

Digital health applications in the general practioner context of care – an empirical analysis of patient acceptance

Objectives

Many patients already use health apps that, for example, help them take their medication regularly or document their blood sugar levels. [1]
In order to anchor this trend in law and provide high-quality support, the Digital Supply Act was passed on December 19, 2019 and came into force immediately in Germany. [2]
The content of the law includes, among other things, the introduction of “apps on prescription”, so called DiGAs. Such apps can be prescribed by doctors. The costs for this are covered by the statutory health insurance. [3]
We aimed to survey the state of knowledge about DiGAs and the acceptance of such apps among patients in the GP care collective.

Results

Basic Data
A total of 400 anonymized patient surveys were planned for the doctoral project. After the end of data collection, 340 questionnaires could be analysed. The average age of the patients was 51 years, with a range from 18 years to 79 years. A total of 191 women (56%) and 146 men (43%) took part in the survey. In 3 cases (1%) no gender was specified. None of the participating patients used a DiGA, while the willingness to use a DiGA was about 70%. Only 23% of the respondents were already familiar with DiGAs.

DiGA indications
The indication for DiGAs, i.e. the patient had a disease for which an approved digital health application already existed, was present in 196 participants out of a total of 335 participants who answered this question, which corresponds to approximately 59 %.
The following table provides an overview of the indications and their frequencies that existed at the time of data collection (see table 1).

Disease	Number of patients
Alcohol addiction	3
Breast cancer	4
Cancer of the cervix, uterus or ovaries	2
Claustrophobia (with and without panic disorder), social anxiety and panic disorder or generalized anxiety disorder	24
Depression	28
Diabetes mellitus types 1 and 2	31
Diseases of the kneecap	30
Extreme overweight	31
Hip joint arthrosis	25
Migraines	26
Minor stroke or brain bleeding	5
Multiple sclerosis	7
Sleep disorders	60
Smoking	44
Tinnitus	26
Tongue or lip cancer	0

Table 1: Indication frequencies

IT affinity
In order to be able to show the IT affinity of the study participants, they were divided into low and high IT affinity. A high IT affinity was defined as owning one's own, non-work smartphone and using digital media for at least 3 hours. Conversely, low IT affinity was defined as a usage time of less than 3 hours, regardless of whether a smartphone was owned. 168 study participants showed a high IT affinity, the average age was 45 years. 80% could imagine working with a DiGA. In the group with low IT affinity, the average age of the 172 study participants was 58 years. In comparison, the willingness to use a DiGA was 60%.

Important criteria when using DiGA from the perspective of potential users
In the questionnaire, the participants were asked to rate the importance of criteria when using DiGA. The range was divided into 1 point (unimportant) to 6 points (very important). The following criteria were queried:
– Manageable time expenditure
– Previous testing of the app through an approval process at an authority
– Visually appealing display
– Positive effect on the disease
– Good comprehensibility and ease of use

A positive effect on the disease and good comprehensibility and ease of use were given a median of 6 points (very important) in the overall evaluation. A previous check of the app through an approval process at an authority and a manageable amount of time spent using the app were just as important to the respondents with 5 points. The criterion of a visually appealing presentation was rated with a median of 4 points.

Concerns when using DiGA from the user's perspective
The participants had the opportunity to rate aspects mentioned in the questionnaire based on concerns when using DiGA. This was divided into 1 point (no concerns) to 6 points (major concerns). The following concerns were queried:
– Security of data from unauthorized access
– Security of data from access by the health insurance company
– Security of data from access by the doctor
– Deterioration of the doctor-patient relationship
– Side effects
– Worsening of a disease
– Problems with financing from the health insurance company
– Problems using the app

References

[1] BMG. (2020/04/22). Ärzte sollen Apps verschreiben können, Accessed on 2023/09/13 at Bundesministerium für Gesundheit: <https://www.bundesgesundheitsministerium.de/digitale-versorgung-gesetz.html>
[2] Jorzig/Matusiewicz. (2021). Digitale Gesundheitsanwendungen (DiGA) Rechtliche Grundlagen, innovative Technologien und smarte Köpfe. Heidelberg: medhochzwei.
[3] BfArM. (2023/04/23). Das Fast-Track-Verfahren für digitale Gesundheitsanwendungen (DiGA) nach § 139e SGB. Accessed on 2023/09/13 at https://www.bfarm.de/SharedDocs/Downloads/DE/Medizinprodukte/diga_leitfaden.pdf?__blob=publicationFile

