GERMAN NATIONAL REPORT
SUMMARY

DIGITAL, HEALTH, AND DATA LITERACY IN GERMANY

49% of German citizens aged 16-74 have **at least basic digital skills**

Digital proficiency **drops** significantly **with age**

- 16-29: 58%
- 25-54: 56%
- 55-64: 42%
- 65-74: 28%

Digital skills are more or less **equal** between men and women in Germany

Digital literacy is most **influenced by**:

Place of Birth

Employment

Income

DIGITAL LITERACY

Most **difficulties** are perceived in:

Health Care

& **Disease prevention**

58,8 % of German population has **poor health literacy skills**

75% of German population interviewees has **low literacy in assessing health information**

Health literacy is most **influenced by**:

Education

Migratory backgound

Social status

HEALTH LITERACY

77% of German citizens have **basic data skills**

Data literacy is (slightly) **influenced by**:

Education

Age

Migratory background

There are no remarkable differences in data literacy regarding gender

DATA LITERACY

Low education and income negatively affect:

Nutrition

Sport

Lifestyle

Lower health expectancy is clearly linked to:

Lower income

Unemployment is linked to:

Low education

& **Migratory background**

Mental sufferings are linked to:

Low education

SOCIETAL AND ECONOMIC IMPACTS

Results of the desk research

Digital literacy

According to a recent study from 2021 by the University of Bielefeld, the average health literacy of the German population has deteriorated within the last seven years. It was found that about 58.8% of the German population have only low health literacy (Schaeffer et al. 2021). At the same time, the study showed that health literacy in Germany is unequally distributed with regard to socio-demographic variables. People with a low level of education (78.3%), people with a low social status (71.9%), people aged 65 and over (65.1%) and those with a migration background (63.1%) in particular have low health literacy levels (Schaeffer et al. 2021).

It is also interesting that so-called navigational digital literacy (called data literacy in this report), i.e. the ability to obtain and understand information, is very low in Germany. Schaeffer et al. found that about 83% of the respondents had low navigational health literacy (Schaeffer et al. 2021). Differences in the competencies with regard to various subcategories were also found. The subcategories of health promotion, prevention and disease management/health care were examined. The proportion of respondents with low competences was smallest in the area of health care (45.2%). At the same time, a significantly larger proportion of the population had low health literacy in the areas of prevention (54.8%) and health promotion (67.7%) (Schaeffer et al. 2021).

Health literacy

According to WHO data, the average life expectancy in 2019 was about 81.5 years. With regard to the last comparable value at EU level from 2017 (78.3), Germany is thus slightly above the European average (WHO 2022). However, differences can be observed when taking into account various demographic and socio-economic factors. For example, a data report by the Federal Statistical Office found that the average life expectancy for men and women also increases with rising income. For example, men with 100-150% of the median income have a 5-year higher life expectancy than men with less than 60% of the median income (see Table 4) (DESTATIS 2021).

The respective level of education of a person is also a factor influencing individual health. The data report, which refers to survey data from the last German socio-economic panel, shows that people with a low level of education are more likely to suffer from mental or physical ailments. With regard to physical limitations, the risk for men with low education compared to the group with a high level of education is higher by a factor of 2.3, for women by about 2.2 (DESTATIS 2021).

With regard to mental suffering, the factor was about two times higher for men and women with a low level of education compared to the group of people with a high level of education (DESTATIS 2021). That this also has an effect on the health behaviour of the groups of people is shown, for example, by the smoking behaviour of the two groups of people. People with a low level of education have a 1.9 (men) and 2.5 (women) times higher risk of smoking (DESTATIS 2021). Of course, age also plays an important role in individual health. For example, cardiovascular diseases increase continuously with age. The same applies to so-called widespread diseases such as diabetes (RKI 2012).

Data literacy

In Germany, there are clear differences with regard to information and data skills when demographic and socio-economic variables are taken into account. For example, 83% of 16 to 24-year-olds in Germany stated that they had at least basic data skills. This proportion decreases steadily over the higher age groups (see Table 3). The greatest differences across the rising age groups of the partner countries in the project are found in Portugal (Eurostat 2021). As with digital skills, the level of education also plays an important role. For example, 89% of people with a high level of education stated that they had basic or above basic data skills, while this proportion decreased significantly in the groups of people with medium (77%) as well as low formal education (61%) (Eurostat 2021).

Similar to digital literacy, there are no serious differences regarding gender in terms of data literacy. Across all participating partner countries, this difference only amounts to 2-3% (Eurostat 2021). It is interesting to note that the differences with regard to place of birth are also present here, but they are significantly smaller than in the comparison of digital skills. Thus, 79% of the natives have basic or above basic data skills, while in the groups of EU foreigners 70% and in the non-EU foreigners 67% of the respondents had at minimum basic data skills.

