# Digital health services as part of healthcare provision: usage patterns and perspectives among the general public

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The ongoing digitalisation of the healthcare system is opening up new opportunities to support prevention, diagnosis, treatment and the organisation of care (Kernebeck et al., 2021). Digital health services cover a broad spectrum, ranging from communication and organisational applications to interventional functions such as monitoring, coaching or measures to support treatment. In Germany, structural conditions have been created in recent years to integrate digital solutions more closely into standard care, including through the introduction of the electronic patient record (ePA) (Strauch & Broich, 2025). Despite these developments, there is a clear discrepancy among the general public between awareness of digital services and their actual use (Brand et al., 2024; Breil et al., 2021). Data representative of the general population show that a large proportion of the population searches for health information online, whilst interactive or care-related applications are used significantly less frequently (Brand et al., 2024). Overall, digital health services are not used uniformly: low-threshold applications for information-seeking or organisational support are comparatively widespread, whereas more complex, intervention-based applications with a potential impact on health-related outcomes show significantly lower usage rates (Dratva et al., 2024).

>> In addition to structural conditions, individual and socio-economic factors play a significant role in access to and use of digital technologies. Studies show that younger people and those with higher levels of education and income use digital health services more frequently than older or socio-economically disadvantaged groups – a phenomenon discussed in the context of the so-called ‘digital divide’ (Breil et al., 2021; Theobald et al., 2025). International analyses indicate that educational attainment, health literacy and access to digital devicesare keydeterminants of usage (Breil et al., 2021). It has also been shown for Germany that digital health literacy is significantly associated with the use of such services (Theobald et al., 2025). These differences have direct implications for the reach and effectiveness of digital health solutions in delivering care.

**Summary**

**Introduction:** Digitalisation opens up new opportunities for the further development of healthcare. The aim of the study was to analyse usage patterns, openness to different types of digital applications, and development potential from the population’s perspective.

**Methods:** The study is based on a representative online survey (n = 4,150) of individuals aged 18 to 75, stratified by gender, age, federal state and educational level. The survey captured the use of digital technologies and potential barriers. The analysis was descriptive.

**Results:** Low-threshold care-supporting functions are used by a significant proportion of the population, particularly for communication and organisation. At the same time, there is a high level of openness towards interventional applications: 84% already use these or can envisage using them. Connected devices are primarily used to track physical activity, heart rate and sleep. Health insurance providers, as well as doctors and psychotherapists, are cited as key drivers. Reservations relate to transparency, personalisation and data protection.

**Discussion:** The results highlight significant potential for the development of digital health services. Greater integration into existing healthcare structures could translate the current openness into wider adoption.

**Keywords**

Digital health services, usage patterns, representative population survey, integration into healthcare

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Against this background, there remains a need for clarification regarding current usage patterns, openness towards different types of applications, and the perceived barriers among the population. Based on a representative online survey, this study examines the prevalence and use of digital health services among the German-speaking resident population. In particular, the analysis focuses on (1) the use of digital technologies for recording and documenting health-related parameters, (2) differences between care-supporting and interventional application types, and (3) perceived barriers to digital health services. The aim is to systematically characterise existing usage patterns and, from this, derive insights into potential development prospects for digital healthcare services from the population's perspective.

## Methodology

In this study, a population-representative online survey was conducted. Sampling was quota-based according to gender, age, federal state and educational level to ensure a population-representative distribution. The questionnaire included questions on health status and healthcare provision, as well as on digital health services, particularly regarding usage, acceptance and perceived potential.

Data collection took place online via an access panel, with participant recruitment carried out by the panel provider. All participants were informed about the study objectives and the anonymity of their data during the survey and were provided with the contact details of the study management. The target population comprised the German-speaking resident population aged between 18 and 75. Exclusion criteria were a lack of consent to participate in the study and a lack of knowledge regarding one's own health insurance status.

The collected data sets were subjected to a plausibility check. Cases with conspicuous or inconsistent information were excluded, for example where the completion time was very short (< 5 minutes) or where information on height and weight was implausible. Missing values were

excluded from the analyses, so that the analysis population comprised only fully completed questionnaires. Statistical analysis was descriptive and carried out using SPSS (version 31).

