Article

Consumer Preferences for Health Services Offered by Health Insurance Companies in Germany

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Abstract: German health insurance companies increasingly strive to position themselves as health partners to their customers to improve customers' health and contain costs. However, there is uncertainty about customers' preferences for health services offered by health insurance companies. Therefore, this paper studies consumer preferences for health services that are or could be provided by health insurance companies in Germany. An online survey was conducted using two stated preference techniques to collect and analyze the data (namely, rating and ranking of health services considered by insurance companies). A sample of 880 German health insurance customers between 18 and 65 years old filled out the online questionnaire, of which 860 submitted complete responses. Ordinal logistic regression analysis was used for the rating and ranking. Preliminary examinations, care management, and health programs were the three health services most important to the respondents. The results suggest that people want their health insurance to support them with preventive health services that offer direct therapeutic value and not just informational, economic, access-related, or convenience-related benefits. These preferences for health services are homogeneous for most subgroups of the population, implying that health insurance companies could consider an overall strategy to address these preferences for all clients by focusing on the important health services.

Keywords: consumer preferences; health services; rating; ranking; Germany; health insurance

1. Introduction

Health services offered by health insurance companies directly or through third-party providers are becoming important for the German health insurance sector. Such services focus on health promotion and disease prevention, thus aiming to improve the health status of the customers. They are provided by physician networks, health maintenance programs, health portals, information sites, telemedicine, and health telephones (Neusius et al. 2022). The increased attention to these services can be attributed to the growth of the health market, which now includes privately financed health services, fitness and wellness products, over-the-counter drugs (OTC), nutrition, and health tourism (Kickbusch 2007; Teichert and Mühlbach 2016; Henke 2009; Halber 2017; Schnell-Inderst et al. 2011). Another driver is the increased awareness of the German population of the importance of lifestyle factors (Soyez et al. 2012; Streit 2004). Therefore, many German health insurance companies strive to position themselves as health partners for their customers instead of only being the payer of health care costs. This could enable health insurance companies to improve the health of policyholders, build a strong connection with them, and lower costs (Neusius et al. 2022; Bell 2022; Kampmann and Karaman 2021).

Despite the growing importance of these health services and the motivation of health insurance companies to position themselves as health partners, there is considerable uncertainty about what health services customers prefer. Furthermore, some insurers experience

low uptake rates of their health service offers (Neusius et al. 2022). While there is extensive research on the topic of consumer preferences for insurance policies in Germany, no research about preferences for health services offered by health insurance companies exists in the literature (Pendzialek et al. 2016; Bock et al. 2014, 2016; Pfarr and Schmid 2015; Greß et al. 2002; Hajek et al. 2020). Much of the literature focuses on the switching behavior of customers and the reasons that lead to the decision to switch or to remain in a health insurance plan. Here, price is often found to be the most important factor, followed by coverage, quality dimensions, and type of health services (Pendzialek et al. 2016; Greß et al. 2002). Hence, knowledge about consumer preferences for health services offered by health insurance companies is needed.

Insurance companies could use such knowledge to develop and design their health services portfolio to better meet the needs of customers and increase their market share. In addition, more effective public health interventions and prevention programs could be developed by governments and researchers because they can be better tailored to people's needs. An increase in the uptake of preventive health services could also reduce overall health care costs and increase population health (Meier et al. 2015; Neumann et al. 2011; Stock et al. 2008).

Moreover, evidence about the preferences of German health insurance customers is scientifically relevant because it adds to the knowledge of consumer preferences in health care derived from patient preference methods. Outcome research in health care has relied predominantly on health-related quality of life (HR-QoL) and QALY methods (Bridges et al. 2007). While these methods are essential for patient-reported outcomes measures (PROMs), patient preference methods have some crucial advantages for understanding the patient's point of view and are, therefore, increasingly used in health care (Bridges et al. 2007). The latter type of method is far more grounded in economic theory, more patient-centered, and more flexible because it can focus on the total value of medical interventions as well as the marginal effect of a single factor (Bridges 2003; Ryan and Farrar 2000; Bridges and Jones 2007). Hence, evidence generated through patient preference methods can be used to design and provide more patient-centered care and advance their acceptability in the scientific community.

This study aims to elicit consumer preferences for health services that are offered by health insurance companies in Germany directly or through third-party providers. The research approach is quantitative. First, possible health services are identified through an overview of the literature and the websites of health insurance companies in Germany. Next, a survey is designed and conducted. The methodology section presents further details on data collection and analysis.

2. Theory

2.1. Preferences

This study focuses on the preferences of German health insurance customers for health services provided by health insurance companies. Preferences can be defined as subjective comparative evaluations. Preferences are evaluations because they are concerned with issues of value and not of fact. Furthermore, they are subjective because they are associated with an agent that might be an individual or a group of people, and they do not express objective or otherwise impersonal statements. Finally, preferences are comparative in that they indicate the evaluation of an item relative to another one (Hansson and Grüne-Yanoff 2022).

Preference theory proposes that consumers can rank different consumption possibilities according to their desirability (Samuelson 1938; Thurstone 1927). In other words, consumers can decide that one alternative is strictly more attractive to them than another or that they are indifferent between the two bundles. The concept of preferences assumes that individuals prefer one item (or health service) over another if they obtain more utility or less disutility from it. The utilities of different items cannot be observed by researchers. However, ranking, rating, or choices stated by individuals can indicate the underlying util-

ity or value that individuals associate with each item (Ali and Ronaldson 2012). Consumers
are expected to choose, give the highest rank, or give the highest rate to the alternative that
they associate with the highest utility.

Preference theory provides the basis for economics and decision sciences (Dyer and
Jia 2013). Some fundamental assumptions of how preferences work are completeness (for
all x and y, x > y or y > x, or both), reflexivity (any alternative is at least as good as itself),
and transitivity (if x ≥ y and y ≥ z, then x ≥ z (Edwards 1954, 1961; Luce and Suppes 1965;
Samuelson 1953)). The assumptions are, however, not unchallenged and remain subject to
scrutiny (Tversky 1969; Kahneman and Tversky 1979; Anand 1987).

2.2. Stated and Revealed Preferences

Preference elicitation methods can be divided into stated preference methods and
revealed preference methods. The stated preference method asks individuals to state their
preferences in a survey considering a hypothetical market situation. This means trade-offs
must be made that reveal the value (or utility) that is associated with an item. On the
contrary, revealed preference methods use actual consumer behavior in real-life market
settings for the valuation of a set of alternatives. This reveals the trade-offs that people
have actually made (Ali and Ronaldson 2012).

Stated preference methods are increasingly used in health economics due to their
ability to elicit preferences for products and services that are not yet on the market (Bridges
and Jones 2007; Bridges 2003). They also avoid the problem of selection bias associated with
actual market data. Moreover, these methods are able to capture a holistic and personal
picture of patients' preferences (Bridges 2003). Common methods include interviews or
surveys with ranking or rating tasks, discrete choice experiments, contingent valuations,
and budget allocation games. However, critics note that respondents might behave differ-
ently in real market situations as opposed to hypothetical situations (Ali and Ronaldson
2012; Donaldson et al. 1997; Ryan and Farrar 2000).

While revealed preferences may provide a more accurate description of the behavior
of consumers, they are restricted to the existing markets for products and services, and
they are associated with selection bias. Furthermore, due to the widespread nature of
public and private health insurance in many countries, consumers are seldom confronted
with market prices or the ability to choose. Additionally, subsidized prices and a lack of
consumer knowledge limit the usefulness of revealed preference methods. As a result,
stated preferences are more widely used in the health care field (Ali and Ronaldson 2012).

2.3. Cardinal and Ordinal Preferences

Stated preference elicitation methods can be categorized as either cardinal or ordinal.
Within the framework of cardinal preferences, consumers give a direct measure of the
degree to which one alternative is preferred to the other. The Likert scale, the visual analog
scale, the time trade-off, and the standard gamble are examples of preference research
methods that measure cardinal preferences. In contrast, ordinal methods emphasize the
relative ranking or ordering of alternatives rather than determining precise differences in
preference strength. Common tools include discrete choice experiments, ranking exercises,
and ordered categorical responses (Ali and Ronaldson 2012).

Until the ordinal revolution of the 1930s, hedonistic cardinal utility was a fundamental
concept in economics, which states that decisions are made based on the individual's
pursuit of pleasure and that the difference in quantity of pleasure obtained from different
alternatives is an important factor influencing decisions (Köbberling 2006; Hansson and
Grüne-Yanoff 2022). This idea was rejected as a result of the ordinal revolution, which was
promoted, among others, by Hicks and Allen (1934), making ordinal utility the dominant
view in economics. Today, cardinal utility is sometimes stated to be an outdated concept
(Köbberling 2006). However, cardinal utility is accepted in certain contexts, such as decision
making under risk (von Neumann and Morgenstern 1944), utilitarian welfare evaluations
(Harsanyi 1955), case-based decision theory (Gilboa et al. 2002), or discounted utilities for

intertemporal evaluations (Samuelson 1937), and it is increasingly included in the study of consumer choices (Hands 2010).

Preference differences are key to obtaining cardinal utility. This concept assumes that individuals can determine the utility that one bundle gives them, and they can also compare it to utility associated with another bundle. This comparison, together with suitable assumptions, can give cardinal utility (Köbberling 2006).

Alt (1936) argued that the crucial assumption is that people are able to make comparisons between preference differences through introspection and experience. A rejection of this assumption supports the ordinal view, while its acceptance supports the cardinal view. Many papers have been published on the acceptance of this assumption, signaling an increased interest in cardinal utility (Gilboa and Schmeidler 2001; Loomes and Sugden 1982; Rabin 2000; Sen 1993; Tinbergen 1991). In health economics, cardinal methods are primarily used to produce quantitative weights for health states.

