Use of mobile applications for food and activity logging among runners

The University Of Sheffield.

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Structure of presentation

- Background and context
- The survey
- Quantitative results
- Qualitative insights
- The future

Background: the effectiveness of food diarying

- Paper-based food diaries have been in use since the 1930s to treat a range of health/diet issues
- The process of self-monitoring has been shown to increase the frequency of desired behaviours and decrease the frequency of undesired behaviours (Klasnja and Pratt, 2012)
- BUT Paper-based diaries are troublesome to carry, do not allow for longitudinal analysis of food intake and public recording of food intake in a paper diary can be embarrassing (Cordeiro et al., 2015)
- Some healthcare providers are not interested in the data (Chung 2017)

Background: the popularity of mobile apps

- Mobile digital devices offer easy connection to health information, as well as quick and easy ways to monitor, record and share health information (Lupton, 2015)
- Apps facilitate self-management of health conditions and support a patient-centred model of healthcare (Handel, 2011)
- Recording diet on mobile devices is seen to be more effective than paper diaries (Bert et al., 2014)
- The popular app MyFitnessPal has 165million users worldwide
- There are over 10,000 apps that support diet monitoring or weight loss (Azar, 2013)

Background: mobile apps and people who run

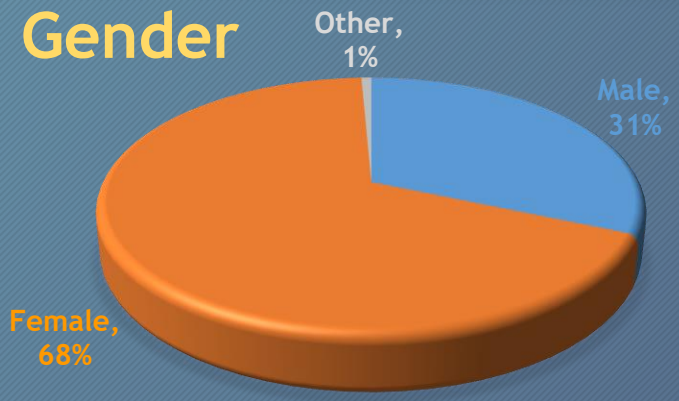
- People who run tend to interweave various activity trackers, sometimes with seemingly the same functionality (Rooksby et al., 2014)
- Tracking is often social and collaborative rather than personal while, at the same time, that there are different styles of tracking, including goal driven and documentary tracking (Rooksby et al., 2014)
- Users tend not to use apps regularly, but do frequently return to them, suggesting that there are times when applications are valuable to their users (Lin, Althoff and Leskovec 2018)

The survey

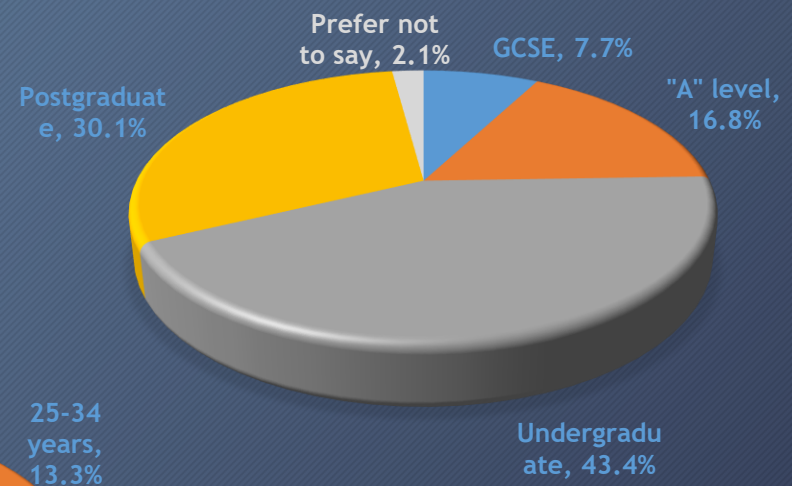
- 12 questions including:
  a. demographic questions
  b. questions that focused on use of diet and/or fitness apps and other technologies
  c. reasons for logging
- Advertised online through *parkrun UK* (http://www.parkrun.org.uk/)
- 143 complete responses (although 414 records were received in total)