## Results

### Sociodemographic characteristics of the total sample

Following a plausibility check of the received data sets, only fully and consistently completed questionnaires were included in the analysis. During the survey period from 12 to 19 January 2026, a total of n = 4,150 people completed the questionnaire in full. The gender distribution was almost balanced in line with the specified quotas (50.1% female, 49.7% male, 0.2% diverse). Theage distribution of the sample was varied: 17.5% of respondents were aged 18–29, 17.2% aged 30–39, 16.8% aged 40–49, 22.0% aged 50–59, 18.4% aged 60–69 and 8.0% aged 70–75.

The educational attainment also corresponded to the predefined quotas: the largest proportions were accounted for by A-levels (32.5%), primary school leaving certificates (29.2%) and lower secondary school leaving certificates (25.2%); other qualifications together accounted for 12.9%. Similarly, insurance status reflected the specified proportions: 90.6% of participants were covered by statutory health insurance (GKV), 9.1% by private health insurance (PKV) and 0.3% by other forms of insurance (e.g. free medical care).

The prevalence of selected, self-reported conditions in the sample is shown in Figure 1. Medically diagnosed conditions currently under treatment were most frequently reported for high blood pressure (23%), back pain (13%) and depression (11%). Proportions of respondents with a medical diagnosis but no current treatment were reported for, amongst others, back pain (12%) and knee pain (8%). Symptoms without a current medical diagnosis were reported in particular for back pain (22%), sleep disorders (22%), knee pain (12%) and depression (9%) (Fig. 1).

## Use of digital health technologies

Some of the respondents use connected health devices. The most widespread is the use of smartwatches (30%), followed by smart scales (16%), fitness trackers (13%) and smart blood pressure monitors (12%). Other applications are less common, including smart blood glucose monitors (6%), smart rings (3%) and other health devices (4%).

### Prevalence of selected conditions in the sample by diagnosis and treatment status

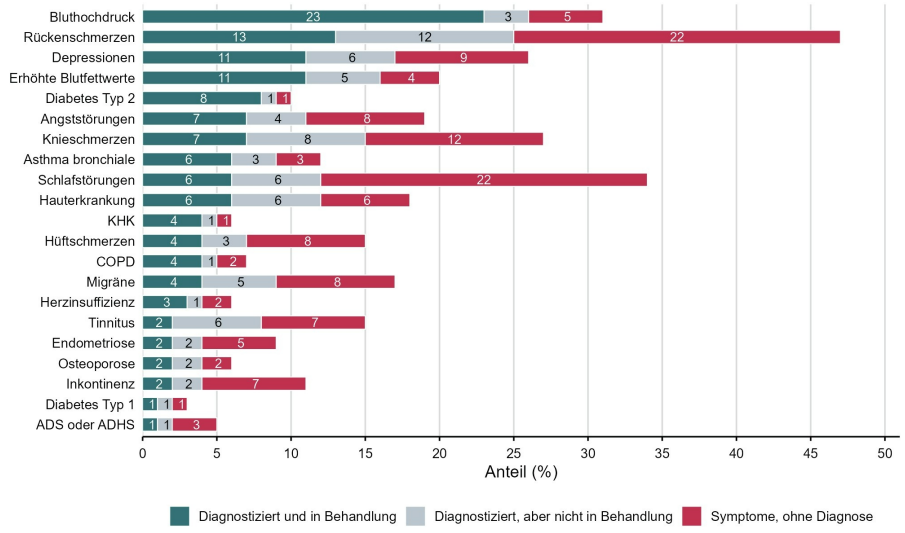



***Fig. 1:*** **Prevalence of selected conditions in the sample by diagnosis and treatment status. Own illustration.**

Digital technologies are used regularly (at least once a week) by some of the respondents to track health-related parameters. The most common metrics tracked are physical activity or steps (49%), followed by pulse or heart rate (34%), sport or exercise (34%) and sleep (30%). Body weight and body fat are also regularly recorded by 29% of respondents. Regular recording of blood pressure (11%) and blood sugar (6%) is less common. The distribution of frequency of use among respondents who report recording such data (i.e. not ‘never’) is shown in Figure 2.

The use of digital technologies for the structured recording of health-related data is lower. Regular use ranges between 10% and 17%, depending on the parameter. The menstrual cycle is documented most frequently (17%), followed by medication intake, calorie intake and stress levels (14% each), as well as mood (11%) and pain (10%).