There is no consensus within the field of health economics as to what the most appropriate method is (Craig et al. 2009). Methods vary in how they are administered, how easily they are understood by participants, the assumptions they are based upon, the scale measurement they employ, the way they handle trade-offs, whether they involve props and diagrams, the time provided for reflection, and whether they are conducted as individual or group interviews (Brazier et al. 2016). There is also evidence that different methods produce different preferences (Lloyd 2003).

Some authors argue that the commonly used cardinal elicitation methods (such as ranking) may not be the most appropriate due to cognitive complexity, difficulty of administration, potential contamination by risk attitudes, gambling effects, risk aversion, time preference, duration effects, and possible violation of the underlying expected utility theory (Ali and Ronaldson 2012).

Ordinal methods can overcome some of the limitations of cardinal methods and produce more consistent responses (Ratcliffe et al. 2009). They are also easier to administer and to comprehend while also providing greater reliability through a reduction of measurement error (Brazier et al. 2016). Thus, the popularity of these methods has increased in recent years (Flynn et al. 2007; Salomon 2003). Ali and Ronaldson (2012) argue, however, that ordinal approaches also have their methodological challenges. For example, complete ranking exercises, like the one employed in this study, can also be too complex for respondents. Furthermore, participants might find it hard to differentiate between less-preferred alternatives. Thus, there is a risk of bias at the bottom end of the ranking (Ali and Ronaldson 2012).

2.4. Development of Health Service Package

There is no peer-reviewed research about the preferences of insured persons for health services provided by health insurance companies. However, research about the preferences for health insurance policies provides insights on possible health services to include in this study. Some attributes of insurance policies tested in these studies include coverage for preventive services or health programs (Pendzialek et al. 2016; Chakraborty et al. 1994; Bell 2022; Neusius et al. 2022).

Specially, Pendzialek et al. (2016) suggest that the second and third most important attributes are additional benefits, such as household help or health courses, and managed care programs, respectively. Levels for additional benefits are dental cleaning, homeopathy, household help, travel vaccination, health courses, and cancer screening (Pendzialek et al. 2016). Regarding managed care, the levels "managed care for quality" and "managed care for efficiency" were used. Levels for the attributes "additional customer service" were medical hotline, customer service at home, personal representative, health with treatment failure, help with doctor choice, and case manager (Pendzialek et al. 2016).

Chakraborty et al. (1994) also performed research about how consumers choose health insurance and included the attributes of wellness and education programs (once a month free of charge; once a month EUR 5 co-payment; not offered), coverage for preventive care (full coverage, 80% coverage, not covered), and 24 h a day medical consultation by phone

(from a doctor, from a nurse, not available). These health services are used for designing the choice set for this study.

Regarding the grey literature, customers were asked which services they had previously used (Bell 2022). Moreover, a study by Deloitte also asked members of the board of directors of 19 private German health insurance companies which of their offered health services are used the most (Neusius et al. 2022). The health services listed and used in the surveys can be used because their use in the surveys suggests that they are at least somewhat important decision making criteria for customers. A complete list of the identified 10 health services can be found in Appendix A. This list is used to determine the preferences of the respondents.

3. Results

The number of respondents was 880, of whom 860 completed all of the questions. Thus, the analysis was carried out using a sample of 860 respondents. Information about the socio-demographic characteristics is presented in Table 1.

Table 1. Characteristics of respondents stratified by income.

Characteristics	Value Range		Total N = 880 *	Income < EUR 60,000 Gross per Year N = 526	Income > EUR 60,000 Gross per Year N = 354
Age	Years (18–65)	Mean Median (SD)	41.2500 39.0000 12.10651	43.3422 42.0000 13.93771	38.1412 37.0000 7.73553
Gender	1 = male 2 = female 3 = diverse 4 = not specified	n (%) n (%) n (%) n (%)	479 (54.4) 400 (45.5) 1 (0.1) 0 (0)	236 (44.9) 290 (55.1) 0 (0) 0 (0)	243 (68.6) 110 (31.1) 1 (0.3) 0 (0)
Current occupation	1 = Employee with gross annual salary of >EUR 66,600, i.e., above the compulsory insurance limit 2 = Employee with gross annual salary of <EUR 66,600, i.e., below the compulsory insurance limit 3 = Civil servant 4 = Self-employed 5 = Student 6 = Unemployed 7 = Other 8 = Pensioner	n (%) n (%) n (%) n (%) n (%) n (%) n (%) n (%)	289 (32.8) 338 (38.4) 35 (4.0) 51 (5.8) 36 (4.1) 33 (3.8) 49 (5.6) 49 (5.6)	41 (7.8) 290 (55.1) 16 (3.0) 20 (3.8) 32 (6.1) 31 (5.9) 48 (9.1) 48 (9.1)	248 (70.1) 48 (13.6) 19 (5.4) 31 (8.8) 4 (1.1) 2 (0.6) 1 (0.3) 1 (0.3)
Income	0 = Higher than EUR 60,000 gross per year 1 = Lower than EUR 60,000 gross per year	n (%) n (%)	354 (40.2) 526 (59.8)	0 (0) 526 (59.8)	354 (40.2) 0 (0)
Type of health insurance coverage	1 = Statutory health insurance without private supplementary health/nursing insurance 2 = Statutory health insurance with private supplementary health/nursing insurance 3 = Private health insurance (substitutive health insurance) 4 = Other/no health insurance	n (%) n (%) n (%) n (%)	516 (58.6) 252 (28.6) 105 (11.9) 7 (0.8)	363 (69.0) 126 (24.0) 34 (6.5) 3 (0.6)	153 (43.2) 126 (35.6) 71 (20.1) 4 (1.1)
Health status	2 = Neither chronically ill nor in need of care 4 = Chronically ill 5 = In need of care 7 = Chronically ill and in need of care	n (%) n (%) n (%) n (%)	594 (67.5) 252 (28.6) 16 (1.8) 18 (2.0)	330 (62.7) 179 (34.0) 3 (0.6) 14 (2.7)	264 (74.6) 73 (20.6) 13 (3.7) 4 (1.1)
Children under age 17 in household	1 = None 2 = 1 3 = 2 4 = 3 5 = 4 6 = More than 4	n (%) n (%) n (%) n (%) n (%) n (%)	485 (55.1) 178 (20.2) 174 (19.8) 35 (4.0) 7 (0.8) 1 (0.1)	365 (69.4) 84 (16.0) 64 (12.2) 11 (2.1) 2 (0.4) 0 (0)	120 (33.9) 94 (26.6) 110 (31.1) 24 (6.8) 5 (1.4) 1 (0.3)

Table 1. *Cont.*

Characteristics	Value Range		Total N = 880 *	Income < EUR 60,000 Gross per Year N = 526	Income > EUR 60,000 Gross per Year N = 354
Importance of fitness	1 = Very important	n (%)	275 (31.3)	120 (22.8)	155 (43.8)
	2 = Important	n (%)	345 (39.2)	207 (39.4)	138 (39.0)
	3 = Neutral	n (%)	198 (22.5)	146 (27.8)	52 (14.7)
	4 = Unimportant	n (%)	43 (4.9)	35 (6.7)	8 (2.3)
	5 = Very unimportant	n (%)	19 (2.2)	18 (3.4)	1 (0.3)
Importance of diet	1 = Very important	n (%)	315 (35.8)	155 (29.5)	160 (45.2)
	2 = Important	n (%)	380 (43.2)	232 (44.1)	148 (41.8)
	3 = Neutral	n (%)	164 (18.6)	123 (23.4)	41 (11.6)
	4 = Unimportant	n (%)	14 (1.6)	10 (1.9)	4 (1.1)
	5 = Very unimportant	n (%)	7 (0.8)	6 (1.1)	1 (0.3)
Importance of mental health	1 = Very important	n (%)	303 (34.4)	154 ((29.3)	149 (42.1)
	2 = Important	n (%)	313 (35.6)	191 (36.3)	122 (34.5)
	3 = Neutral	n (%)	211 (24.0)	141 (26.8)	70 (19.8)
	4 = Unimportant	n (%)	34 (3.9)	23 (4.4)	11 (3.1)
	5 = Very unimportant	n (%)	19 (2.2)	17 (3.2)	2 (0.6)
Importance of disease prevention	1 = Very important	n (%)	203 (23.1)	84 (16.0)	119 (33.6)
	2 = Important	n (%)	387 (44.0)	247 (47.0)	140 (39.5)
	3 = Neutral	n (%)	247 (28.1)	166 (31.6)	61 (22.9)
	4 = Unimportant	n (%)	33 (3.8)	20 (3.8)	13 (3.7)
	5 = Very unimportant	n (%)	10 (1.1)	9 (1.7)	1 (0.3)
Importance of stress and sleep management	1 = Very important	n (%)	237 (26.9)	126 (24.0)	111 (31.4)
	2 = Important	n (%)	368 (41.8)	212 (40.3)	156 (44.1)
	3 = Neutral	n (%)	209 (23.8)	144 (27.4)	65 (18.4)
	4 = Unimportant	n (%)	53 (6.0)	33 (6.3)	20 (5.6)
	5 = Very unimportant	n (%)	13 (1.5)	11 (2.1)	2 (0.6)
Importance of healthy approach to alcohol and drugs	1 = Very important	n (%)	330 (37.5)	204 (38.8)	126 (35.6)
	2 = Important	n (%)	310 (35.2)	171 (32.5)	139 (39.3)
	3 = Neutral	n (%)	168 (19.1)	99 (18.8)	69 (19.5)
	4 = Unimportant	n (%)	43 (4.9)	29 (4.4)	14 (4.0)
	5 = Very unimportant	n (%)	29 (3.3)	23 (4.4)	6 (1.7)
Past use of health maintenance programs	1 = Yes	n (%)	420 (47.7)	210 (39.9)	210 (59.3)
	2 = No	n (%)	456 (51.8)	313 (59.5)	143 (40.4)
	Missing	n (%)	4 (0.5)	3 (0.6)	1 (0.3)
Past use of preliminary examinations	1 = Yes	n (%)	598 (68.0)	332 (63.1)	266 (75.1)
	2 = No	n (%)	274 (31.1)	189 (35.9)	85 (24.0)
	Missing	n (%)	8 (0.9)	5 (1.0)	3 (0.8)
Past use of care management	1 = Yes	n (%)	456 (51.8)	250 (47.5)	206 (58.2)
	2 = No	n (%)	417 (47.4)	271 (51.5)	146 (41.2)
	Missing	n (%)	7 (0.8)	5 (1.0)	2 (0.6)
Past use of information sites	1 = Yes	n (%)	514 (58.4)	291 (55.3)	223 (63.0)
	2 = No	n (%)	360 (40.9)	231 (43.9)	129 (36.4)
	Missing	n (%)	6 (0.7)	4 (0.8)	2 (0.6)
Past use of digital health services	1 = Yes	n (%)	265 (30.1)	94 (17.9)	171 (48.3)
	2 = No	n (%)	607 (69.0)	428 (81.4)	179 (50.6)
	Missing	n (%)	8 (0.9)	4 (0.8)	4 (1.1)
Past use of bonus programs	1 = Yes	n (%)	455 (51.7)	227 (43.2)	228 (64.4)
	2 = No	n (%)	414 (47.0)	291 (55.3)	123 (34.7)
	Missing	n (%)	11 (1.3)	8 (1.5)	3 (0.8)