Sample demographics

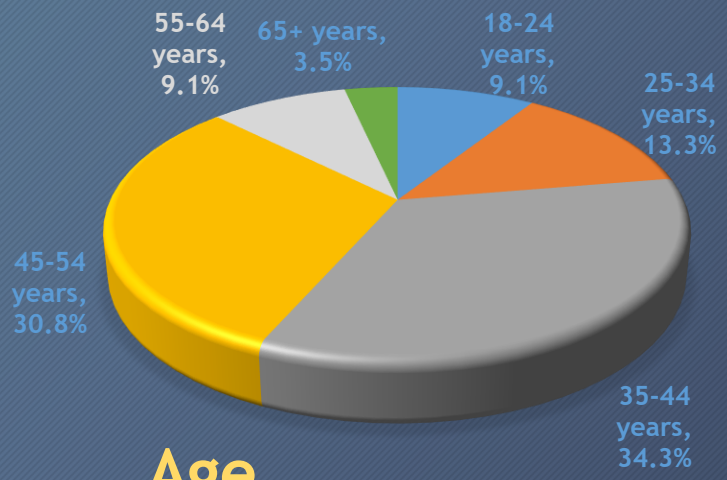
Gender



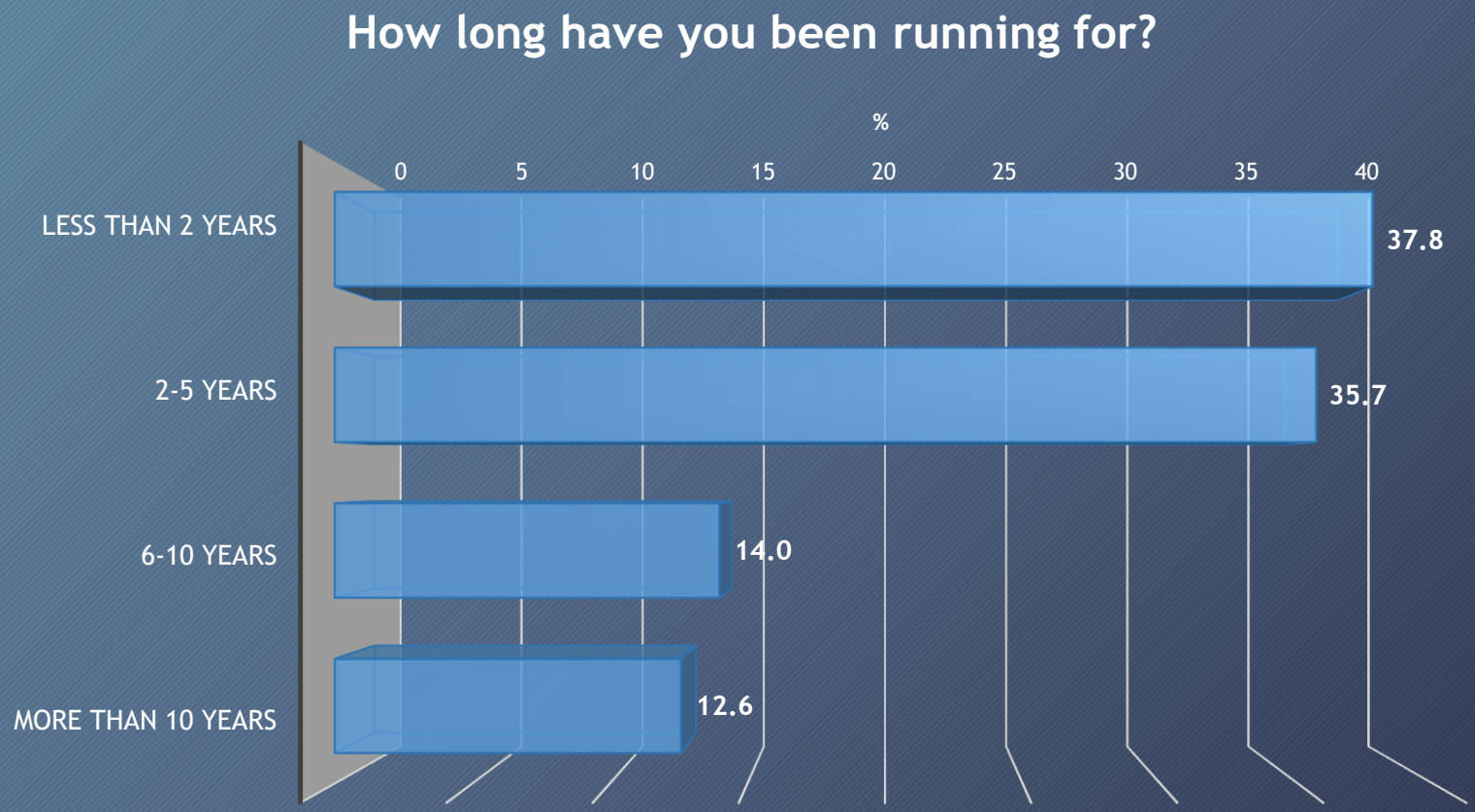
