

Why and how to assess digital literacy of older adults with hearing loss

BY MELANIE FERGUSON, TALVEEN SAHOTA AND CATHY SUCHER

Assessing digital literacy in older adults with hearing loss is vital for equitable care. The new DL-2Q tool quickly measures such skills, ensuring tailored support and better outcomes.

Digital literacy and its importance

When an older patient walks into your clinic, what are your thoughts about their ability to manage mobile and other digital technologies? Do you form an immediate opinion? And if so, how? There are lots of potential answers to these questions and age might be one factor. We know that age is an important contributor to the 'digital divide'. This refers to the gap between those who have access to technologies and those who do not, and as a result, are denied access to connectedness and equitable health services. Therefore, might your patient's age influence your opinion about their digital literacy?

Many studies have shown that digital and remote technologies, including smartphone apps, provide many benefits to adults with hearing loss. These include overcoming the barriers of time, mobility and geography to provide greater flexibility, accessibility and equity of hearing healthcare [1]. Other benefits include tailored healthcare to meet the needs of the individual, providing greater opportunities to interact and engage with hearing healthcare. This in turn can lead to better self-management of hearing loss [2]. As such, it makes sense to ensure that as many people as possible can access these technologies.

Digital literacy is defined as a set of technical, cognitive and sociological skills that individuals must possess and develop to ensure efficient use of computers, mobile devices and other information technology. With increasing use of technology in everyday life, such as shopping, banking and healthcare, digital literacy is becoming a skill that is now a need-to-have, rather than a nice-to-have.

Returning to the 'digital divide', there is evidence that a number of factors influence difficulties with digital literacy. These include older age and greater degree of hearing loss [3], both of which are prevalent in people attending audiology clinics. Other factors include being male, fewer years in education, and lower income.

As a hearing care professional, should you assess digital literacy? If so, how can you assess the digital literacy of your patients? Most of the questionnaires or measures to assess digital literacy have far too many questions, which is prohibitive in a busy clinic setting.

Development and validation of the DL-2Q

To address this, we recently developed a brief, validated, two-item digital literacy questionnaire - the DL-2Q. The development was based on similar methods that were used previously to identify computer literacy in adults with hearing loss [3]. In 2012, the use of digital technology was starting to feature in audiology research and hearing healthcare, and we were keen to measure computer literacy skills in a population that was participating in several of our digital intervention studies. Given the ubiquity of digital technologies nowadays, it is noteworthy that in a UK sample in 2012, internet use was only 46% in 50-74-year-olds, dropping to 17% in the 70-74-year age group [3]. Whereas in 2012, overall mobile phone ownership in the UK was 28%, by 2022 it had risen to 86% overall, and 79% in those aged 65+ years.



Due to the explosion in the use of mobile technologies (e.g. smartphones, tablets) over the last decade, we were interested in looking at digital literacy relating specifically to mobile devices. To do this, we conducted a study of 110 adults with hearing loss whose age ranged from 52-96 years (average=76.7). Participants completed several questionnaires via either email (n=47) or post (n=63) to minimise the bias in recruiting only those who use email.

The DL-2Q comprises two questions:

1. How would you rate your skill level with a mobile device?

0 = never used a mobile device, 1 = beginner, 2 = competent

2. How confident are you in using a mobile device?

0 = Not confident and usually need help, 1 = it depends on the task, 2 = confident

We validated these two digital literacy questions (DL-2Q) against the Mobile Device Proficiency Questionnaire, which has 16 questions (MDPQ-16) covering eight domains relating to mobile devices: basics, communication, data and file storage, internet, calendar, entertainment, privacy, and troubleshooting and software management. Figure 1 shows a positive association between the two measures, MDPQ-16 and DL-2Q. Importantly, the MDPQ-16 responses to each of the categories for the DL-2Q questions were significantly distinct and separate. This suggests that the DL-2Q can be a useful measure to easily assess mobile skill and mobile confidence of older adults attending audiology clinics.

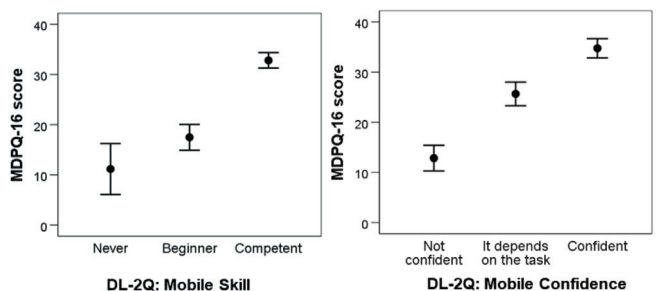


Figure 1: Means and 95% CIs of Mobile Device Proficiency Questionnaire (MDPQ-16) scores by DL-2Q category.

Digital literacy in older adults

One interesting finding was the relationship of digital literacy with age. Not surprisingly, we saw that as age increased, digital literacy reduced ($r=-.45, p<.001$). However, this was driven mainly by the younger (52-64y) and older (86-92y) people, where all the younger people had MDPQ-16 scores better than the MDPQ-16 midpoint, and all but two of the older group had MDPQ-16 scores poorer than the midpoint (Figure 2).

In between, for those in the middle group aged 65-85 years, three-quarters (76%) had digital proficiency scores better than the midpoint. However, in this age-group, only 56% reported they were confident or that their confidence depended on the task they were completing. This suggests that in about 20% of participants, there was a mismatch between competence and confidence, where some reported being competent but lacking confidence.

The study also showed that there was a significant effect of income, where those with higher incomes had better digital literacy according to the MDPQ-16. There were no significant effects of gender, hearing loss, or education. There were similar effects for the DL-2Q question on mobile skill, although no demographic effects were observed on mobile confidence.

Our recommendation

We recommend using the DL-2Q to quickly gauge, using two brief validated questions, the digital literacy of adults over 65 years who attend audiology clinics. This can establish who is 'tech-savvy', and who is not. For those who may lack confidence, the hearing care professional can personalise their care and talk through any concerns with them. For example, a number of behaviour change techniques have already been identified for use in audiology for those using smartphone apps with hearing aids [4]. These include enablement, goal setting, reframing perceptions toward technology, and addressing patient educational needs.

Our take-home message is: don't assume that older people are not competent or confident in using mobile technologies. Let's give everyone the opportunity to take advantage of all that new digital technologies have to offer.

References

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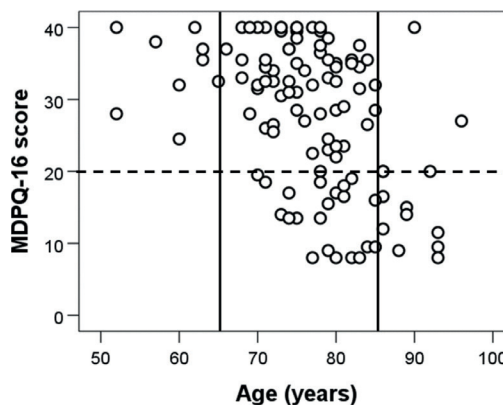


Figure 2: Number of participants in segments comparing Mobile Device Proficiency Questionnaire (MDPQ-16) scores and age. The dotted line is the midpoint for the MDPQ-16. The vertical lines show the results for the 65–85-year-olds.

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