* Twenty respondents did not report rating and ranking; therefore, they were not considered for the analysis, but they are included in this table.

In total, 136 respondents were between 18 and 29 years old, 457 were between 30 and 44 years old, and 277 were between 45 and 65 years old. The sample consisted of 45.5% females, 54.4% males, and one diverse person (0.1%). The answer category "diverse" was later dropped for the analysis because it included one respondent only. Most respondents (67.5%) were neither chronically ill nor in need of care. Overall, 28.6% of respondents were chronically ill. Very few people needed care (1.8%) or were both chronically ill and in need

of care (2.0%). Respondents with a gross annual income of below EUR 60,000 (LIG) were proportionally more often chronically ill than respondents with a higher income (HIG), with 34.0% being chronically ill in the LIG as opposed to 20.6% in the HIG. However, the opposite was true for people needing care, with 0.6% in the LIG compared to 3.7% in the HIG. Altogether, 40.2% of participants earned more than EUR 60,000 gross annually.

Most respondents (71.2%) were employees, with 38.4% receiving a gross annual salary of below EUR 66,600 and 32.8% receiving a gross annual salary of above EUR 66,600. The remaining occupational groups each represented between 3.8% and 5.6% of the sample. Concerning health insurance, 87.2% of the participants owned statutory health insurance (SHI). More specifically, 58.6% owned SHI without SuppH/NI, whereas 28.6% owned SHI and a SuppH/NI. PHI was held by 11.9% of the sample. More than half of the respondents (55.1%) had no kids under 18 within the household. The percentage of people with no kids was higher in the LIG (69.4%) than in the HIG (33.9%). Similarly, one third of the HIG had one kid, and one third had two kids, whereas the proportion of people having one or two kids in the LIG was 16.0% and 12.2%, respectively.

Concerning the importance of health-related lifestyle factors, nutrition was ranked most important by the respondents with a mean of 1.88 on a scale of 1 to 5, where 1 corresponds to the answer option "very important" and 5 corresponds to the answer option "very unimportant". A healthy approach to alcohol and drugs was the second most important aspect (mean = 2.01), followed by the importance of mental health (mean = 2.04), the importance of fitness (mean = 2.08), and the importance of stress and sleep management (mean = 2.13). The importance of disease prevention was the least important (mean = 2.16). Generally, the six aspects were all important to the respondents because the means were all around two, which corresponds to "important".

Previous use of health services varied from 68.0% of respondents having used preliminary examinations before to 30.1% having used digital health services. Information pages, care management, bonus programs, and health maintenance programs were used by 58.4%, 51.8%, 51.7%, and 47.7% of respondents, respectively.

3.1. Descriptive Results of Ranking and Rating of Health Services

Table 2 presents the descriptive statistics of the ranking and rating of health services. The most important category of health services was preliminary examinations in both the rating and ranking questions. The mean rating for this category was 1.8 on a scale of 1 to 5, which is similar to the questions above about the importance of health-related lifestyle factors. Preliminary examinations had a mean ranking of 2.1 on a scale of 1 to 6, with 1 being the most important health service and 6 being the most unimportant.

Table 2. Self-explicated importance of health services (ranking and rating)—descriptive statistics.

| Health Service | Ranking | | | | | | | Rating | | | | | |
| | Most Important | | | | Least Important | | Mean (SD) | Very Important | | | | Very Unimportant | Mean (SD) |
	1 n (%)	2 n (%)	3 n (%)	4 n (%)	5 n (%)	6 n (%)		1 n (%)	2 n (%)	3 n (%)	4 n (%)	5 n (%)	
Health maintenance programs													
Total	285	267	194	75	41	18	2.29	241	342	222	51	24	2.18
N = 880	(32.4)	(30.3)	(22.0)	(8.5)	(4.7)	(2.0)	(1.245)	(27.4)	(38.9)	(25.2)	(5.8)	(2.7)	(0.987)
Low income [a]	163	166	120	42	27	8	2.29	125	198	146	38	19	2.29
N = 526	(31.0)	(31.6)	(22.8)	(8.0)	(5.1)	(1.5)	(1.216)	(23.8)	(37.6)	(27.8)	(7.2)	(3.6)	(1.023)
High income [b]	122	101	74	33	14	10	2.28	116	144	76	13	5	2.00
N = 354	(34.5)	(28.5)	(20.9)	(9.3)	(4.0)	(2.8)	(1.288)	(32.8)	(40.7)	(21.5)	(3.7)	(1.4)	(0.905)

Table 2. *Cont.*

Health Service	Ranking							Rating					
	Most Important			Least Important			Mean (SD)	Very Important			Very Unimportant		Mean (SD)
	1 n (%)	2 n (%)	3 n (%)	4 n (%)	5 n (%)	6 n (%)		1 n (%)	2 n (%)	3 n (%)	4 n (%)	5 n (%)	
Preliminary examinations													
Total	395	238	121	69	35	22	2.06	395	297	148	26	14	1.83
N = 880	(44.9)	(27.0)	(13.8)	(7.8)	(4.0)	(2.5)	(1.287)	(44.9)	(33.8)	(16.8)	(3.0)	(1.6)	(0.921)
Low income [a]	237	152	66	37	22	12	2.03	225	171	101	19	10	1.89
N = 526	(45.1)	(28.9)	(12.5)	(7.0)	(4.2)	(2.3)	(1.265)	(42.8)	(32.5)	(19.2)	(3.6)	(1.9)	(0.962)
High income [b]	158	86	55	32	13	10	2.11	170	126	47	7	4	1.73
N = 354	(44.6)	(24.3)	(15.5)	(9.0)	(3.7)	(2.8)	(1.318)	(48.0)	(35.6)	(13.3)	(2.0)	(1.1)	(0.849)
Care Management													
Total	81	202	278	168	111	40	3.17	293	344	191	34	18	2.02
N = 880	(9.2)	(23.0)	(31.6)	(19.1)	(12.6)	(4.5)	(1.295)	(33.3)	(39.1)	(21.7)	(3.9)	(2.0)	(0.943)
Low income [a]	53	120	169	108	56	20	3.10	170	206	114	24	12	2.05
N = 526	(10.1)	(22.8)	(32.1)	(20.5)	(10.6)	(3.8)	(1.264)	(32.3)	(39.2)	(21.7)	(4.6)	(2.3)	(0.963)
High income [b]	28	82	109	60	55	20	3.26	123	138	77	10	6	1.98
N = 354	(7.9)	(23.2)	(30.8)	(16.9)	(15.5)	(5.6)	(1.336)	(34.7)	(39.0)	(21.8)	(2.8)	(1.7)	(0.912)
Information sites													
Total	37	48	111	295	233	156	4.26	195	276	311	68	30	2.39
N = 880	(4.2)	(5.5)	(12.6)	(33.5)	(26.5)	(17.7)	(1.277)	(22.2)	(31.4)	(35.3)	(7.7)	(3.4)	(1.020)
Low income [a]	23	26	66	178	142	91	4.26	94	165	215	28	24	2.47
N = 526	(4.4)	(4.9)	(12.5)	(33.8)	(27.0)	(17.3)	(1.270)	(17.9)	(31.4)	(28)	(5.3)	(4.6)	(0.994)
High income [b]	14	22	45	117	91	65	4.25	101	111	96	40	6	2.26
N = 354	(4.0)	(6.2)	(12.7)	(33.1)	(25.7)	(18.4)	(1.290)	(28.5)	(31.4)	(27.1)	(11.3)	(1.7)	(1.046)
Digital health services													
Total	30	54	84	131	349	232	4.60	145	248	323	117	47	2.63
N = 880	(3.4)	(6.1)	(9.5)	(14.9)	(39.7)	(26.4)	(1.318)	(16.5)	(28.2)	(36.7)	(13.3)	(5.3)	(1.073)
Low income [a]	15	19	47	73	217	155	4.75	62	133	220	75	36	2.79
N = 526	(2.9)	(3.6)	(8.9)	(13.9)	(41.3)	(29.5)	(1.231)	(11.8)	(25.3)	(41.8)	(14.3)	(6.8)	(1.048)
High income [b]	15	35	37	58	132	77	4.38	83	115	103	42	11	2.39
N = 354	(4.2)	(9.9)	(10.5)	(16.4)	(37.3)	(21.8)	(1.409)	(23.4)	(32.5)	(29.1)	(11.9)	(3.1)	(1.064)
Bonus programs													
Total	52	71	92	142	111	412	4.62	226	300	242	76	36	2.31
N = 880	(5.9)	(8.1)	(10.5)	(16.1)	(12.6)	(46.8)	(1.605)	(25.7)	(34.1)	(27.5)	(8.6)	(4.1)	(1.073)
Low income [a]	35	43	58	88	62	240	4.56	118	170	157	52	29	2.44
N = 526	(6.7)	(8.2)	(11.0)	(16.7)	(11.8)	(45.6)	(1.635)	(22.4)	(32.3)	(29.8)	(9.9)	(5.5)	(1.107)
High income [b]	17	28	34	54	49	172	4.71	108	130	85	24	7	2.13
N = 354	(4.8)	(7.9)	(9.6)	(15.3)	(13.8)	(48.6)	(1.558)	(30.5)	(36.7)	(24.0)	(6.8)	(2.0)	(0.990)