The electronic health record is known to the majority (91%) of those with statutory health insurance (n = 3,773). Active use is reported by 19% of respondents.

## Use of digital health services by application type and access channels

Figure 3 shows the use of digital health services by application type. The highest proportions of regular and occasional use are found in care-supporting, non-interventional application types such as communication functions (11% and 25% respectively) and organisational functions (8% and 16% respectively). For all other application types with a potential direct influence on health status (e.g. monitoring, coaching, therapy), the proportions of regular use range between 2% and 5%, and occasional use between 6% and 13% (Fig. 3).

The proportion of respondents who state that they can envisage using these applications ranges between 42% and 61% across all application types. Higher proportions are particularly evident for data transmission (61%), knowledge transfer (59%) and therapy support and physical intervention (56% each).

When considering only interventional application types (knowledge transfer, monitoring, data transmission, assessment, therapy support, physical and psychological intervention, and coaching), 31% of respondents state that they already use at least one of these functions. A further 53% can envisage using them, whilst 16% reject their use. This results in 84% of respondentseither already using theseapplication types or being able to envisage using them. In relation to the German resident population, this corresponds to approximately 50.7 million people.

## Frequency of use of digital technologies for recording health-related parameters

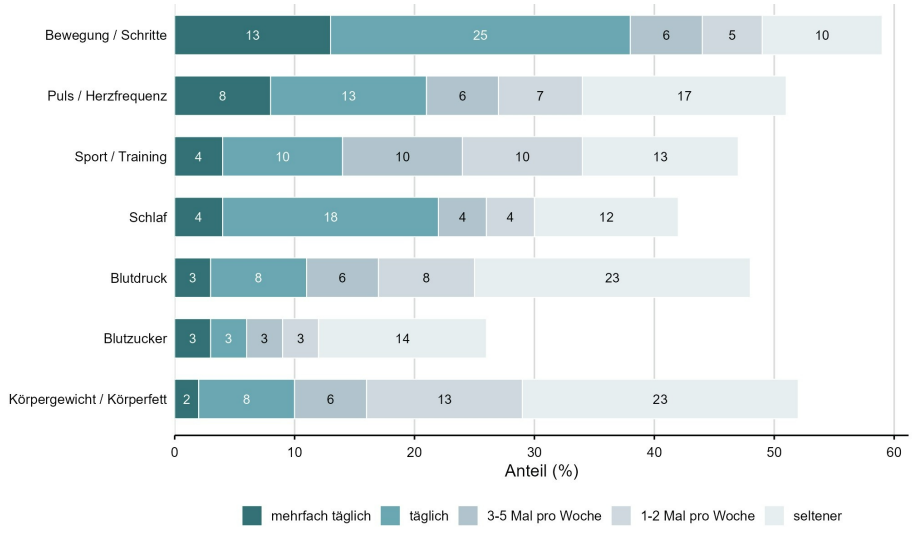



***Fig. 2:*** **Frequency of use of digital technologies for recording health-related parameters. Own illustration.**

## Use of digital health services by application type

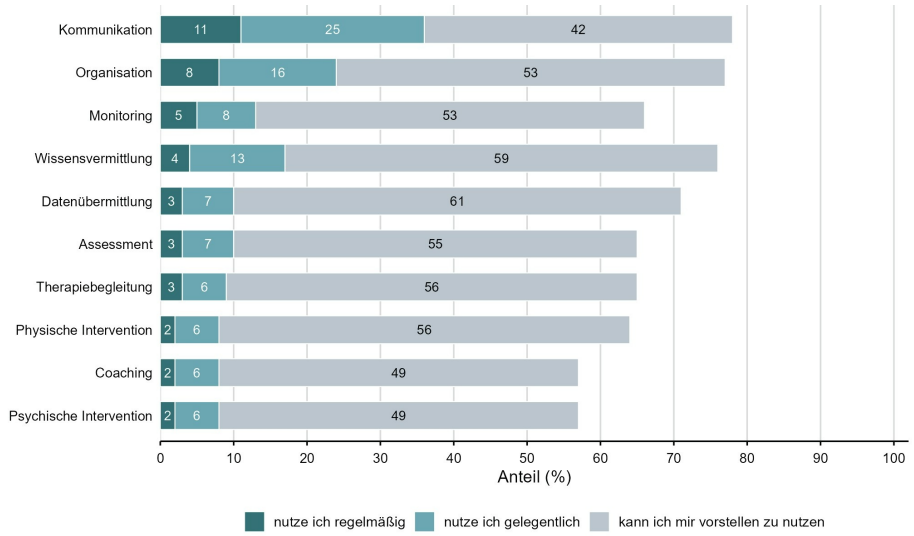



***Fig. 3:*** **Use of digital health services by application type. Own illustration.**

Among active users of digital health services (n = 1,299), 52% state that they first became aware of a digital health service through their health insurance provider; this makes health insurance the most frequently cited source of interest. Other routes of access include doctors and psychotherapists (28% each) as well as personal internet research (28%).

Personal circles (26%) and social media (19%) are also mentioned, whilst traditional media (16%), app stores (15%) and pharmacies (14%) are cited less frequently.