Education



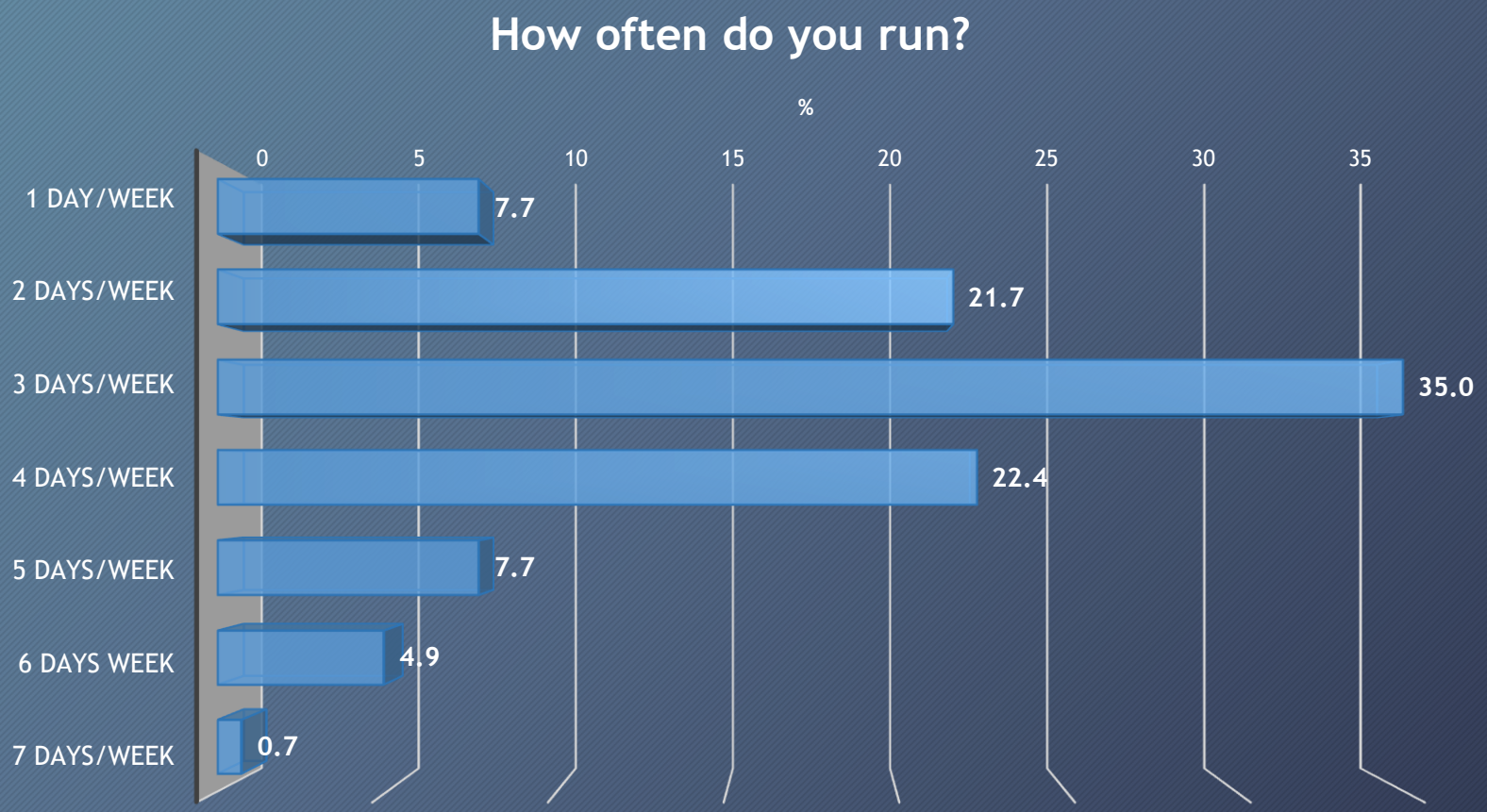
Age



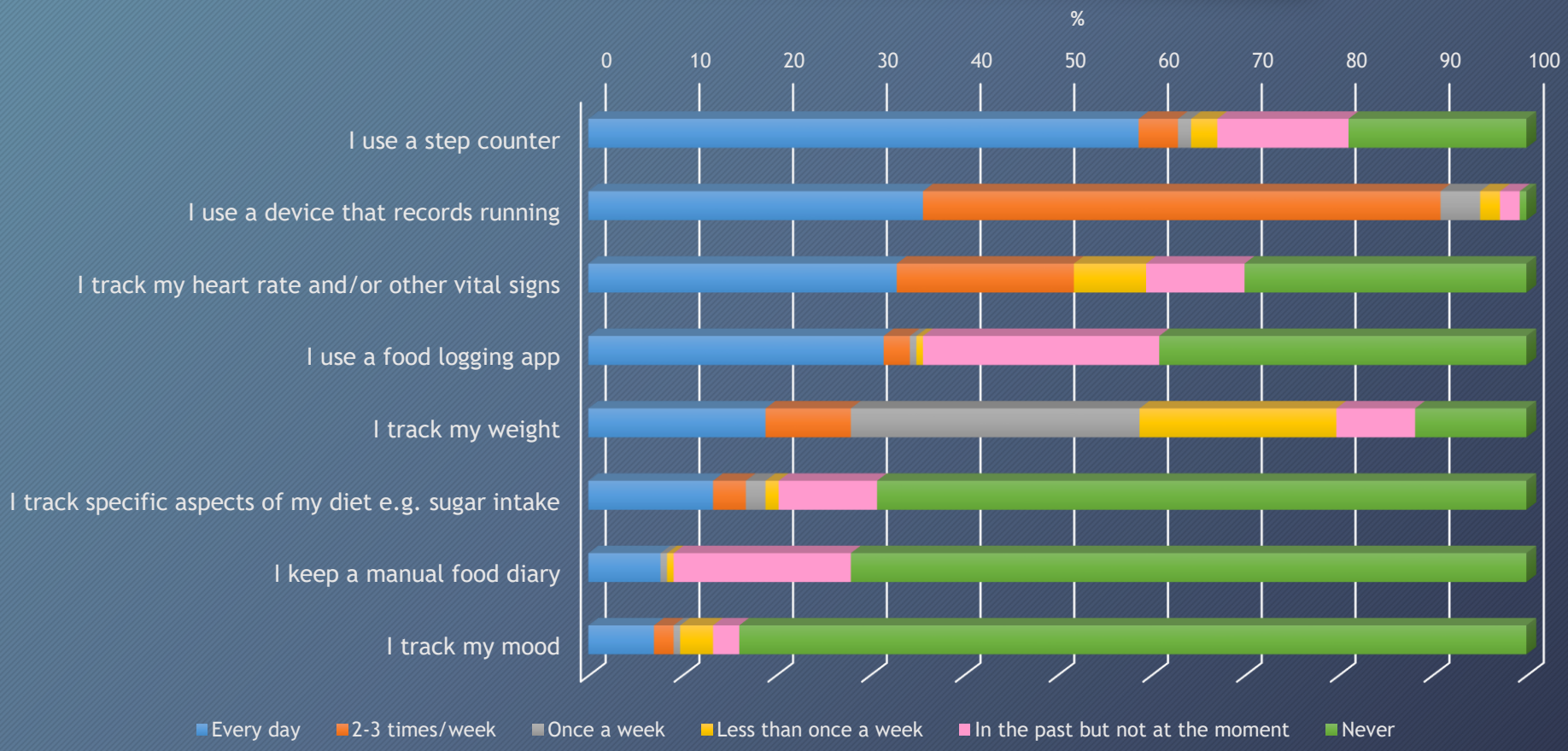