[a] Income < EUR 60,000 gross per year; [b] Income > EUR 60,000 gross per year.

The results were notably diverse. Health maintenance programs and care management were, for example, switched in the rating question compared to the ranking question, where each was once the second and third most important health service. The categories related to information pages, digital health services, and bonus programs had a different order, with each being one of the three most unimportant health services. However, the three most important and the three least important services were similar in rating and ranking. This is also true when the results are stratified by income group.

3.2. Results of Ordinal Regression Analysis–Rating

The results of the ordinal regression analysis of rating data are presented in Table 3. The number of kids appeared positively associated with the importance of health maintenance programs and care management. The more kids under 18 a person had in their household, the more they would find health maintenance programs and preliminary examinations important.

Table 3. Ratings of attributes of health maintenance programs—results of ordinal logistic regression.

Parameter	Health Maintenance Programs From 1 Very Important to 5 Very Unimportant N = 860	Preliminary Examinations From 1 Very Important to 5 Very Unimportant N = 860	Care Management From 1 Very Important to 5 Very Unimportant N = 860	Information Pages From 1 Very Important to 5 Very Unimportant N = 860	Digital Health Services From 1 Very Important to 5 Very Unimportant N = 860	Bonus Programs From 1 Very Important to 5 Very Unimportant N = 860
	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)
Age (years)	0.010 (0.007)	0.006 (0.007)	0.001 (0.007)	0.008 (0.007)	0.010 (0.007)	0.006 (0.007)
Income (0 = higher than EUR 60,000 gross per year. 1 = lower than EUR 60,000 gross per year)	−0.162 (0.202)	0.184 (0.206)	−0.343 ** (0.200)	−0.368 ** (0.200)	−0.291 (0.196)	−0.002 (0.196)
N. of kids under age 18 within household (from none to more than 4)	−0.164 * (0.079)	−0.068 (0.081)	−0.159 * (0.078)	−0.114 (0.076)	−0.090 (0.075)	−0.098 (0.076)
Importance of fitness (from very unimportant)	0.138 (0.088)	0.002 (0.091)	0.083 (0.088)	0.035 (0.087)	0.126 (0.086)	0.145 ** (0.086)
Importance of nutrition (from very important to very unimportant)	0.301 * (0.108)	0.149 (0.110)	0.204 ** (0.107)	0.363 * (0.107)	0.218 * (0.106)	0.274 * (0.105)
Importance of mental health (from very important to very unimportant)	0.102 (0.094)	0.074 (0.096)	0.152 (0.093)	0.162 ** (0.093)	0.043 (0.092)	0.066 (0.091)
Importance of disease prevention (from very important to very unimportant)	0.379 * (0.106)	0.527 * (0.110)	0.484 * (0.106)	0.417 * (0.104)	0.487 * (0.104)	0.359 * (0.103)
Importance of healthy alcohol and drug use (from very important to very unimportant)	0.182 * (0.075)	0.293 * (0.076)	0.222 * (0.074)	0.125 ** (0.074)	0.129 ** (0.073)	0.140 ** (0.073)
Past use of health maintenance programs (1 = Yes. 2 = No)	0.986 * (0.172)	−0.248 (0.177)	−0.150 (0.169)	−0.016 (0.166)	0.037 (0.164)	−0.060 (0.164)
Past use of preliminary examinations (1 = Yes. 2 = No)	0.865 * (0.164)	1.538 * (0.170)	0.448 * (0.161)	0.277 ** (0.161)	−0.208 (0.159)	0.026 (0.158)
Past use of care management (1 = Yes. 2 = No)	0.452 * (0.150)	0.199 (0.154)	1.131 * (0.153)	0.279 ** (0.147)	−0.082 (0.146)	−0.159 (0.146)
Past use of information sites (1 = Yes. 2 = No)	0.448 * (0.152)	0.439 * (0.156)	0.262 ** (0.151)	1.258 * (0.155)	0.527 * (0.149)	0.119 (0.147)
Past use of digital health services (1 = Yes. 2 = No)	−0.024 (0.182)	−0.573 * (0.190)	−0.161 (0.181)	0.886 * (0.180)	1.702 * (0.186)	0.369 * (0.177)
Past use of bonus programs (1 = Yes. 2 = No)	0.019 (0.160)	0.286 ** (0.166)	0.061 (0.159)	0.015 (0.157)	0.209 (0.155)	1.481 * (0.161)
Male (reference category)	-	-	-	-	-	-
Female	−0.280 ** (0.144)	−0.060 (0.148)	−0.240 ** (0.143)	−0.045 (0.141)	−0.170 (0.139)	−0.304 * (0.139)
Neither chronically ill nor in need of care (reference category)	-	-	-	-	-	-
Chronically ill and in need of care	0.407 (0.488)	1.756 * (0.485)	0.066 (0.493)	0.251 (0.482)	0.135 (0.477)	0.259 (0.475)
Chronically ill	0.158 (0.158)	−0.252 (0.165)	0.071 (0.158)	0.077 (0.156)	0.176 (0.153)	0.038 (0.153)
In need of care	−1.769 * (0.674)	−1.293 ** (0.691)	0.340 (0.524)	0.077 (0.521)	−0.325 (0.520)	−0.127 (0.519)
Statutory health insurance without private supplementary health/nursing insurance (reference category)	-	-	-	-	-	-
Other/no health insurance	−0.277 (0.824)	0.407 (0.816)	−0.920 (0.821)	−0.308 (0.831)	−0.821 (0.815)	−0.636 (0.807)
Statutory health insurance with private supplementary health/nursing insurances	−0.137 (0.158)	−0.191 (0.166)	−0.005 (0.156)	0.023 (0.154)	0.099 (0.152)	0.158 (0.152)
Private health insurance	0.212 (0.241)	0.515 (0.244)	−0.159 (0.241)	0.294 (0.238)	−0.001 (0.235)	0.393 ** (0.233)

Table 3. *Cont.*

Parameter	Health Maintenance Programs From 1 Very Important to 5 Very Unimportant N = 860	Preliminary Examinations From 1 Very Important to 5 Very Unimportant N = 860	Care Management From 1 Very Important to 5 Very Unimportant N = 860	Information Pages From 1 Very Important to 5 Very Unimportant N = 860	Digital Health Services From 1 Very Important to 5 Very Unimportant N = 860	Bonus Programs From 1 Very Important to 5 Very Unimportant N = 860
	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)
Employee with gross annual salary of <EUR 66,600 (reference category)	-	-	-	-	-	-
Employee with gross annual salary of >EUR 66,600	−0.151 (0.213)	0.174 (0.218)	−0.133 (0.210)	0.021 (0.209)	−0.186 (0.206)	0.251 (0.207)
Pensioner	−0.083 (0.319)	−0.685 ** (0.350)	−0.524 (0.324)	0.241 (0.314)	0.240 (0.310)	0.226 (0.309)
Civil Servant	−0.028 (0.399)	0.272 (0.400)	0.618 (0.393)	0.310 (0.393)	0.631 (0.388)	0.428 (0.385)
Self-employed	0.132 (0.310)	0.200 (0.316)	−0.002 (0.310)	−0.025 (0.309)	0.035 (0.304)	0.160 (0.303)
Student	0.040 (0.369)	0.433 (0.375)	0.018 (0.369)	0.209 (0.365)	0.354 (0.360)	1.162 * (0.358)
Unemployed	−0.567 (0.360)	−0.224 (0.371)	−0.446 (0.363)	−0.476 (0.356)	0.288 (0.345)	−0.223 (0.347)
Other	−0.352 (0.315)	−0.331 (0.332)	−0.519 (0.317)	0.500 (0.309)	0.347 (0.307)	0.534 ** (0.305)
Threshold 1	4.358 * (0.627)	4.206 * (0.643)	2.629 * (0.611)	4.167 * (0.618)	3.201 * (0.602)	3.481 * (0.605)
Threshold 2	6.796 * (0.655)	6.256 * (0.666)	4.800 * (0.629)	6.140 * (0.637)	5.212 * (0.621)	5.402 * (0.622)
Threshold 3	9.090 * (0.691)	8.443 * (0.704)	7.003 * (0.656)	8.683 * (0.672)	7.443 * (0.644)	7.381 * (0.645)
Threshold 4	10.469 * (0.722)	9.645 * (0.745)	8.213 * (0.689)	10.140 * (0.699)	9.037 * (0.665)	8.812 * (0.669)
-2log L	1849.404	1714.110	1881.524	1974.495	2102.936	2102.784
Chi-squared	440.628 *	342.118 *	301.053 *	403.606 *	386.195 *	324.722 *
Pseudo R^2 (Nagelkerke)	0.431	0.361	0.321	0.400	0.383	0.334

* $p < 0.05$; ** $p < 0.10$.