Methods

We conducted an anonymous survey with 340 patients from 2021/10/01 to 2021/12/26. The structured, predominantly (semi-) quantitative questionnaire, contained questions about basic characteristics of patients, their IT affinity and existing DiGA indications, the level of knowledge about DiGAs and the acceptance of their use, with existing concerns and expectations. The following questions were of relevance:
Are digital health applications known among the patient population? To what extent is there a willingness to use apps among patients both with and without relevant underlying diseases? Are there differences in terms of gender, age, basic income and IT affinity? What concerns, but also what advantages, do patients see when using digital health applications?
The project was advised and positively assessed by the Ethics Committee of the University of Cologne (Az. 21-1307, DRKS00025860).

The participants saw the greatest concern, with a rating of 5 points, in the security of their data from unauthorized access. This was rated equally in all age groups. Whereas the security of their data against access by the health insurance company or the doctor was given 3 and 2 points respectively. A deterioration in the doctor-patient relationship was rated as 2 points. The query about concerns about side effects when using DiGA and the query about a possible worsening of an illness also received 2 points. Problems with using an app were rated 3 points in the overall analysis. Problems with the financing of DiGA on the part of the health insurance company were rated at a median of 3 points.

Subgroup analyses
The results of various subgroup analyzes are presented below:

Subgroup Age
Participants from the age group of 18-30 showed the highest willingness to use a DiGA at 83%. In comparison, it was 77% among 31-60 year olds and 52% among 61-80 year olds. Conversely, it was shown that the indication for DiGA increases with age. From 44% among 18-30 year olds, over 59% among 31-60 year olds, to 64% in the highest age group up to 80 years old. 20-25% of respondents in all age groups were previously familiar with DiGA (see figure1).