How long have you been running for?



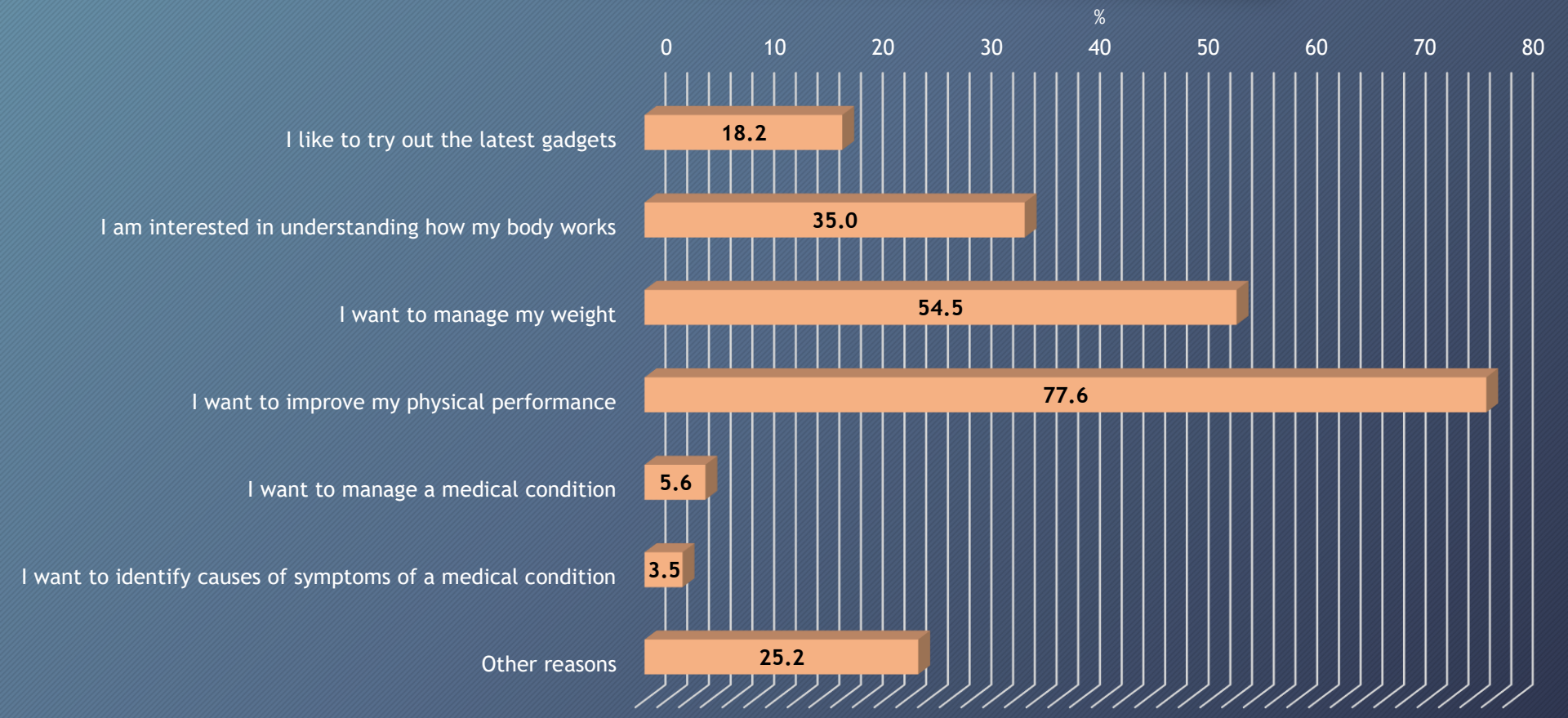
How often do you run?