The variables importance of nutrition, importance of disease prevention, and importance of healthy alcohol and drug use were positively associated with the importance of some health services, and, in the case of the importance of disease prevention, all health services. The importance of fitness and mental health were not statistically significantly associated with the importance of the present health services.

The past service use variables were always positively associated with the corresponding health service's importance, suggesting that participants who have used a health service before found this one more important than non-users. Furthermore, people who have not used digital health services before placed a higher importance on preliminary examinations. Past service use of information pages was positively associated with four out of the six health services, except care management and bonus programs.

Female participants placed a higher importance on bonus programs than male participants. With regard to the other health services, gender was not statistically significant. People who were chronically ill and in need of care found preliminary examinations less crucial than those who were not chronically ill and not in need of care. Moreover, participants in need of care assigned higher importance to health maintenance programs than people who were not chronically ill or in need of care. Additionally, students gave lower importance to bonus programs than employees with a gross annual salary below EUR 66,600. Other occupations, health insurance status, and income were not associated with the importance of health services. The models were significant at the 5% level.

3.3. Results of Ordinal Regression Analysis–Ranking

The results of the ranking questions are presented in Table 4. The importance of nutrition was positively associated with the importance of health maintenance programs and the importance of healthy alcohol and drug use was positively associated with the importance of preliminary examinations. This means the more importance a person placed on nutrition and a healthy approach to alcohol and drug use, the more important they found health maintenance programs and preliminary examinations, respectively.

Table 4. Ranking of attributes of health maintenance programs—results of ordinal logistic regression.

Variable	Health Maintenance Programs From 1 Most Important to 6 Least Important N = 860	Preliminary Examinations From 1 Most Important to 6 Least Important N = 860	Care Management From 1 Most Important to 6 Least Important N = 860	Information Pages From 1 Most Important to 6 Least Important N = 860	Digital Health Services From 1 Most Important to 6 Least Important N = 860	Bonus Programs From 1 Most Important to 6 Least Important N = 860
	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)
Age (years)	0.003 (0.006)	−0.001 (0.007)	−0.005 (0.006)	0.002 (0.006)	0.008 (0.007)	−0.002 (0.007)
Income (0 = higher than EUR 60,000 gross per year. 1 = lower than EUR 60,000 gross per year)	−0.164 (0.190)	0.637 (0.200)	−0.105 (0.188)	−0.059 (0.189)	−0.131 (0.192)	−0.121 (0.196)
N. of kids under age 18 within household (from none to more than 4)	0.000 (0.073)	0.138 ** (0.074)	0.004 (0.072)	0.054 (0.072)	−0.143 ** (0.073)	−0.054 (0.075)
Importance of fitness (from very important to very unimportant)	−0.091 (0.084)	0.066 (0.087)	0.021 (0.082)	−0.042 (0.083)	−0.027 (0.084)	0.073 (0.087)
Importance of nutrition (from very important to very unimportant)	0.235 * (0.103)	−0.118 (0.107)	−0.006 (0.101)	−0.106 (0.102)	0.102 (0.104)	−0.052 (0.106)
Importance of mental health (from very important to very unimportant)	−0.035 (0.089)	−0.132 (0.093)	−0.100 (0.088)	0.033 (0.088)	0.130 (0.090)	0.059 (0.093)
Importance of disease prevention (from very important to very unimportant)	0.123 (0.099)	0.061 (0.103)	0.018 (0.098)	0.023 (0.099)	−0.081 (0.100)	−0.085 (0.103)
Importance of healthy alcohol and drug use (from very important to very unimportant)	−0.032 (0.071)	0.198 * (0.073)	−0.003 (0.070)	0.091 (0.070)	−0.082 (0.071)	−0.085 (0.073)
Past use of health maintenance programs (1 = Yes. 2 = No)	0.470 * (0.160)	−0.402 * (0.167)	0.070 (0.157)	0.036 (0.158)	−0.227 (0.161)	−0.091 (0.166)
Past use of preliminary examinations (1 = Yes. 2 = No)	−0.181 (0.154)	0.678 * (0.161)	−0.141 (0.152)	0.144 (0.153)	−0.196 (0.156)	−0.121 (0.160)
Past use of care management (1 = Yes. 2 = No)	−0.003 (0.141)	0.092 (0.147)	0.762 * (0.142)	−0.054 (0.140)	−0.055 (0.143)	−0.544 * (0.147)
Past use of information sites (1 = Yes. 2 = No)	−0.212 (0.143)	−0.069 (0.150)	0.243 ** (0.142)	0.212 (0.142)	0.282 ** (0.145)	−0.325 * (0.148)
Past use of digital health services (1 = Yes. 2 = No)	0.216 (0.170)	−0.666 * (0.174)	−0.479 * (0.168)	0.157 (0.169)	1.119 * (0.174)	−0.341 ** (0.178)
Past use of bonus programs (1 = Yes. 2 = No)	−0.269 ** (0.151)	−0.284 ** (0.158)	−0.428 * (0.149)	−0.484 * (0.150)	−0.287 ** (0.152)	1.301 * (0.163)
Male (reference category)	-	-	-	-	-	-
Female	0.139 (0.134)	−0.158 (0.139)	−0.021 (0.133)	0.106 (0.133)	0.135 (0.135)	−0.102 (0.139)

Table 4. *Cont.*

Variable	Health Maintenance Programs From 1 Most Important to 6 Least Important N = 860	Preliminary Examinations From 1 Most Important to 6 Least Important N = 860	Care Management From 1 Most Important to 6 Least Important N = 860	Information Pages From 1 Most Important to 6 Least Important N = 860	Digital Health Services From 1 Most Important to 6 Least Important N = 860	Bonus Programs From 1 Most Important to 6 Least Important N = 860
Neither chronically ill nor in need of care (reference category)	-	-	-	-	-	-
Chronically ill and in need of care	0.435 (0.459)	0.444 (0.473)	0.349 (0.456)	−0.541 (0.458)	−0.671 (0.462)	0.188 (0.493)
Chronically ill	0.052 (0.149)	−0.283 ** (0.156)	0.147 (0.147)	0.304 * (0.148)	−0.266 ** (0.150)	0.006 (0.154)
In need of care	−0.451 (0.502)	0.384 (0.485)	0.277 (0.480)	−0.653 (0.482)	−0.356 (0.482)	0.820 (0.602)
Statutory health insurance without private supplementary health/nursing insurances (reference category)	-	-	-	-	-	-
Other/no health insurance	−0.244 (0.794)	0.570 (0.827)	0.342 (0.781)	0.526 (0.787)	0.131 (0.798)	−0.592 (0.808)
Statutory health insurance with private supplementary health/nursing insurances	0.272 ** (0.147)	−0.204 (0.153)	−0.040 (0.145)	0.045 (0.146)	−0.052 (0.148)	−0.076 (0.151)
Private health insurance	0.214 (0.227)	0.350 (0.233)	−0.135 (0.224)	0.025 (0.225)	−0.232 (0.227)	0.030 (0.241)
Employee with gross annual salary of <EUR 66,600, i.e., below the compulsory insurance limit (reference category)	-	-	-	-	-	-
Employee with gross annual salary of >EUR 66,600, i.e., above the compulsory insurance limit	−0.073 (0.200)	0.281 (0.206)	−0.189 (0.197)	−0.170 (0.198)	−0.279 (0.201)	0.210 (0.205)
Pensioner	−0.180 (0.304)	−0.104 (0.319)	−0.028 (0.298)	0.082 (0.299)	0.063 (0.308)	0.045 (0.312)
Civil Servant	0.065 (0.375)	−0.441 (0.405)	−0.345 (0.373)	0.021 (0.374)	−0.296 (0.377)	0.355 (0.405)
Self-employed	0.177 (0.294)	0.240 (0.301)	0.084 (0.291)	−0.175 (0.292)	−0.416 (0.296)	0.039 (0.307)
Student	0.353 (0.347)	0.016 (0.360)	−0.361 (0.345)	−0.492 (0.346)	0.158 (0.354)	0.281 (0.369)
Unemployed	0.115 (0.334)	0.436 (0.339)	−0.383 (0.331)	−0.510 (0.332)	−0.502 (0.335)	0.855 * (0.377)
Other	0.446 (0.295)	−0.733 (0.339)	−0.279 (0.295)	0.487 (0.297)	−0.081 (0.303)	−0.010 (0.303)
Threshold 1	−0.187 (0.575)	−0.150 (0.593)	−3.049 * (0.579)	−3.016 * (0.591)	−2.630 * (0.600)	−3.644 * (0.612)
Threshold 2	1.147 * (0.577)	1.116 ** (0.595)	−1.471 * (0.570)	−2.115 * (0.578)	−1.536 * (0.583)	−2.675 * (0.602)
Threshold 3	2.386 * (0.582)	2.004 * (0.598)	−0.076 (0.568)	−1.104 ** (0.572)	−0.675 (0.579)	−1.928 * (0.598)
Threshold 4	3.310 * (0.590)	2.894 * (0.606)	0.986 ** (0.569)	0.427 (0.571)	0.187 (0.578)	−1.104 ** (0.596)
Threshold 5	4.575 * (0.625)	3.914 * (0.629)	2.492 * (0.584)	1.775 * (0.574)	2.005 * (0.582)	−0.540 (0.595)
-2log L	2518.784	2303.908	2758.156	2675.432	2501.328	2503.446
Chi-squared	40.960 **	101.155 *	55.451 *	38.018 **	101.927 *	105.505 *
Pseudo R^2 (Nagelkerke)	0.049	0.118	0.065	0.045	0.117	0.121

* $p < 0.05$; ** $p < 0.10$.