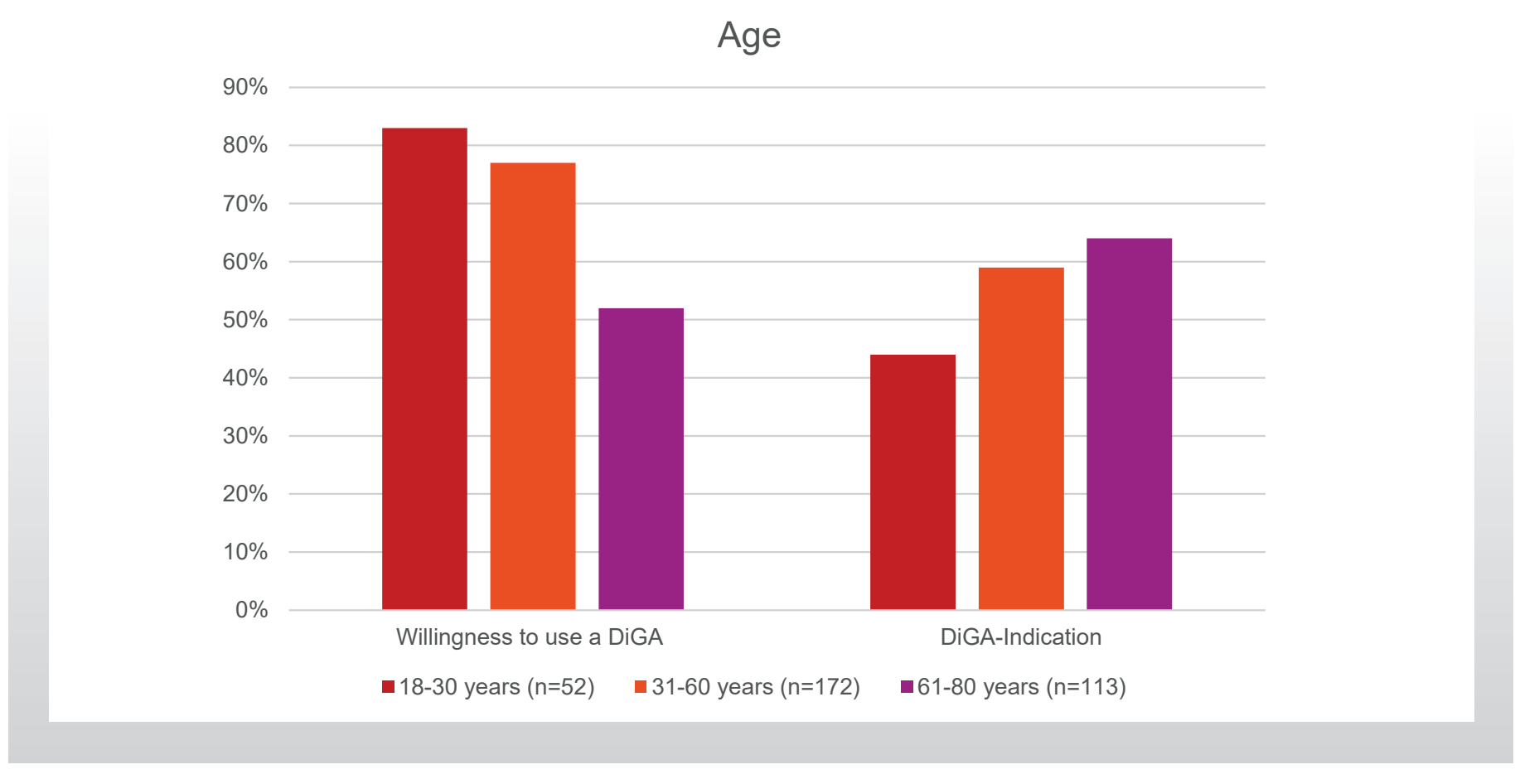


Fig. 1: Subgroup Age

Subgroup Gender
On average, the female participants were 50 years old. 67% showed willingness to use DiGA, with an indication being present in 63% of those surveyed. 28% of the participants were already familiar with DiGA. Male participants had an average age of 53 years. The willingness to use DiGA was 73%, and 52% of those surveyed had an indication (see figure 2). 17% had already heard of DiGA.