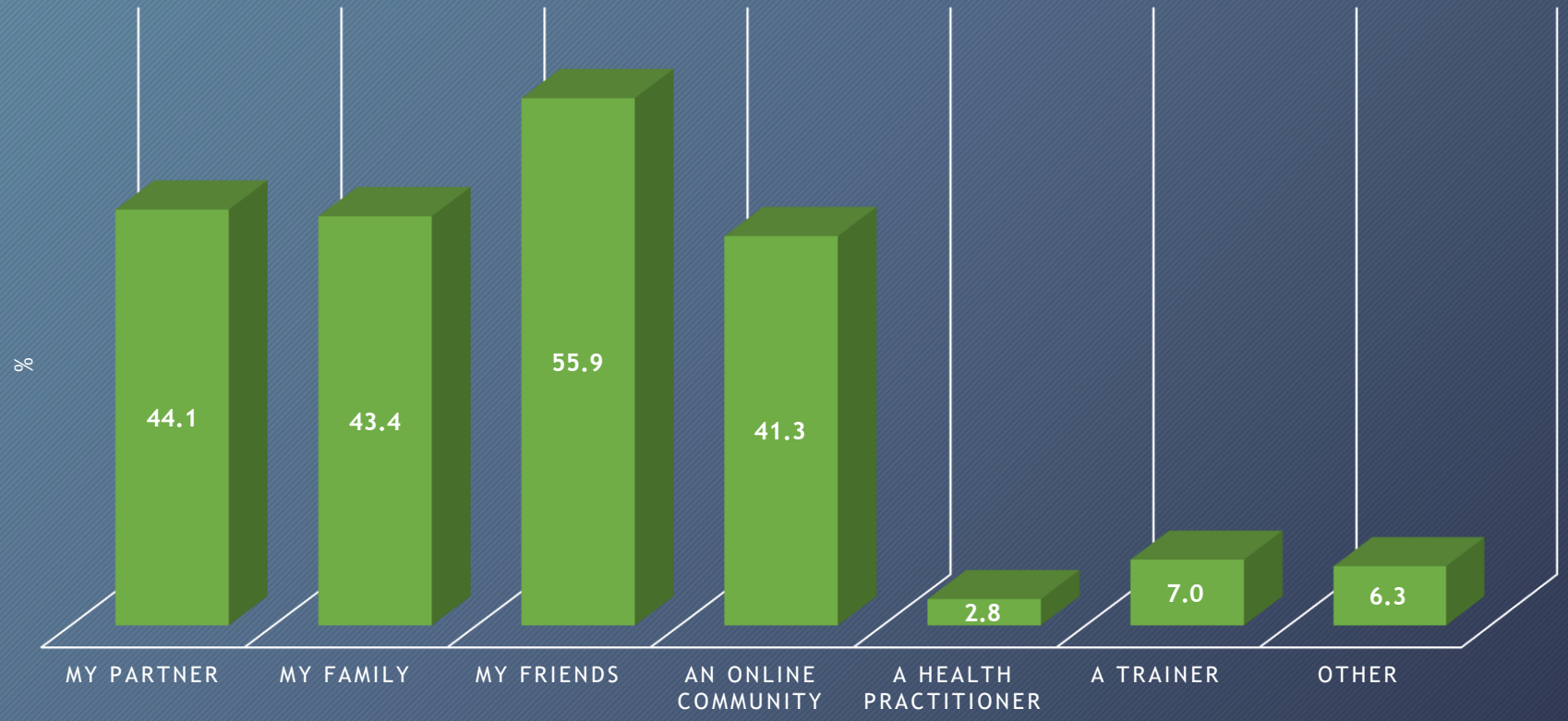
Logging activity



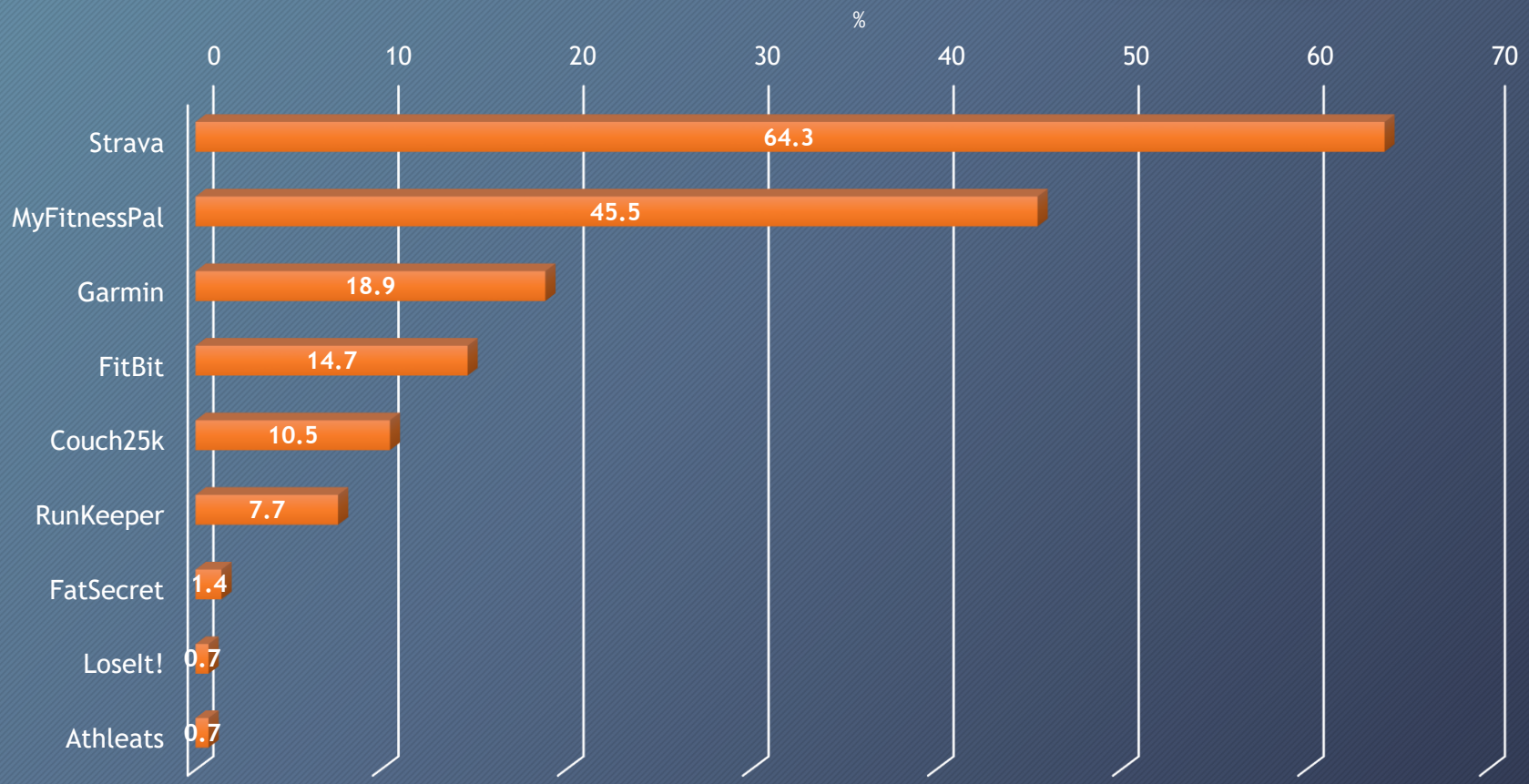
Why tracking and logging?