Regarding past use of health services, all of the past use variables were positively associated with their respective health service variables, except for information pages, where the correlation was not significant. Furthermore, past use of health maintenance programs and digital health services was negatively associated with preliminary examinations, mean-

ing that people who have not used these services before found preliminary examinations more important. Past use of digital health services was also negatively associated with care management.

In addition, past use of bonus programs was negatively associated with care management and information pages. Interestingly, past care management and information page use were negatively associated with bonus programs. This suggests that people who have not used bonus programs found care management more important, while people who have not used care management found bonus programs more critical.

Moreover, chronically ill people found information pages less important than those without a chronic illness and who did not need care. Lastly, unemployed people found bonus programs less important than those employed with a gross annual salary of above EUR 66,600. Four of the six chi-square values were statistically significant at the 5% level, while the models regarding health maintenance programs and information pages were significant at a *p*-value below 0.10.

4. Materials and Methods

This study was designed as a quantitative, non-experimental, cross-sectional study. A quantitative approach was chosen to obtain representative, objective, and quantifiable results that health insurers could use to design successful health care service portfolios. Given the cross-sectional nature of this study, data were gathered at one point in time. This ensured a relatively short research time, but no causal relationship and no time trends could be established. An online survey was used as the method for collecting data about the preferences of German health insurance customers, which allowed us to describe patterns. During the survey, two types of methods were used: rating and ranking.

4.1. Sampling and Data Collection

The study population included people between the ages of 18 and 65 who are eligible for German health insurance. Thus, it included people who have private health insurance and people with social health insurance. Respondents younger than 18 or older than 65 were excluded from this study. The targeted sample size was 900.

A stratified sampling approach was used. Quotas included a targeted number of people in three different age groups: 18–29, 30–44, and 45–65. The targeted number per group was defined as proportional to people in that age group in Germany according to the federal statistical office (Bevölkerung nach Altersgruppen 2023). However, respondents with a high income and in the age group of 30–44 were oversampled to gain a better view of people who are potentially able to insure themselves privately and to compare the two income groups.

The data were collected in mid-June 2023 using a standardized online questionnaire. To attain a large number of respondents, the online survey was distributed among members of an online access panel of a market research company. Respondents were invited and incentivized by the market research company to complete the questionnaire based on quotas.

The respondents were part of a double-opt-in panel. This panel was maintained by the market research company. Potential participants were invited by the market research company based on the specified inclusion criteria to complete the questionnaire.

When the number of respondents exceeded the number specified for an age group, additional respondents of that age group were directed to another website to inform them that their participation was no longer possible. The market research company was responsible for inviting participants from their panel, while the researchers were responsible for monitoring the number of participants that took part in the survey to steer the invitations being sent out by the market research company. The tool for data collection was Qualtrics, and the researchers coded the questionnaire.

4.2. Survey Questionnaire

The questionnaire included several sections. Questions were asked about the socio-demographic data of the respondents as well as the importance of health-related lifestyle and health status (Section 1). Furthermore, respondents were asked to rate and rank the health services based on their perceived importance (Section 2). The questionnaire included more sections covering topics that are not addressed in this paper but that are part of a broader research project regarding customer preferences in health insurance.

Questions about socio-demographic and health data were selected based on the literature and previous surveys among the target population (namely, among the online access panel mentioned above) as well as discussion with research experts in the field to determine the most crucial factors that most likely determine a customer's preferences.

Regarding the rating and ranking questions, health services were carefully selected. Results from previous studies were used as a reference point for identifying the health services and their respective sub-categories (see Appendix A). Also, the health service portfolios of German health insurance companies were consulted. Next, inappropriate categorizations were excluded, and new ones were added based on questionnaire testing. Lastly, the health services were categorized and worded based on consultations with experts and the researcher's judgment. The number of health service types was kept as low as possible to ensure the feasibility of data collection (Lancsar and Louviere 2008). In total, six health services that a health insurer in Germany could actually offer in practice were included in this study. The final list of the categorization of health services can be found in Appendix B.

The rating task asked the respondents to indicate how important a health service was to them on a continuum from very important to very unimportant on a 5-point Likert scale. During the ranking task, respondents had to order the same health services according to the importance they attach to these services. The underlying assumption of these methods is that people can rank items according to their desirability and choose the item that gives them the highest level of utility (Samuelson 1938; Thurstone 1927).

There is no general agreement within the field of health economics as to whether cardinal or ordinal methods are better for evaluating preferences (Craig et al. 2009). Several studies comparing the two response types exist, which highlight positive and negative arguments for either method (Rankin and Grube 1980; Moore 1975; Sacchi 2000; Klein and Arzheimer 2000). Baumgartner and Steenkamp (2001), for example, describe five forms of response styles in rating methods that can lead to significant bias in observed scores. They distinguish between acquiescence response style (ARS), disacquiescence response style (DARS), net acquiescence response style (NARS), extreme response style (ERS), response range (RR), midpoint responding (MPR), and noncontingent responding (NCR). Acquiescence response style (ARS) and disacquiescence response style (DARS) refer, for example, to the tendency to agree or disagree with an item regardless of the content. Moreover, extreme response styles (ERS) and middle response styles (MRS) describe the tendency to use the extreme or middle response categories on rating scales.

On the other hand, Moore (1975) argues for the use of rating methods instead of ranking methods because both methods produce similar results, while rating methods offer greater ease and speed of completion with the additional benefit that rating methods provide more information because the difference in strength between items is captured. Some authors argue that ranking requires more attention as respondents need to examine all of the items before ranking them. Thus, the results might be of higher quality (Alwin and Krosnick 1985). However, the higher cognitive load can also lead people to discard the questions altogether (Harzing et al. 2009). We included both rating and ranking tasks because they help to study different aspects of consumer preferences and because they allow for a comparison of the methods in terms of informative value.

The questionnaire was drafted based on the literature and then developed iteratively based on discussions with experts in the field. Finally, the questionnaire was pre-tested with respondents by conducting a small-scale pre-test with 80 respondents. In addition to

the pre-test, the questionnaire was pre-tested and discussed with 8 participants regarding the understandability of the wording of the questions. Based on these pre-tests, the wording and content were adjusted in some cases. For example, the assessment of health-related lifestyle factors was initially intended to be assessed through a multiple-choice task based on the question: "How do you stand on the subject of health?" Here, respondents had to select between the answers lifestyle-oriented, neutral, and uninterested. This question was dropped in favor of Likert-scale questions to obtain a more granular view of the respondents' attitudes towards health. Moreover, the occupational group "pensioner" was added after analyzing the answers to the occupation question of the pre-test sample. This adjustment was made because some respondents chose "other" and specified in the comment section that they were pensioners. A simple concentration test question was also included in the questionnaire, where a clear right or wrong answer exists. If respondents failed to answer this question correctly, they were excluded because their answers might lack concentration. In this way, the reliability was assessed, as well as the stability of the results.

4.3. Data Analysis

The assumption underlying both the rating and ranking questions is that customers have preferences for health services and can value and/or compare them based on the utility they expect to gain from each service (Samuelson 1938; Thurstone 1927). Thus, the rating and ranking of a service are expressions of the potential utility that a respondent associates with that service.

The first part of the analysis was based on descriptive statistics. The mean and standard deviation of the importance rate or rank of a health service were estimated. Furthermore, socio-demographics and health-related variables were included in the descriptive analysis. Given the oversampling of some sub-groups, the results were stratified by income group during the analysis.

The second part of the analysis was based on regression analysis. The data were analyzed by performing an ordinal logistic regression analysis (also known as ordered logit regression) with the help of the IBM SPSS Statistics software package 26 (SPSS). The type of regression analysis was determined by the type of outcome variable. The main outcome variables were the stated importance of different health services in terms of rating and ranking, which were ordinal variables; therefore, ordinal logistic regression was used. In SPSS, the following equation is estimated for ordinal logistic regression:

$$\ln\left[\frac{P(Y \leq j)}{1 - P(Y \leq j)}\right] = \beta_{0j} - (\beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_k X_k), \ with \ j = 1, \ 2 \ldots n - 1$$

Y is the observed response to the rating or ranking question (dependent variable), ranging from category 1 to category n, with n being equal to the number of attributes ranked (in a ranking question) or the highest level of the rating scale (in a rating question). P is the cumulative probability of $Y \leq j$, with j being an index. Thus, $P(Y \leq 1)$ is the probability of $Y = 1$, $P(Y \leq 2)$ is the cumulative probability that Y falls in the lowest two categories, $P(Y \leq 3)$ is the cumulative probability that Y falls in the lowest three categories, and so on. Also, β_{0j} is the constant term associated with the jth category (threshold j), β_1 to β_k are the regression coefficients, and X_1 to X_k are the explanatory (independent) variables, with k being the number of explanatory variables included.

