





## ORIGINAL ARTICLE

# The role of the family doctor's language in modulating people's attitudes towards hearing loss and hearing aids

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## Abstract

Despite widespread hearing problems among older adults, only a minority of them use hearing aids. The decision to rely on hearing aids is influenced by several psychosocial factors, which may include attitudes influenced by significant others, particularly caregivers and health professionals. The language used by professionals when approaching this topic is particularly important. The purpose of this study was to deepen the role played by different communication styles in the area of hearing impairment by analysing the impact of language—medical versus everyday—used in the doctor–patient interaction on attitudes and behavioural intentions in a sample of potential caregivers of older adults. 209 Italian volunteers aged between 19 and 60 completed an online experimental study. The results suggested that, when interacting with doctors, exposure to a language that includes medical words promotes negative attitudes towards hearing loss. Nevertheless, medical language induces positive attitudes towards hearing aids and encourages people to adopt them when needed as well as recommending them to relatives and friends. Overall, the use of formal, medical language in doctor–patient communication, despite sounding less reassuring, is more effective in persuading people with hearing loss to rely on hearing aids.

## KEYWORDS

ageing, attitudes, health communication, hearing aids, hearing loss, intention, language

## 1 | INTRODUCTION

Age-related hearing loss is a common chronic condition among the world's elderly population. According to the World Health Organization, over 65% of adults above 60 years experience hearing loss (World Report on Hearing, 2021), and the rate is expected to increase further due to an ageing global population. In 2019, age-related hearing loss was identified as the most common disability among adults over 70 (World Report on Hearing, 2021). It is usually associated with other adverse conditions, including poor quality of

life (Ciorba et al., 2012), depression (Brewster et al., 2018; Shukla et al., 2021), and cognitive decline (Lin et al., 2013; Sarant et al., 2020). Given these negative associations, research has focused on assessing whether early treatment of hearing loss could mitigate other health conditions linked to it. For example, a recent meta-analysis evidenced that those who used hearing aids had better cognition than those who did not (Taljaard et al., 2016) and concluded that the treatment of hearing loss with hearing aids could delay the effects of cognitive decline.

Unfortunately, the percentage of people suffering from hearing loss that use hearing aids is currently very low (Ferguson et al., 2017).

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Hearing aids ownership among people with hearing impairment has been reported to be between 6% and 41% worldwide (Brink et al., 1996; Reed et al., 2021). In Italy, where the current study was conducted, only 29.5% of people with hearing loss have at least one hearing aid (EuroTrak Italy 2018, <https://www.ehima.com/eurotrak/>).

Various studies have investigated the decision-making process of people with hearing impairment, focusing on what influences them to seek help and use hearing aids regularly. According to two systematic reviews (Knudsen et al., 2010; Meyer & Hickson, 2012), the factors influencing hearing aid use are chiefly psychosocial. One's perception of his/her hearing impairment plays a more significant role than medical or financial issues. The attitude towards hearing aids is closely related to one's inclination to use them (Gatehouse, 1994; Hickson et al., 2014; Wilson & Stephens, 2003).

A positive attitude toward hearing loss—acknowledging and accepting the condition—has been proved to influence both hearing aid uptake and use (Hickson et al., 2014; Humes et al., 2003; Jerram & Purdy, 2001). Another key factor of hearing aid usage—analysed within the theory of planned behaviour (Ajzen, 1985, 1991)—is behavioural intention. The theory of planned behaviour (Ajzen, 1985, 1991) provides empirical evidence that intention is closely related to a person's actual behaviour and hence is a better predictor than the attitude towards the phenomenon under investigation (Marta et al., 2014). Several studies found a strong relationship between attitude and intention, as proven by the meta-analytic review by Armitage and Conner (2001). The same relationship was also found between attitude and intention in adopting hearing aids among older adults (Cobelli et al., 2014). Finally, the literature has underlined that the decision to seek help for hearing loss and adopt hearing aids is deeply influenced by significant others and their feelings towards these matters (Kochkin, 2012; Meyer & Hickson, 2012; Pronk et al., 2017). For example, a retrospective study (Singh & Launer, 2016) found that hearing aid adoption was significantly greater when patients attended audiology appointments with a relative than alone. Significant others might act as motivators and supporters of hearing aid use but can also become an obstacle, especially when stigmatisation becomes an issue (Pronk et al., 2017). This underlines the importance of promoting a better attitude toward hearing aids not just among the elderly but within the broader population (Kochkin, 2007). Given that positive attitudes and intentions are important preconditions of hearing aid use, it is essential to investigate the factors that may promote them.