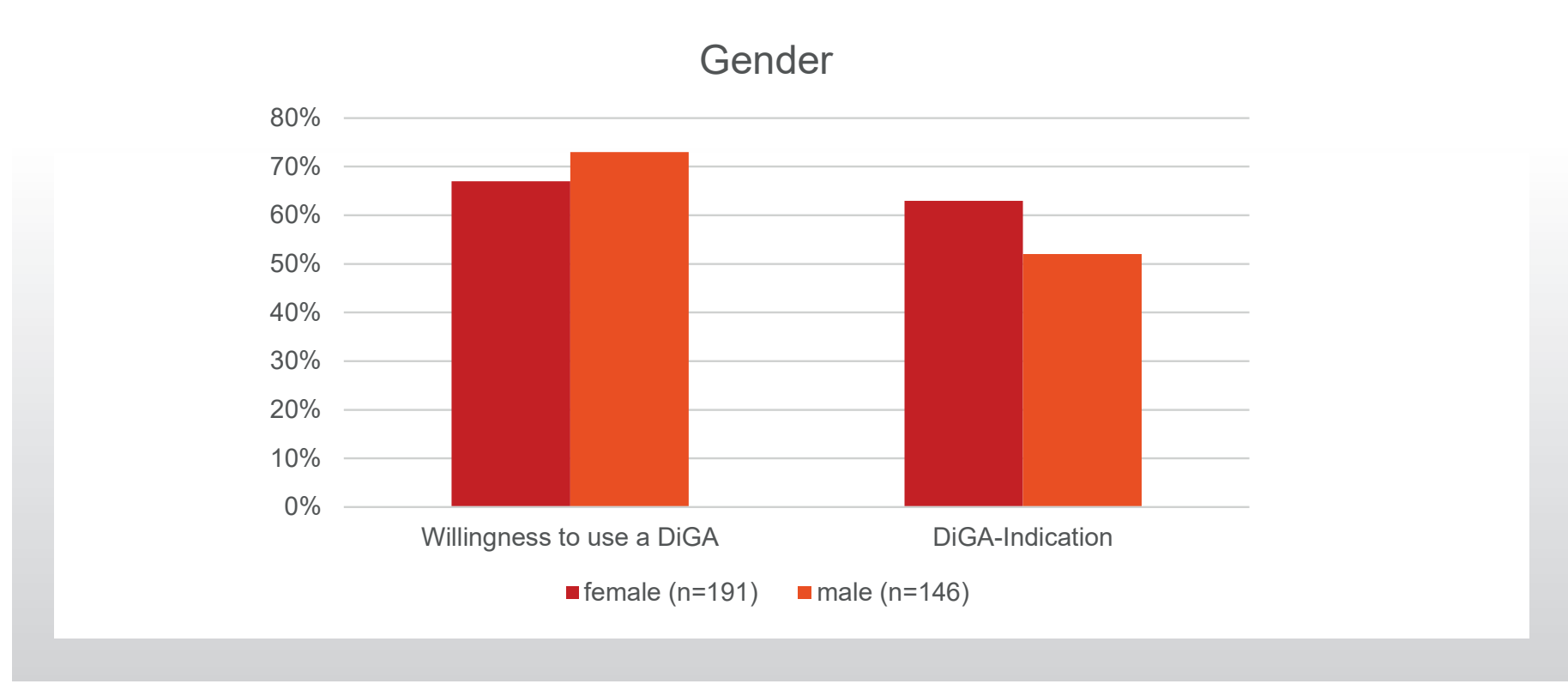


Fig. 2: Subgroup Gender

Subgroup Educational qualification
Secondary school ("Hauptschule") graduates were on average 61 years old, 55% were willing to use DiGA, and 67% had one or more indications for DiGA. Participants who had completed secondary school ("Realschule") were on average 50 years old. 70% of you could imagine using DiGA. An indication was present in 64%. The average age of participants with a high school diploma was 43 years. 79% were willing to use DiGA, with 40% having an indication. Respondents with a university degree had an average age of 47 years and showed a readiness for DiGA of 81%. 46% with this educational qualification had DiGA indications (see figure 3).