Societal and economic impacts

In Germany differences for individual health can be observed when taking into account various demographic and socio-economic factors. For example, a data report by the Federal Statistical Office found that the average life expectancy for men and women also increases with rising income. For example, men with 100-150% of the median income have a 5-year higher life expectancy than men with less than 60% of the median income (see Table 4) (DESTATIS 2021). The respective level of education of a person is also a factor influencing individual health. The data report, which refers to survey data from the last German socio-economic panel, shows that people with a low level of education are more likely to suffer from mental or physical ailments. With regard to physical limitations, the risk for men with low education compared to the group with a high level of education is higher by a factor of 2.3, for women by about 2.2 (DESTATIS 2021).

However, the educational level is furthermore a decisive factor for cultural participation in all participating partner countries as well as in the entire European Union. In Germany, for example, 86.4% of people with a high level of education participate in sporting or cultural activities. In the group of people with a medium level of education, this makes up 70.3% and in the group of people with a low level of education 60% of the people. In the European Union as a whole, this ratio is even more pronounced, with a range of about 42% between the highest and the lowest educational group (Eurostat 2019). Another important factor influencing participation in socio-cultural activities is income. The proportion of people participating in all the countries shown rises continuously with increasing income.

In Germany, about 85.4% of 25–54-year-olds were in employment in 2019, while this share drops to about 72.7% from the 55-64 age group onwards. Beyond retirement age up to 69, about 17.9% were still working in Germany and in the age group 70-74, about 8.2% of the respondents still reported to be in employment (BPB 2020). The ratio between workers in the age groups 25-54 and those between 55 and 65 is very similar regarding the figures of the participating partner countries.

Thus, the differences in employment of the above-mentioned age groups in all partner countries as well as in the EU are approximately between 15 and 20%. The increasing age of workers therefore has an influence on the state of employment. This is particularly evident for older workers aged 55 and over.

In addition to age, however, it is above all the level of education that has a decisive influence on the individual employment status. Thus, according to figures from Eurostat, 87.8% of people with a high level of education were employed in Germany in 2021. With regard to people with a medium level of education (80.4%) and a low level of education (61.9%), the share of employed people drops slightly.

## Results of the interviews

Digital, health, and data literacy and identified gaps

The interviews with experts together with the information that was gathered within the desk research, some major information and skill gaps have been identified in Germany. Besides skill differences between age groups or regarding other socioeconomic factors the experts also mentioned specific individual biographies and technical experiences that can have a strong influence on how to understand and make use of digital (health) information.

It got apparent that the interviewees as well as a big share of the German population is not using digital health platforms or other health related services on the internet to get health information. The most counted answer in this regard from our interviewees was to just "google it". What is interesting in this regard is that most of our respondents already knew that information from the internet is not always reliable. This led us to the assumption, which was also shared by the experts, that a big share of our interviewees as well as in the whole population, do not know about existing digital health information offers in Germany.

This was also the case for other health related services such as the electronic patient record. Even if such services are already available, most of the people in Germany as well as none of our respondents, really know about their existence. This leads to a promotion and education gap for digital health services in Germany. At the same time, the above-mentioned problem seems to be connected with another knowledge gap in the area of health data competences. None of our respondents knew exactly where their medical data was stored and all of them could only guess that it must be stored at GPs and health insurance companies.

The same was true with regard to the question of who can access their data and how personal data can be requested and deleted. In this context the Experts also stated that there was a lack of information for patients. Further education would be needed to introduce many people to digital services. In this context, a lack of health information and data competence is possibly related to a lack of competence about existing digital health services as well as how to use them properly.
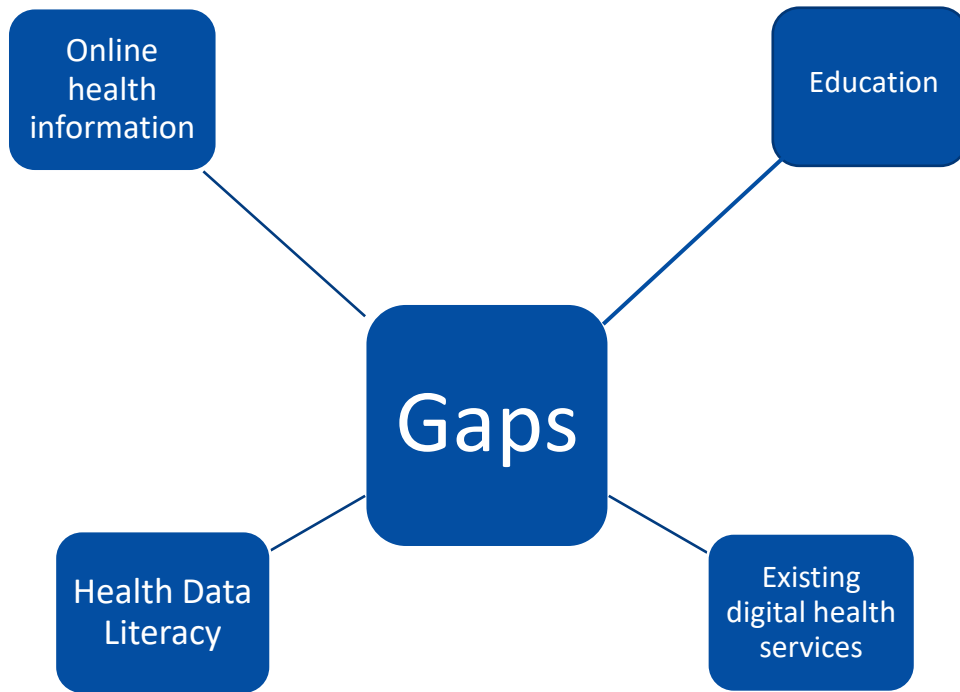
The (digital) Healthcare system