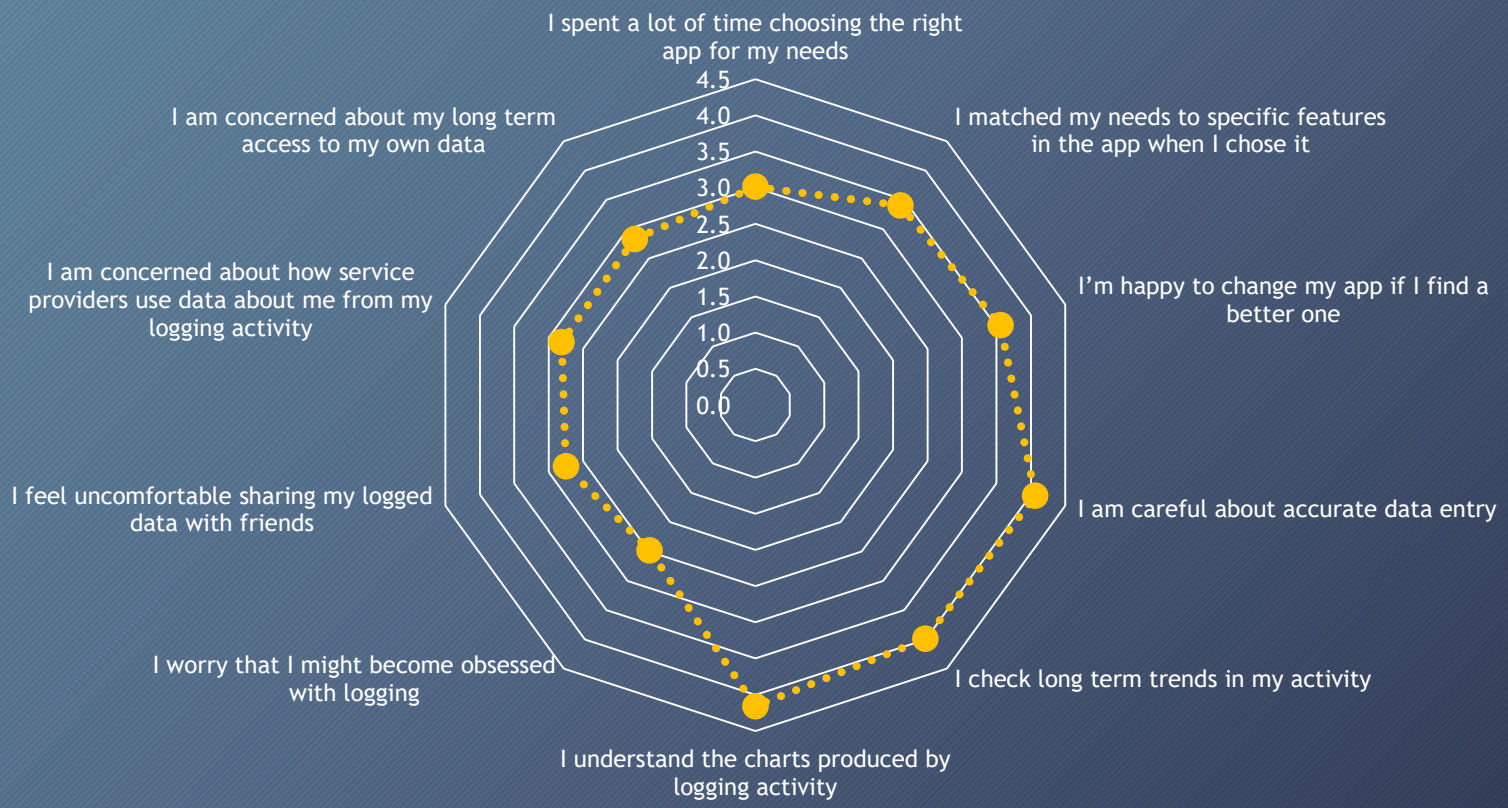
Sharing data with…