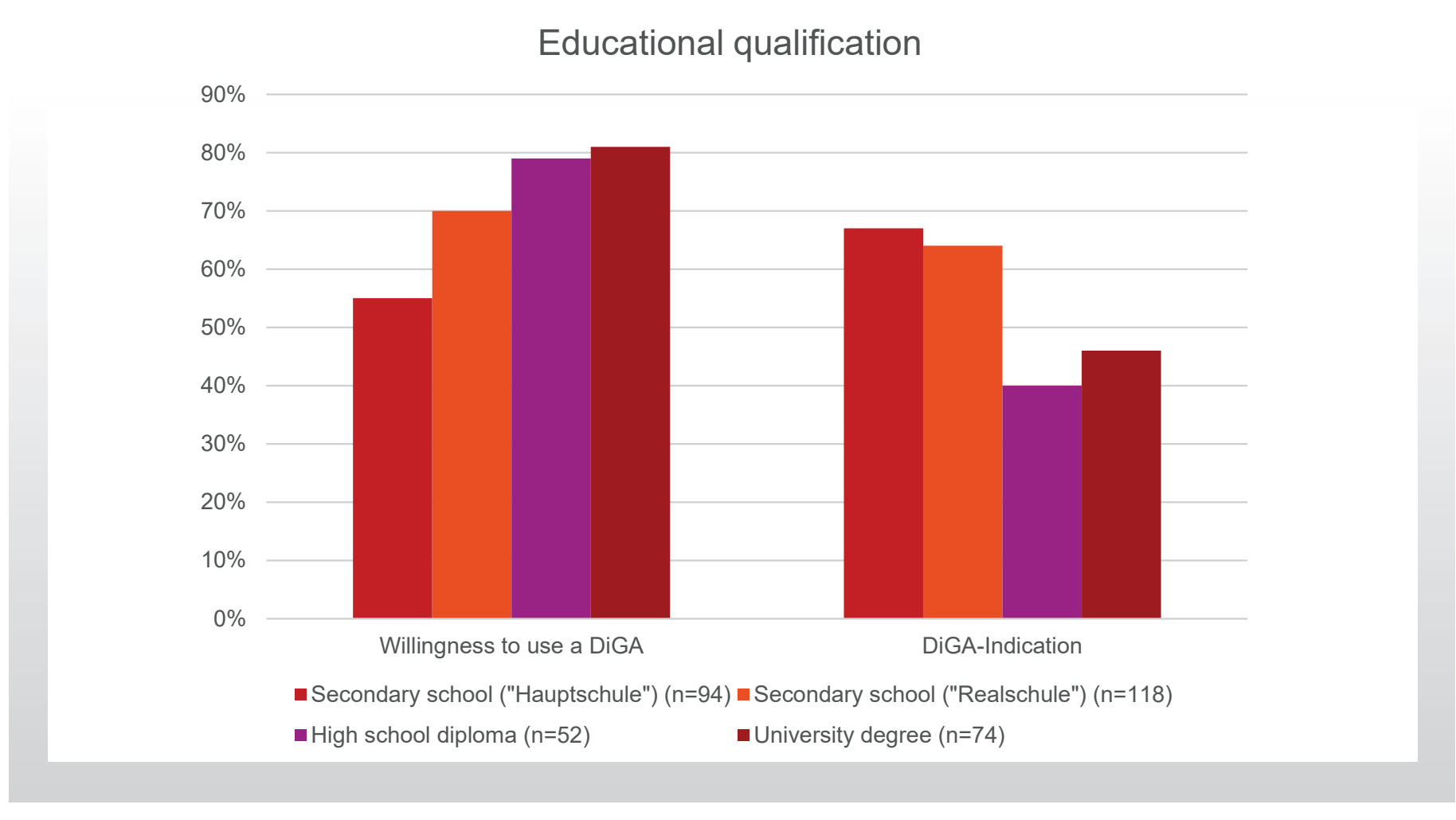


Fig. 3: Subgroup Educational qualification

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Conclusions

Currently, the willingness to use DiGAs seems to be high among patients. Knowledge about DiGAs is limited, although many patients have indications for which an app would be available. In order to make use for as many patients as possible, education seems to be very important. This should simply include the existence of DiGAs, but also the possible positive effects and data security. The participants expressed the greatest concerns when dealing with DiGA with regard to the security of their data from unauthorized access.
When looking at the DiGA affinity in the different age groups, it was shown that older patients were less willing to use digital media and products. The fact that members of younger age groups show a high willingness to use digital applications appears to correlate with by the stated higher IT affinity.
So far, DiGA have only been reimbursed by statutory health insurance companies. The analysis by insurance status shows, however, that both those with statutory health insurance and those with private insurance can imagine using DiGA to a similar extent in the future. What seems interesting in this regard is that those with higher incomes have the opportunity to be included in the private health insurance. Since DiGA readiness correlates positively with higher educational qualifications, it would seem sensible for private insurances to cover the reimbursement of DiGA in the future.
One of the limitations of this work is that it only covers the patient perspective. The prescribing doctor is surely a relevant part of the system as well.

Subgroup Occupation
The average age of employees was 46 years. Their willingness to use digital health applications was 77%, with 56% indicating an indication for a DiGA. 24% of employees were previously familiar with DiGA. Pensioners were on average 68 years old and had a DiGA willingness of 47%. 65% had an indication and 22% had prior knowledge of DiGA. On average, the age of civil servants was 50 years, and 71% of them could imagine using DiGA. An indication was present in 49%. 23% of civil servants were already familiar with DiGA. The willingness to use DiGA amongst self-employed was 78%, with an indication being present in 43%. The prior awareness of DiGA was 21%. 85% of pupils/students would be willing to use DiGA. 46% of this group had an indication. 30% of them were already familiar with DiGA. The average age of housewife/-men was 55 years. The willingness to use DiGA and the indication for DiGA were 72%. 27% previously familiar with DiGA. Trainees were on average 27 years old and showed a willingness to use DiGA of 88%. Half of the 8 trainees had an indication. They were already familiar with DiGA with 13% (see figure 4).