Among respondents who can envisage using such services (n = 1,409), similar findings emerge regarding the factors influencing the decision to use them. Recommendations from doctors or psychotherapists (83% agreement), health insurance providers (73%) and one's personal social circle (71%) are cited particularly frequently as influencing factors.

## Perceived barriers to digital health services

The main barriers to the use of digital health services are shown in Figure 4. Assessments of potential barriers to use differ only slightly between active and potential users, although potential users sometimes show higher agreement rates. It should be noted that, for potential users, these are not barriers actually experienced, but rather anticipated obstacles or fears prior to potential use. Among the most frequently cited aspects are a perceived lack of personalisation in the solutions (55% vs. 62%), the presumed dominance of economic interests over health and well-being (54% vs. 62%), and concerns about health-related omnipresence due to continuous information, reminders and analyses (54% vs. 62%). Data protection concerns are also expressed by a significant proportion of respondents (55% vs. 60%). Whilst active users can base these assessments at least partly on concrete experiences, the responses from potential users primarily reflect expectations and assumptions that appear relevant in the context of future use.

Among those who are opposed, higher levels of agreement are evident across almost all the barriers surveyed. Particularly frequently cited are theperceived dominance of economic interests (61%), concerns about the doctor-patient relationship being compromised (60%) and data protection concerns (60%).

## Perceived barriers to digital health services by user group

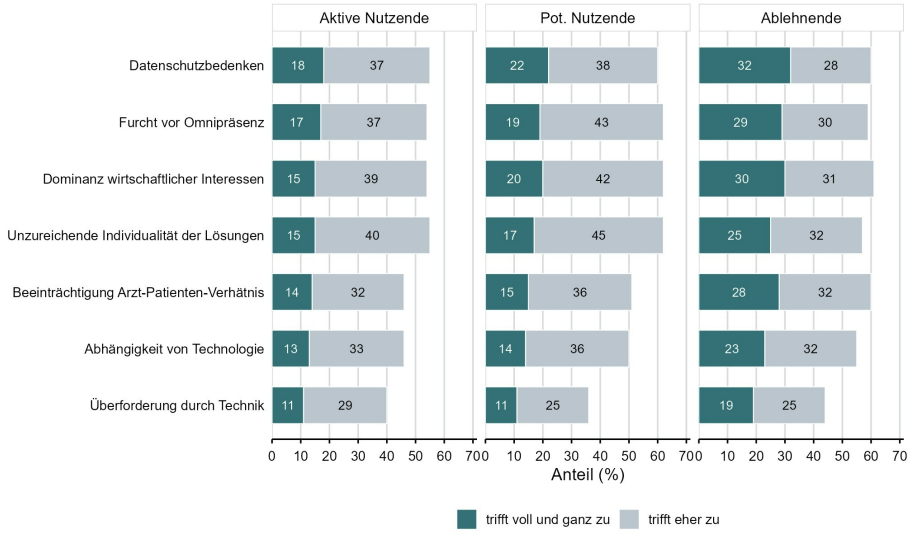



***Fig. 4:*** **Perceived barriers to digital health services by user group. Own illustration.**

## Discussion

The present findings reveal a clear discrepancy between the actual use of digital health services and the general willingness to use such applications in the future. Whilst low-threshold and organisational functions in particular are already used by a significant proportion of the population, the use of interventional application types with a potentially direct impact on health status remains comparatively low to date. At the same time, a large proportion of respondents express openness to using such services in the future. This tension points to an existing implementation gap, where the focus is less on a fundamental rejection of digital health solutions and more on their as yet insufficient integration into existing care processes, a lack of active recommendation by trusted actors, and gaps in information and guidance (Schlieter et al., 2021).