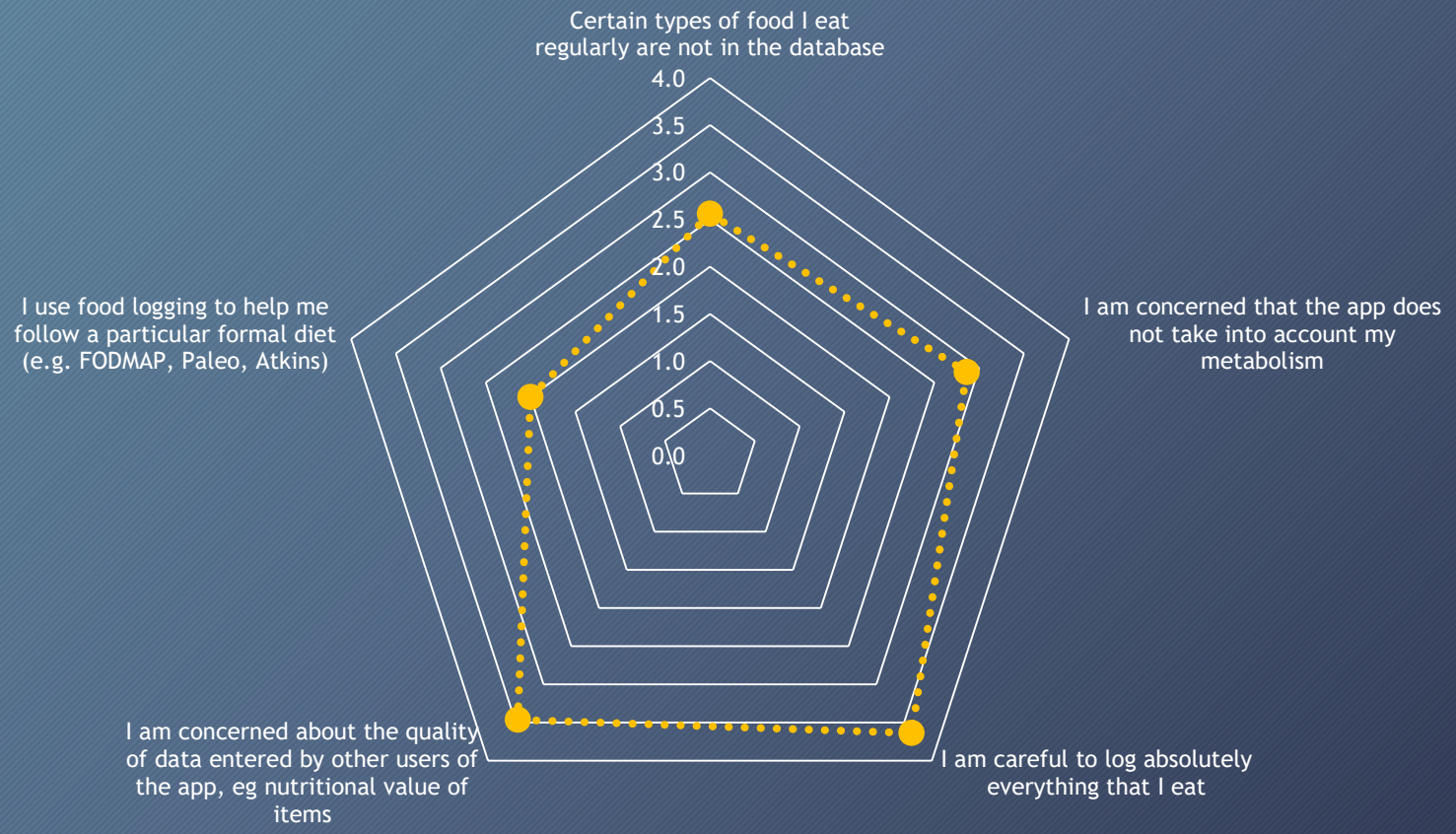
What apps are most used?