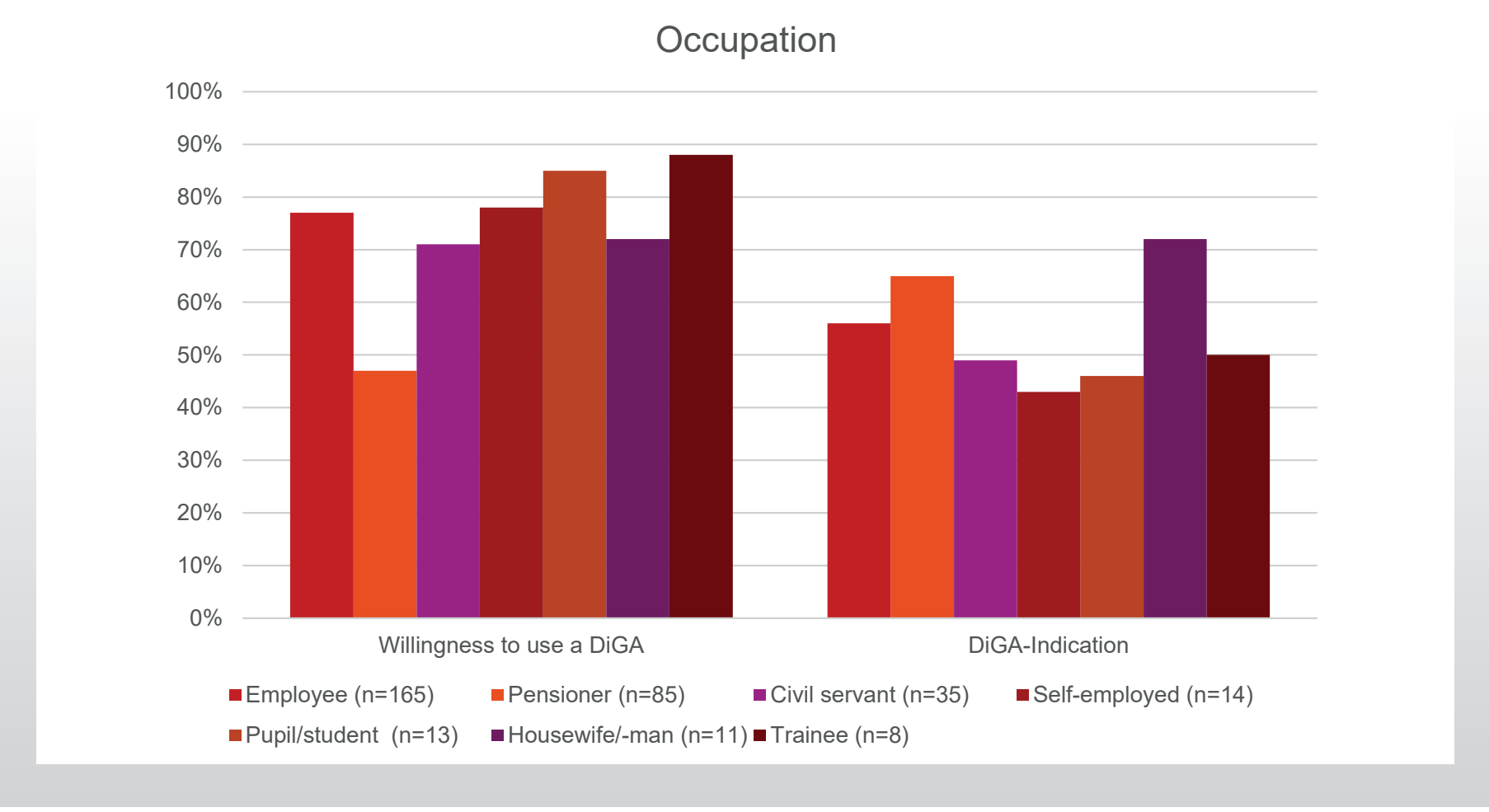


Fig. 4: Subgroup Occupation

Subgroup Insurance status
On average, those with statutory health insurance were 50 years old and showed a 70% willingness to use DiGA. 61% had indications for which a DiGA already existed. The average age of privately insured was 55 years. 71% were willing to use DiGA, 45% had an indication (see figure 5).

