness devices.

Discussion

The aim of this study was to explore individuals' everyday experiences of using fitness devices; four themes were identified which captured these experiences. Participants talked about how they felt reliant on their device, and had an emotional attachment towards it, admitting they feel lost and a range of negative emotions without it. Research to support this suggests that attachment with objects provoke positive feelings related to an interest, whereby individuals form attachments which relate to significant others or interests. For instance, White (2007) found that humans can become attached with objects that make them feel secure and reassured of which stimulate a nurturing response (Bell and Spikins, 2018). In this study, participants expressed their connection with their device as it provoked positive feelings.

Participants talked about using their device as being a positive and beneficial experience, as it allowed them to recognise, validate and monitor health conditions that they may not have been aware of not having the device. According to Taber, Leyva and Persoskie (2015) there is a large amount of people that do not seek medical advice due to a low perceived need to seek medical care and a low confidence in health professions. The findings from this study indicate that fitness devices could be used to help increase the percentage of adults seeking medical advice. Having the data from their fitness devices appears for some to be a sufficient prompt to seek help and advice, potentially leading to the identification of illness and disease that otherwise may have gone undetected.

Participants talked about the motivational aspects of the device, and how they felt that it encouraged them to exercise more, as well as drinking more water, and keeping an eye on their stress levels. Some participants explicitly drew parallels between their fitness device and having a personal trainer. This can be explained by Ryan and Deci's (2000) self-determination theory, which suggests that people are self-determined when their needs for competence, connection and autonomy are fulfilled. Evidence to support this by Trigueros *et al.* (2019) found that having a

trainer increased participants' perceived confidence, psychological well-being and capability of achieving their goals. However, they suggested that if a trainer's behaviour is critical or restrictive, people then feel incapable, rejected, and oppressed. Therefore, by having a fitness device, it may be that participants are able to feel more autonomous, competent and fulfilled, in comparison to a personal trainer. However, some participants talked about the negative emotions they felt if their daily goals were not met, which suggests that fitness devices do have the potential to make some feel criticised or restricted in the way a personal trainer.

Whilst the experiences of using fitness devices were mainly positives, some negatives were acknowledged, particularly in terms of feeling under pressure to achieve personal fitness goals. As a result of this, participants described how they felt a range of negative emotions. The importance of not letting fitness devices take control were referred to, with participants talking about how an addictive personality can lead to an obsession and over-exercising. To support this, research suggests that personality traits are associated with health, appearance, stress management and enjoyment (Courneya and Hellsten, 1998). Therefore, the relationship between personality traits and fitness devices could be explored in future research, as personality traits may determine individual's experiences of using fitness devices.

The results of this study provide several implications. Firstly, given that some participants used their fitness devices to identify, validate and monitor their health, fitness devices could help those diagnosed with a health condition or potential health conditions that are invisible and often go underdiagnosed (Joachim and Acorn, 2000). In addition to this, fitness devices can be also used in general health care, which GPs might recommend as part of exercise prescription. It is obviously important to consider cost factors, in terms of health inequalities, and look into whether any funding is needed to help people to afford a device if recommended.

Moreover, it makes sense that being motivated to exercise and achieving goals would result in a positive experience, however participants talked about the importance of being emotionally stable when using a fitness device, as they highlight the risk of it becoming an obsessive feature which may result in an unhealthy relationship with exercise. To avoid this, some participants suggested that fitness goals should be personalised to the individual, so they are achievable and sustainable, as unrealistic goals can reflect negative feelings towards self (Powell and Fitzpatrick, 2015). To overcome this, health professionals could design health and well-being interventions to educate individuals about fitness devices and how to respond to pressure and negative feelings when wearing their device. In addition to this, personal trainers could demonstrate how individuals can use a fitness device when exercising alone and how to monitor their activity daily, so that they become educated around fitness to achieve sustainable results. It is essential to promote

exercise as it is known to improve mental health as it releases endorphins and can help to relieve stress (Vina *et al.,* 2012).

Limitations and future research

Whilst this qualitative research has enabled us to capture the complexity and nuances of the everyday experiences of using fitness devices, findings should be considered in the context of some limitations. Mainly, the gender imbalance of participants (eleven females, two males), may mean that these findings lack applicability to males using fitness devices. The lack of men recruited for this study could be explained by their avoidance of talking about health behaviours and rarely disclosing information about their personal experiences (Jeffries and Grogan, 2012). Future research could seek to explore specifically, the experiences of men and fitness devices, perhaps through the use of online forums as a source of data.

Participants were also asked to talk about their experiences of using fitness device at one single time point which may have been subject to circumstantial and temporal influences such as the amount of exercise carried out that particular day. Future research could extend on this study by employing a longitudinal design to capture experiences of using fitness devices over time. This could be achieved by asking participants to record their experiences of using their device into diary entries which enable qualitative data to be captured over a longer period of time (Jacelon and Imperio, 2005).

Conclusion

This study explored the everyday experiences of using fitness devices and found that they can become an integral part of the person wearing them, being relied upon, with participants feeling a range of negative emotions without it. Fitness devices are useful tools for enabling participants to identify, validate and monitor various health concerns which may have important implications for health-seeking behaviour. Parallels between fitness devices and personal trainers were made, not only in terms of encouraging exercise but other health-enhancing behaviours. Fitness devices encouraged competition within the individuals themselves but also with other people. This was mainly seen as a positive but the potential negativity of this if goals were not met were highlighted. This has important implications for education around the use of fitness devices and the importance of setting realistic goals for exercise.

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JQRSS Author Profiles

Emily Lomax[1] has a BSc (Hons) in Psychology and Counselling, and an MSc in Health Psychology, both awarded from Staffordshire University. One of her main research interests is exploring the use of electronic devices on peoples' physical activity behaviour. Email: Em.lomax@yahoo.co.uk

Alison Owen[2] is a Lecturer in Health Psychology at Staffordshire University, UK. Her research interests lie in health promotion and body image.
Email: Alison.owen@staffs.ac.uk

Jennifer Taylor[3] is a Senior Lecturer in Qualitative Psychological Research Methods at Staffordshire University, UK. Her research interests lie in body image and health risk behaviours. Email: Jennifer.taylor@staffs.ac.uk

Reviewer Comments

This research brings to the surface some interesting aspects about our relationship with technology in the health and fitness world, aspects which may only be manifested by sensitive and grounded qualitative research such as this. When 'tech' became wearable it seems to have pervaded a sense of being and existing in this social setting, if at times controlling, but seemingly ever present for the participants in this research. The themes reveal an insightful interpretation of the lived experience for these people, such as tech becoming 'part of the individual', while other themes 'like a personal trainer' and 'competition: with yourself and others' are perhaps what one might expect to have emerged from this kind social sports research. However, the theme around 'monitoring and validating health conditions' was a particularly interesting discovery which brings to the fore a critical question about trust, diagnosis and presenting for treatment. That is, might a participant trust their Fitbit health forecast more than that of the General Practitioner? What if a GP failed to spot something that the Fitbit was highlighting, such as an underlying heart condition? There are a range of situations and consequences prompted by this valuable research which are worthy of further investigation.