We used the regression analysis to estimate the associations between the importance of the health services stated by the respondents and the socio-demographic and health-related features to see the existence and nature of variance in preferences among the population. It was hypothesized (1) that people who are younger and who find health-related variables more important also find health services more important.

4.4. Ethical Considerations and Ethics Approval

Anonymity and confidentiality of the survey data were guaranteed to the participants. In particular, every participant was assigned a numerical code for identification. Only the research team had access to the data. Each respondent was required to give informed consent after being informed about the survey and its voluntary nature. Ethical approval was obtained from an ethics review committee (FHML-REC number: 368).

5. Discussion

This study investigated the preferences of German health insurance holders for health services. The results of the rating and ranking questions help to understand which health services customers find most important. In addition, the results provide information about how preferences differ across subgroups of the population, which can help health insurance companies target customers more effectively.

5.1. Importance of Health Services

Preliminary examinations, care management, and health maintenance programs were the three most important health services, followed by information pages, bonus programs, and digital health services. Preliminary examination was the most important type of health service in both response types. These results were consistent for the two income groups.

The results show that people find preliminary examinations to be the most important type of health service a health insurance company should offer. This category includes general health check-ups and additional examinations, like ultrasounds of the uterus, cancer screening, screening for sexually transmitted diseases, and travel vaccinations. Preliminary examinations could be roughly categorized as measures of secondary prevention, while health maintenance programs and care management could be categorized as measures of primary and tertiary prevention, respectively (Mathias et al. 2018). Thus, the results indicate that customers perceive insurance companies as having a role and responsibility in supporting secondary prevention efforts. More generally, the results suggest that customers want their health insurance provider to be involved in prevention activities as opposed to merely offering informational (e.g., information pages), economic (e.g., bonus programs), and access- or convenience-related benefits (e.g., digital health services). The three most important health services—preliminary examination, care management, and health maintenance programs—have direct therapeutic value. Information pages, bonus programs, and digital health services, however, do not possess this characteristic. Thus, customers seem to value health services with therapeutic value over those that yield mainly informational, economic, and access- or convenience-related benefits.

The results of this study are in line with those of Pendzialek et al. (2016), who found additional medical benefits, like cancer screening, travel vaccination, health courses, homeopathy, and dental cleaning, as well as managed care programs to be the most important non-price attributes for the choice of health insurance. These two categories include elements of preliminary examinations, health maintenance programs, and care management, although they employ a different categorization. Moreover, results from the non-peer-reviewed study by Neusius et al. (2022) imply that physician networks and health maintenance programs are some of the most popular health services used by customers of private health insurance companies in Germany.

The low importance of information pages could be a result of competition that health insurance companies face from other providers of health information, such as government health authorities like "Das Ärztliche Zentrum für Qualität in der Medizin" (ÄZQ) (in English: The Doctors' Center for Quality in Medicine) or "Das Institut für Qualität und Wirtschaftlichkeit im Gesundheitswesen" (IQWIG) (in English: The Institute for Quality and Efficiency in Health Care) (Gesundheitsinformation.de 2023). Thus, health insurers should critically evaluate if they have the capabilities to effectively compete with other providers of health information. If this is not the case, they could consider collaborating

with established providers of health information in order to improve the health literacy of their customers while saving costs on creating their own content.

Lastly, digital health services were deemed relatively unimportant by the participants. There could be several reasons for this. Firstly, digital health services, like telemedicine, are not yet commonplace in the German health system (Neusius et al. 2022). Thus, the relatively low importance might stem from unfamiliarity with the services, which may be reflected by the low percentage of customers having used this type of service. Another reason could be that customers value face-to-face contact when interacting with a health professional or that they prefer using such services only when provided by a familiar health professional with whom they usually consult.

5.2. Importance of Health Services by Subgroup—Rating

In the analysis of the rating data, the determinants regarding the importance of health-related lifestyle factors and past use of health services were most often associated with the importance of health services. The factors age, gender, income, occupation, health insurance, and health status were not, or were only in a few cases, significantly associated with the importance of health services. This suggests a high degree of homogeneity of preferences in the sample.

The importance of disease prevention, the importance of nutrition, and the importance of healthy alcohol and drug use were positively associated with all four and three out of six of the health services, respectively. This does not confirm the hypothesis stated in this thesis, which expected younger and people more interested in a healthy lifestyle to prefer prevention-related health services. However, these results demonstrate that people who place higher importance on health-related lifestyle factors generally find health services more important. If one assumes people to be healthier if they place higher importance on these factors, this finding implies the theoretical possibility for risk selection by health insurance companies because health insurance companies might be able to attract more risk-averse and healthy individuals by offering more health services. This is in line with research from Höppner et al. (2005), who identify several ways German health insurance companies engage in risk selection, including through selective marketing strategies. Such practices can negatively influence the effectiveness of health insurance competition (Höppner et al. 2005; van de Ven and van Vliet 1992).

In addition, the importance of disease prevention appears to be strongly related to health-related lifestyle factors investigated in this study because it is positively associated with all of the health services' importance. This confirms the argument that more risk-averse people find health services more important compared to less risk-averse people, thus allowing for the theoretical possibility of risk selection due to an imperfect risk-adjustment scheme and no risk-adjustment scheme in the case of PHI (Outreville 2014; van de Ven et al. 2003; van de Ven et al. 2017).

The results suggest that past experience with a health service is consistently related to the level of importance a customer places on this service. This finding aligns with the research of Neuman et al. (2010) and Wallman and Melvin (2022), who found that past experience with a health service or product has an influence on preferences for that service. The fact that preferences differ with past use contradicts the neo-classical assumption that preferences are given and stable. The first such characterization of preferences according to the expected utility theory was provided by von Neumann and Morgenstern (1944), and it showed that a preferences relation, which is defined on a lottery space, has an expected utility presentation if it is a complete and transitive binary relation and if it satisfies the independence and continuity assumptions.

Insurers can use this knowledge to promote their health services and increase their adoption rates through the use of marketing and by providing incentives for people who have not used a given health service for a try-out. In particular, within the framework of the theory of planned behavior (TPB), researchers have provided evidence that past experience can influence behavior and decision making in important ways (Sommer 2011). This

influential theory, first proposed by Ajzen (1991), is one of the best-supported social psychological theories for predicting human behavior (Sommer 2011). Essentially, this theory proposes that behavioral decisions are the result of a reasoned process in which behavior is influenced by attitudes, norms, and perceived behavioral control (Smith et al. 2007).

The results of this study indicate that people find health services more important when they have used them before. Consequently, health insurance companies should make use of promotion programs that provide incentives for customers to try out a given health service because this could positively influence their behavioral, normative, and control beliefs, as well as the process of goal and implementation intention, in a favorable way. However, no causal relationship between past experience and the importance of health services can be made. Furthermore, other variables, like upbringing, education, and social influences, could be confounders in explaining the relationship.

The positive association between the number of kids under 18 in the household and the importance of health maintenance programs and care management could indicate that people with larger households wish for their health insurance to support them more regarding their health. This could be the result of having the responsibility to care for the health of a dependent (Hagger and Hamilton 2019). Another reason could be the increased burden placed on people with more dependents in the household and worse health behaviors of parents compared to people without kids (Carson et al. 2018; Barimani et al. 2017). Respondents with children may find health services more important because they can help them manage their health and their children's.

Gender differences only exist with regard to one service—bonus programs—which are preferred by females. The existence of gender differences regarding preferences for health services is supported by the literature (Karlson et al. 1997; Stewart et al. 2004). Thus, future research could explore the reasons why men find bonus programs less essential than women in order to design more effective bonus programs.

Regarding health status, two associations could be established. Firstly, being chronically ill and in need of care are negatively associated with the importance of preliminary examinations. This could be explained by assuming that people with a chronic illness and in need of care more frequently utilize health care and thus may experience medical fatigue (Gulley et al. 2011; Lehnert et al. 2011; Blaum et al. 1994). A positive association between needing care and the importance of health maintenance programs was found. Consequently, health insurance companies could design health maintenance programs specifically tailored to the needs of people in need of care. This could benefit the customers by increasing their chances of keeping and improving their autonomy, thereby decreasing their burden on the insurance company and the public health system. The hypothesis raised in this thesis that people who are chronically ill and in need of care prefer services that help them to deal with their condition, like disease management programs or a second opinion service, was not confirmed. However, people seem to prefer services that help them manage and improve their health through health maintenance programs.

Finally, being a student was negatively associated with the importance of bonus programs. This finding might be attributed to the fact that students are often still insured through their parents and are therefore not directly paying for their health insurance (Grunow and Nuscheler 2013). This, in turn, perhaps lowers their awareness of and incentive to engage in bonus programs.

5.3. Importance of Health Services by Subgroup—Ranking

In the analysis of the ranking data, the past use variables were most often significant predictors of the importance of health services. The factors age, gender, number of kids under 18 in the household, importance of health-related lifestyle factors, occupation, income, health insurance, and health status were not significantly associated with the importance of health services, or they were associated in only a few cases. This validates the findings from the rating that preferences for health services are highly homogeneous for German health insurance customers.

The positive association between the importance of nutrition and the importance of health maintenance programs, as well as the positive association between the importance of healthy alcohol and drug use and preliminary examinations, provides further evidence for and confirms the findings of the rating that people who find health-related lifestyle factors more important also place higher importance on health services.