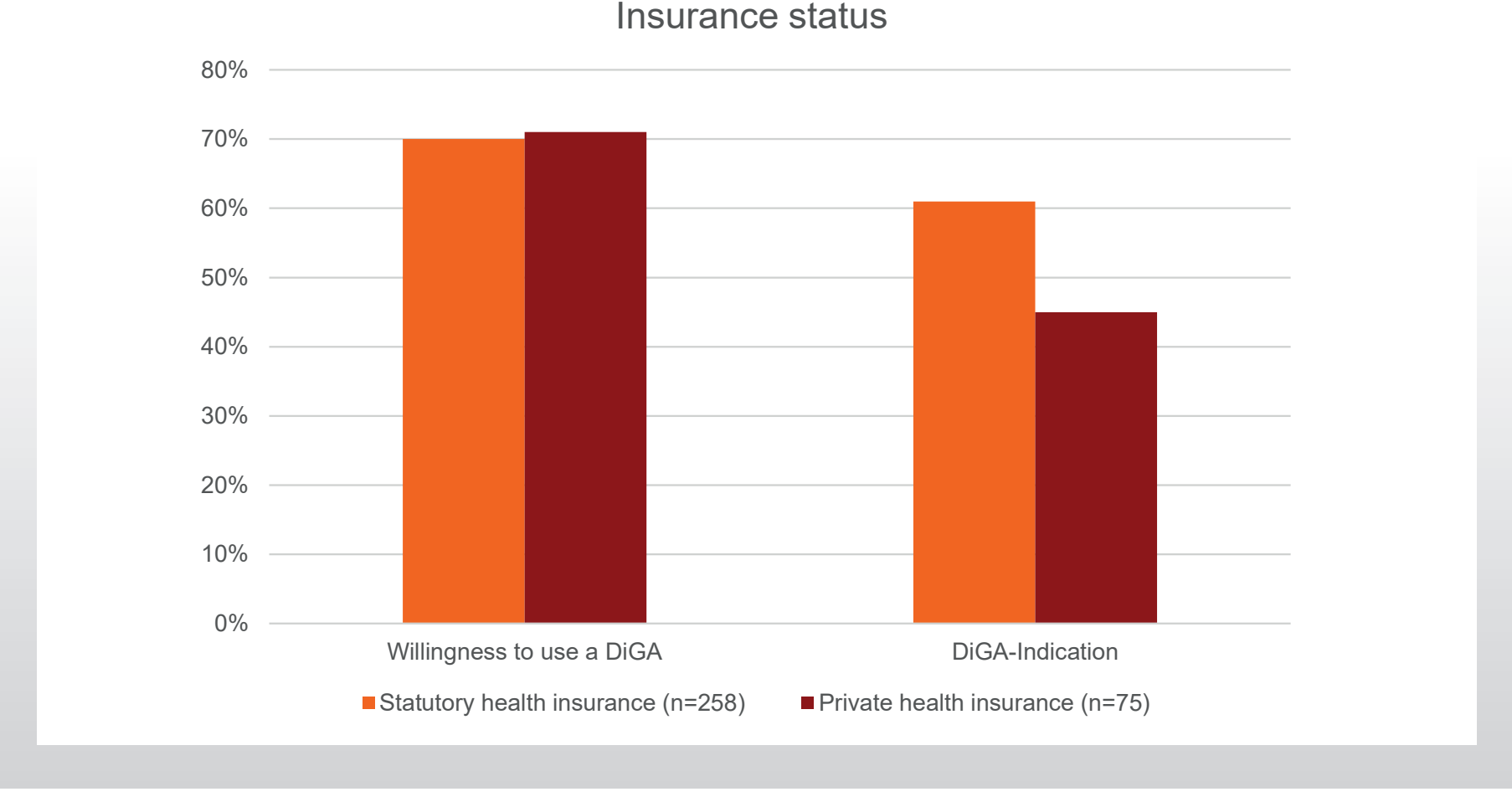


Fig. 5: Subgroup Insurance status

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