The German health system is very complex in its functioning due to the system of federal states and the principle of self-administration. There are many different payers and actors that interact in the German health system. These include, for example, the health insurance funds as payers, the Association of Statutory Health Insurance Physicians and Dentists, the hospital association, the chambers of the various physicians and psychotherapists, the public health services or the pharmacy associations (IQWiG 2022).

As mentioned above, the costs for statutory health insurance are shared by employees and employers and also depend on the income of the insured. The general contribution rate for statutory health insurance is currently 14.6%, half of which is paid by employees and half by employers. However, each federal state can levy its own additional contribution, which is why the contribution can vary between 14.95% and 17.1% (Finanzen.de 2022).

Since the beginning of 2021, Germany has had the so-called electronic patient file (ePA), which can be seen as the first major advance towards a digitalised healthcare system. Since then, patients have the right to have such a file created electronically by their respective health insurer, although keeping such a file is not obligatory. The ePA is created by the health insurance companies at the request of the patients, but they must also fill it with data themselves. This includes examination findings, diagnoses or doctor's letters. Data that is not available digitally must be converted into digital form by the patients themselves by scanning or photographing it. Also, the patients themselves determine which data they want to disclose to which actor and which data will be deleted (Bundesministerium für Gesundheit 2021).

The TRIO project

Many interviewees were not personally interested in the use of an online learning platform to improve their digital health and data literacy at this moment, but most saw the creation of one as positive and indicated they would use it if they ever felt they needed to in the future. The type of information that people prefer varies from person to person, but most often a combination of methods is preferred, like text and images, or videos and exercises.

Two participants, who work as researchers in the field, indicated that there already exist several platforms offering digital and/or health literacy training material, but these do not seem to meet the needs of the target groups, as those services already existing do not create enough synergies and run too much side by side. It is therefore necessary that the TRIO solution clearly defines which target groups it is meant for, and that it meets the needs and demands of these target groups. In addition, the e-learning course needs to be known and easily accessible. Furthermore, the experts mentioned examined that it would be very fruitful to exchange knowledge and practices with those services and initiatives already existing.

Suggested learning needs target groups

As essential needs the experts mentioned the importance of tailor-made and adapted information and learning offers for different groups of people. Thus, it is important to provide information in different languages and as barrier-free as possible and to address all the different target groups of the learning offer. At the same time, it was mentioned that a better networking of different existing solutions and offers in the area of health data and literacy was needed. As an example, solutions from the area of care management could be linked with those of discharge management and thus create significantly more synergies.

At the same time, there would currently exist a high demand for digital solutions that could be used by all people in a field or a group of actors in the same way, e.g. an app that can be used by all medical professionals throughout Germany. This from the perspective of Dr Michael Doh would also make it much easier and more effective to explain and communicate technical innovations and functions. At the same time, as already mentioned, the experts spoke out in favour of more information for patients. In this context, Dr Alexander May stated that information campaigns and political marketing would have to be used more intensively for this purpose.

In view of the interviews and scientific data gathered, it can therefore be seen that people in Germany have learning needs in several competence areas listed here. These include digital health competencies in general, which includes the ability to use digital health services and information as well as their evaluation. Although all respondents within our small sample used a health app, statistically only 21% of the population do so (Schaeffer et al. 2021). At the same time, none of the respondents used other online health services. Therefore, another important learning need is represented by education about existing information services such as the ePA or the German health portal and their use. In this context, there is also a learning need for all age groups to be able to understand and correctly evaluate online information as well as information from doctors' reports, which a novel learning offer in the TRIO project must increasingly address.

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