Views on using apps



…if logging food…

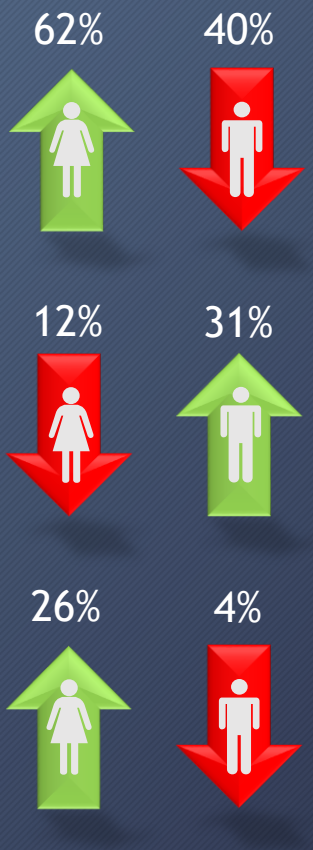


Attitudes by gender*

More women than men use apps to track their weight (T=5.081; *p*=0.024)

More men than women like to try out the latest gadgets (T=6.019; *p*=0.014)

More women than men keep or have kept a manual food diary (T=4.249; *p*=0.039)



*only statistically significant results

Qualitative data - I

Both food and running tracking are **information/data centric activities**, where some of the enjoyment of the activity is linked directly to collecting information and analysing it. This could be quite technical e.g. using V02 max or heart rate monitoring, but often **fairly simple** tracking speed, and training plans were rarely mentioned.

I use Fitbit and TomTom running watch to log my steps and calories daily. I monitor my heartrate during exercise. I also log my sleep.

Using VO2 to reduce Parkrun times and increase fitness.

Although I use Strava, this is only to capture the data. I have my own spreadsheet where I store this information and more.

I initially used My fitness pal to see how many calories were in specific foods and also to see how the calories balanced against manually inputted exercise. Then I got a Fitbit and linked the two. I am type 1 diabetic and am interested in keeping my weight at a healthy BMI. I also use Endomondo for logging runs and the training plan in it for my first half marathon in September.

Qualitative data - II

Running tracking and food logging are very different practices:

- **food logging is private**, time consuming and seen as dangerous if it becomes obsessive
- **tracking running is shared**, easy and inherently enjoyable

My run data however is probably plastrered all over the internet - Garmin connect to up load it from watch, Strava, running heroes for vouchers and competitions and Mapmyrun to support sister in man verses the year!!!

I'm happy using separate apps because I like Samsung Heakth for the food/weight logging but don't want to share that but I love connecting with other runners on Strava as well as being able to analyse my own results.

I use Strava and MFP differently - Strava is much more social MFP is personal and I see no reason to share it.

Qualitative data - III

Participants' concerns were mostly about **ease of data entry**. Food logging had various problems such as database coverage. Such issues made it time consuming, and possibly affected data quality. Running could be affected by devices not synching, failure to pick up GPS signal.

I like automatic logging, e.g. Fitbit always on. But don't like hassle of uploading and that not waterproof.

In terms of fitness apps, I wish they would sync with each other more.

I like that Garmin Connect and Strava both allow automated uploading settings without human interaction.

Logging can be negative if a device wants you to move and you cannot, due to medical or personal reasons. Interfaces need to evolve and become more personal, flexible and compassionate.

The future

- Understanding in a bit more detail the value of logging and at what point and why users stop logging.
- Which app is best? What would make an app easy to use for people who run for pleasure? (e.g. how many functions should it have?)
- Participants' concerns were mostly about ease of entry of data. Food logging had various problems such as database coverage. Such issues make logging time consuming, and possibly affect data quality. Can we develop better practice based on this?
- Running could be affected by devices not synching or failing to pick up GPS signal. How can apps be improved?
- Do different communities use apps in different ways?

Thank you

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Any questions?

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