The widespread use of digital technologies to track individual health parameters, such as physical activity, sleep or heart rate, is consistent with previous empirical findings, according to which digital devices and applications are primarily used for monitoring and information purposes, whilst more complex, interventional services are used less frequently (Theobald et al., 2025). Other population-based studies also show that the use of digital health applications is generally heterogeneous and concentrates in particular on low-threshold functions, whilst health-effective interventions have so far been utilised only to a limited extent (Theobald et al., 2025).

Against this backdrop, the high willingness to use interventional functions observed in the present study is remarkable. It suggests that there is considerable potential for development, which, however, has not yet been anywhere near fully exploited. The combination of low current usage and, at the same time, high openness suggests that structural conditions, information gaps or issues of trust could play a central role. One possible explanation lies in socio-economic and competence-related factors. Studies show that digital health literacy, educational attainment and age are associated with the use of digital health services (Cramer et al., 2025; Muellmann, 2024). Individuals with lower digital health literacy more frequently report difficulties in accessing digital information and perceive such services as less trustworthy or more difficult to access. Although the present study did not conduct subgroup analyses on this point, these findings suggest that access conditions and digital literacy are important determinants of usage.

Furthermore, the identified barriers—in particular privacy concerns, doubts about prioritising health over economic interests, and concerns about the doctor-patient relationship being compromised—point to the central importance of trust. These results are consistent with international systematic reviews that identify trust as a key predictor of acceptance, adoption and perceived benefits of digital health services (Adjekum et al., 2018; Catapan et al., 2025).

Perceived risks regarding data security and privacy can significantly influence the intention to use such services and thus represent relevant barriers to implementation. At the same time, studies show that the recommendation and involvement of healthcare professionals can strengthen trust in digital health solutions (Catapan et al., 2025). This

corresponds with the present findings, according to which doctors and psychotherapists were cited by respondents as particularly influential actors in the decision to use such services. Greater integration of digital applications into existing care processes could therefore represent an important starting point for reducing existing implementation gaps.

However, methodological caution is required when interpreting the extrapolated usage figures. The analysis is based on self-reported data from an online panel. Furthermore, the sample comprises only individuals aged between 18 and 75. The extrapolated figures should therefore be understood as indicative orders of magnitude and not as representative prevalence estimates for the general population.

## Limitations

The study is based on a cross-sectional online survey and is therefore subject to potential selection and self-reporting bias. Despite quota sampling, an over-representation of digitally savvy individuals cannot be ruled out. Due to the descriptive design, no causal relationships can be inferred. Socio-economic distinctions were deliberately not explored in depth in this publication, but offer a further analytical perspective for future evaluations. Aspects of the so-called digital divide, such as differences by age, education, income or digital health literacy, should be specifically investigated in future studies in order to provide a more nuanced picture of potential inequalities in access to digital healthcare services. <<

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**Authors' declaration**

The authors declare that, apart from their activities at _fbeta, there are no conflicts of interest.

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**Digital Health Solutions as Part of Healthcare Delivery: Usage Patterns and Population Perspectives**

**Introduction:** Digitalisation offers new opportunities to advance healthcare delivery. This study assessed usage patterns, openness towards different types of digital health applications, and development potential from a population perspective.

**Methods:** A population-representative online survey (n = 4,150) was conducted among individuals aged 18–75 years using quota sampling based on gender, age, federal state, and education level. Data covered use of digital technologies, application types, and perceived barriers. Analyses were descriptive.

**Results:** Low-threshold, supportive functions are used by a significant proportion of the population, particularly for communication and organisational purposes. At the same time, 84% either already use or can imagine using intervention-oriented applications. Connected devices are mainly used to track physical activity, heart rate, and sleep. Health insurers, as well as doctors and psychotherapists, are key sources of access. Reported concerns relate primarily to transparency, personalisation, and data protection.

**Discussion:** The findings indicate substantial development potential for digital health solutions. Stronger integration into established care structures may help translate existing openness into broader adoption.

**Keywords**

Digital health solutions, Usage patterns, Population-representative survey, Care integration



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