

Perspectives on the use of digital health technologies in cardiology among specialists from an ESC member country: results from a survey

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Background: Digital health technologies (DHTs) have the potential of facilitating both physicians' and patients' lives with regards to the diagnosis, treatment and follow-up of cardiovascular disease. A huge acceleration in relevant research has been noted particularly after the COVID-19 pandemic.

Purpose: The goal of this study was to determine the reasons for using DHTs in cardiology, as well as the perceived barriers to its use.

Methods: An electronic survey with 43 question multiple-choice questionnaire was conducted between January 10-March 3, 2022. National cardiac society member cardiology fellows in training and specialists were contacted via e-mail (n=2789).

Results: 308/2789 (11.04%) subjects responded to the survey (72.40% males, 62.01% aged 30–44 years). 42.53% and 44.81% were affiliated with university hospitals and state hospitals, respectively. 88/297 (29.63%) stated having at least good understanding of DHTs in cardiology. 44.16% utilized smart devices to track their own health status. 117/290 (40.34%) and 193/299 (64.55%) used social media platforms to share medical in-

formation with their patients and other physicians, respectively. WhatsApp and Instagram were the most popular platforms for sharing with patients (92/117, 78.63% and 48/117, 41.03%), while WhatsApp and Twitter were the most popular platforms for sharing with other physicians (151/193, 78.24% and 91/193, 47.15%). Considerations and recommendation/utilization patterns of DHTs by physicians are summarized in Table 1. Perceived barriers to the use of DHTs in cardiology is shown on Figure 1 (A: physician-related, B: patient-related, C: technical).

Conclusion: Findings suggest that nearly half of the physicians use DHTs to collect their own health data and use social media to disseminate health information. The majority of physicians believe that DHT is beneficial to both themselves and their patients, and that DHT use in cardiology has increased as a result of the COVID-19 pandemic. To overcome the challenges to the use of DHTs in cardiology, a multilayered collaborative effort involving patient and professional organizations, as well as technical stakeholders and lawmakers, is required.

n, (%) of respondents	Wearable devices (including smartwatches)	Cardiac implantable electronic device telemonitorization	Mobile health applications (on smart phones)	Teleconsultation/televisit technologies	Information management using DHTs (such as decision support systems)
Consider beneficial for physicians	248/296, 83.78%	235/288, 81.60%	229/270, 84.81%	158/259, 61.00%	201/254, 79.13%
Consider beneficial for patients	250/296, 84.46%	245/288, 85.07%	223/270, 82.59%	165/259, 63.71%	-
Recommend to their patients	212/296 (71.62%)	152/288 (52.78%)	192/270 (71.11%)	111/259 (42.86%)	119/254 (46.85%)*
Report more frequent recommendations after the emergence of COVID-19 pandemic	132/210 (62.86%)	74/150 (49.33%)	126/191 (65.97%)	84/110 (76.36%)	89/119 (74.79%)**
Most common causes of use	<ul style="list-style-type: none"> step-counter (211/238, 88.66%) non-ECG-based heart rate measurement (165/238, 69.33%) ECG recording (144/238, 60.50%) 	<ul style="list-style-type: none"> routine control (70/97, 72.16%) 	<ul style="list-style-type: none"> step-count (188/206, 91.26%) non-ECG-based heart rate measurement (169/206, 82.04%) calorie tracking (110/206, 53.40%) 	<ul style="list-style-type: none"> follow-up visits (99/103, 96.12%) 	-

*stands for 'utilization by physicians'

**stands for 'increased utilization frequency after the emergence of COVID-19 pandemic'

Table 1

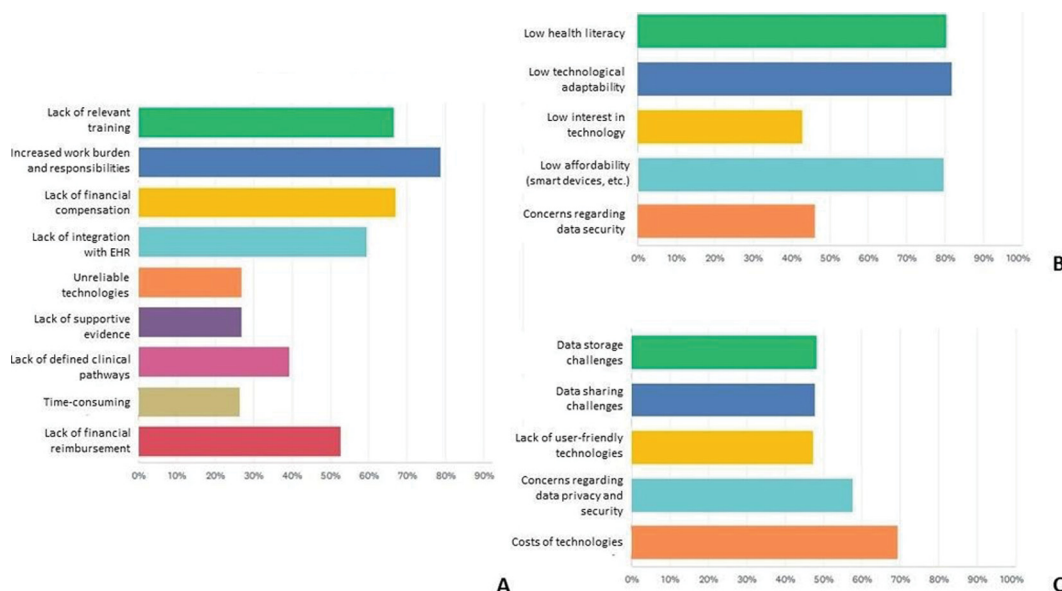


Figure 1