Regarding the influence of health status, a negative association between being chronically ill and the importance of information pages was found. It is possible that chronically ill people prefer to obtain health information from their health care providers instead of their health insurance, or they do not find health information as important in general. Furthermore, unemployed people found bonus programs less important than people who were employees with a gross annual salary below EUR 66,600. This might be because unemployed people do not directly pay for their health insurance and might, therefore, be unaware of such programs (AOK-Bundesverband GbR 2023). In summary, the past usage variables were most often associated with the importance of health services. The results support and intensify the argument that preferences for health services are highly homogeneous for German customers.

5.4. Comparison between Rating and Ranking

The results from the ordinal regression analysis of the rating and ranking questions were markedly different. This suggests that the method of data collection or the way respondents were asked about their preferences influenced the results.

In this study, the rating models consistently showed a higher Pseudo R-square than the ranking models, meaning that more of the variation in the outcome variable was explained by the predictor variables. Furthermore, the rating model has more significant variables. Markedly, the importance of the health-related lifestyle factors was only significant with regard to two health services in the ranking model, while this was the case thirteen times in the rating model. Thus, the convergent validity of the rating or the ranking results is unclear. Both models agree, however, that past use is, in most cases, positively associated with the importance of the corresponding health service. Moreover, both models suggest that preferences are highly homogeneous with regard to age, gender, income, occupation, health insurance, and health status.

Both methods produced different results even though a similar trend was visible in both methods. More specifically, the three most important health services, as well as the three least important health services, were similar. However, due to the conceptual differences in results obtained through ranking and rating and because we do not know the predictive validity of this study (i.e., compared to actual consumer behavior), policymakers and health insurance managers should use the results with caution. Still, the regression results imply that the rating method produces models with higher predictive power, thus allowing for a more nuanced understanding of customer preferences.

5.5. Study Limitations

Several limitations may have impacted the validity of the research and its findings. First, the respondents were recruited through an existing online access panel of a professional survey firm. As a result, selection bias might have negatively impacted the generalizability of the findings, as research has highlighted. Second, the health services were broadly categorized to limit the cognitive burden placed on the respondents. Thus, we could only make generalizations about the health service types. Subsequent studies should deepen the level of analysis to gain a deeper understanding of consumer preferences for individual health services. Third, although we used the literature to design our questionnaire, we did not carry out a complete pilot study, and we only pre-tested the questionnaire. It is therefore unclear to what extent the importance of the health-related lifestyle factors was captured by asking how important the factors are to a respondent. Moreover, various approaches for measuring health attitudes and consciousness exist (Gould 1988; Wardle and Steptoe 2003). Other ways of measuring could be used to decrease the subjectivity of

the respondents and may lead to improved construct validity (Abel 1991). Furthermore, income could be measured more precisely in terms of the annual gross income. The binary nature of the measurement might have limited the meaning of the relationship between income and the importance of health services because it only measures income in a binary way. This merely compares high-income individuals with all others while not distinguishing between, e.g., lower- and middle-income groups. Thus, future studies should address this concern.

In addition, order effects might have been present in all of the response types (Chan 1991). For example, primary effects (stronger affirmation of items presented earlier in a list) or recency effects (stronger affirmation of items presented later in a list) could have been obtained, with the former being more likely due to the fact that the three categories presented at the beginning of the ranking list appeared to be the most important ones (Schwarz et al. 1992).

Another bias that could have been present is a self-report bias. Evidence from the survey methodology literature indicates that self-reports are only weakly associated with actual behavior (Peterson and Kerin 1981). This bias may arise, among other reasons, due to the social undesirability of some answers or limited memory and knowledge (Milfont 2009; Edwards 1957). Thus, the results might not reflect well how the respondents would act if they actually had to make a choice regarding health services. Thus, our results should only be interpreted in terms of preferences and not actual choices.

Furthermore, bias related to context cannot be excluded. For example, health services might have been more important for some respondents because the recent pandemic temporarily increased their awareness or interest in health-related topics. The importance of health services might decrease when the risk of a pandemic decreases, as observed in studies before the COVID-19 pandemic (Barron and Yechiam 2009).

Moreover, this study was of a cross-sectional nature. Thus, exposure and outcome were measured at the same time (Solem 2015). This implies that no causal relationship could be established. Thus, the results need to be interpreted with caution. We also did not carry out risk assessment, and we did not aim to study the choice of insurance, which could be subject to further research.

6. Conclusions

The aim of this study was to elicit the preferences of German health insurance customers for health services that German health insurance companies offer. We used the rating and the ranking methods. The most important type of health service was preliminary examinations in both the rating and ranking, followed by preliminary examinations, health maintenance programs, and care management. These health services could be the focus of health insurance companies in Germany investing in this area.

Regarding the subgroup analysis, the variables age, gender, income, occupation, health insurance, and health status did not show a clear pattern of association with the importance of health services. This demonstrated a high level of homogeneity of preferences among different subgroups. However, the past use of a health service was often positively associated with the importance of the corresponding health service. This evidence lends itself to the application of the extended TPB theory proposed by Sommer (2011)—namely, to increase the adoption rate of health services by incentivizing first-time users to try them out. The importance of health-related lifestyle factors, like nutrition and fitness, was also often positively associated with the importance of health services. If one assumes customers who find health-related aspects more important to be healthier, there would be a possibility for risk selection by insurers to attract more "good risks" to the insurance pool, with potentially negative effects for health insurance competition.

Future research could evaluate the preferences for different health services individually, study the impact of the importance of health-related lifestyle factors, and use a more precise measurement for income. Piloting the questionnaire they use should be part of their study design. Future research should also focus on risk assessment and consumer choice

of insurance; for example, nudging customers towards health service use through the application of behavior change and decision-making theories, like the extended TPB. Lastly, future research could identify new and innovative health service offerings to add value to customers in terms of health outcomes.

Appendix A. Attributes Identified Through the Literature Search

Study	Attribute	Level
Pendzialek et al. 2016	Additional medical benefit	Dental cleaning Free annual dental cleaning
		Homeopathy Reimbursement of homeopathic medicines
		Household help Free household help in case of illness
		Travel vaccination Free travel vaccinations (e.g., for hepatitis A/B and yellow fever)
		Health courses Free health courses (e.g., for diet, exercise, relaxation)
		Cancer screening Free skin cancer screening
	Managed care programs	Managed care for quality Well-organized treatment and care programs with doctors for certain diseases
		Managed care for efficiency Special care program in co-operation with doctors for intensive and rapid medical care (e.g., practitioner program with quality-assured treatment, shorter waiting times, etc.)
		No managed care No special care programs in co-operation with doctors
	Additional customer services	Medical hotline Free hotline for medical issues (24 h)
		Customer service at home Customer service in person at home on request
		Personal representative Assistance from an individual representative of the sickness fund
		Help with treatment failure
		Help with doctor choice Help with choice of doctors, hospitals, and nursing homes
		Case manager Support from personal representative of the sickness fund for hospital treatments or serious illness (e.g., as in the organization of medical aids, rehabilitation, and care services)

Study	Attribute	Level
Chakraborty et al. 1994	Wellness and education programs	Once a month—free of charge
		Once a month—EUR 5 co-payment
		Not offered
	Coverage for preventive care	Full coverage
		80% coverage
		Not covered
	24 h a day medical consultation by phone	By doctor
		By nurse
		Not available
Dennstedt and Karaman 2021	Automatic creation of certificates	-
	Invoice submission via app	-
	Electronic vaccination certificate	-
	Electronic patient file for documentation of all health data	-
	Bonus and prevention programs	-
	Medication overview incl. medication management	-
	Doctor search	-
	Direct referral to health programs or health apps	-
	Access to telemedicine services	-
Bell 2022	Customer portal/customer app	-
	Health app	-
	Live-Chat	-
	Symptom Checker	-
	Video consultation with doctor	-
	Health phone, physician hotline	-
Neusius et al. 2022	Physician network (access to and timely appointments with specialists/second opinion)	-
	Health programs (health programs for the treatment of mainly chronic diseases)	-
	Health portals	-
	Information sites	-
	Telemedicine	-
	Health telephones	-
Kampmann et al. 2019	Target-group-specific information/communication	Specific information apps
		Health portals and networks
		Groups in social networks
		Age-appropriate user interfaces
	Prevention and care	Digital coaching programs
		Telemedicine
		Remote monitoring/homecare
		Assistance systems
		Wearables
		Insideables
		Lifestyle and therapy apps
		Online self-testing and diagnostic tools
	Organization and management	Electronic health record
		Ordering and appointment booking portals
		Reminder apps
		Electronic prescription

Study	Attribute	Level
World Government Summit 2017	Monitor tech	-
	Telemedicine	-
	Home diagnosis	-
	Pop-up retail settings	-
	Medical mobile apps	-
	Predictive analytics	-
	Medical Livechat	-
	Home testing, including personalized genomic services, blood testing, environmental testing, predictive biosimulation	-

Appendix B. Final List of Health Services and Their Descriptions

Health Service	Description
Health maintenance programs	- Health courses (e.g., weight reduction, sleep, stress management) - Birth preparation and postnatal classes - Sports programs (e.g., yoga, strength, and endurance)
Preliminary examinations	- Additional, voluntary examinations (e.g., ultrasound of the uterus) - Additional health checkups (e.g., risk assessments)
Care management	- Appointments with specialists/second opinion - Doctor search and referral - Support and management of treatment for serious and chronic illnesses - Auxiliary and medication management (e.g., glasses, hearing aid, interaction check)

Information pages	- General health information and guides
	    - Health portals
	    - Apps
	    - Health insurance homepage
	    - Social media groups for specific diseases
	    - Other

Digital health services	- Telemedicine, Health Phone - Medical live chat, symptom checker
Bonus programs	- Bonus payment/benefit for health-conscious behavior (e.g., gym membership, subsidy for purchase of wearables)

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