In this study, we analysed the role of language in influencing people's attitude and intention concerning hearing problems considering that our experience and representation of the world are a function of the language we use (Holtgraves, 2013). Previous research has demonstrated how media communication, informal discussions, and exchanges between doctors and patients can shape disease representation, particularly illness-related stigma (Cummings & Kong, 2019; Koike et al., 2016; Sato, 2006). In a previous study (Manzi et al., 2021), we investigated the linguistic expressions most commonly used by the Italian media through an in-depth textual analysis, and we found an over-representation of 'technical/medical' words. We then designed an experimental study to investigate

### What is known about this topic?

- Age-related hearing loss is a common chronic condition among the elderly population frequently associated with poor quality of life, depression, and cognitive decline.
- Despite this, the percentage of people who have hearing loss that uses hearing aids is meagre.
- The decision to adopt them depends on attitudes, and several psychosocial factors influence attitudes; for example, the language used by professionals when approaching this topic is critical.

### What this paper adds?

- Compared to an everyday language, a family doctor's language made of medical words favours a negative attitude towards hearing loss.
- Nevertheless, medical language induces a positive attitude towards hearing aids, and it encourages the intention to use and recommend them to older relatives.

the impact of different forms of media communication on attitudes towards hearing aids within a sample comprising members of the public in Italy. Participants who read a newspaper article written in everyday language expressed more positive attitudes towards hearing aids than participants who read the same newspaper article written in medical language, typically adopted by the press.

Based on the results of this study, and considering that a significant amount of research supports the educational role of health professionals—with their advice promoting positive attitudes on health-related issues and acting as a catalyst for behaviour change (Alexander et al., 2012; Cobelli et al., 2014; Kochkin, 2012)—we aimed to explore the role of language in the context of family doctor-patient communication.

To address how the doctor-patient language may affect attitudes toward hearing loss and hearing aids, we replicated the previous experimental study, adapting the stimuli to the doctor-patient communication context. Previous research found that the communication style used by health professionals might represent a source of problems for patients and their caregivers, while everyday language may promote better understanding (Bourhis et al., 1989; Ong et al., 1995). The doctor-patient communication gap could lead to patients and their caregivers being dissatisfied with the advice given, ultimately leading to non-adherence to treatment (Hadlow & Pitts, 1991). The adverse effects of the communication gap were also demonstrated in the interactions between audiologists and their patients over 55 (Sciacca et al., 2017).

Based on this evidence, we explored if the everyday language in doctors' communication may positively shape the attitudes towards hearing aids, in line with our previous study (Manzi et al., 2021). Given the importance of significant others in shaping attitudes and behaviours of individuals facing hearing loss, we focused our attention

on this specific target to analyse how doctor–patient communication could affect the attitude and behavioural intention of adults who may have kin facing hearing loss. Indeed, younger relatives play a crucial role in seeking help for their loved ones with hearing impairment (Kochkin, 2012; Meyer & Hickson, 2012; Pronk et al., 2017); hence it is pivotal to understand how to promote more positive attitudes and intentions among caregivers. Moreover, more favourable attitudes and behavioural intentions towards hearing aids should be promoted as soon as possible so that these attitudes can consolidate over time and spread among the broader population.

Mainly, the present study aimed to test the following hypotheses:

Participants who read a dialogue about hearing loss and hearing aid use in which the doctor spoke in everyday language showed:

- a. more favourable attitudes towards hearing loss;
- b. more favourable attitudes towards hearing aids;
- c. greater inclination to adopt hearing aids in case of future need;
- d. higher likelihood to recommend the adoption of hearing aids to family and friends in case of future need, compared to the participants who read the dialogue on the same topic in which the doctor spoke in medical language.

## 2 | MATERIALS AND METHODS

### 2.1 | Participants

The data were collected via an anonymous online survey using a snowball sampling method between October and November 2020. The volunteers were recruited among the researchers' pool of acquaintances, word of mouth, and online social networks. The survey involved reading an excerpt from a dialogue in which a doctor spoke to the participant, who had to imagine the information as being about their kin (see Appendix). Eligible participants were between 19 and 60 years and were native Italian speakers. At the time of the survey, none of the participants nor their families had been diagnosed with COVID-19 or exhibited related symptoms (severe and persistent flu-like symptoms, hospitalisation). This exclusion criterion was adopted to have a sample comparable to that of our previous study. Furthermore, people who experienced Covid-19 have had a closer relationship than usual with the medical world. This extraordinary situation could have distorted the results.

209 participants took part in the online survey, 66 males (31.6%) and 143 females (68.4%), with a mean age of 33.92 ( $SD = 12.97$ , range 19–60). The majority of respondents were educated to high school diploma level (49.8%). None of them wore hearing aids, and 38 participants said their family and friends wore hearing aids (18.2%).

The sample size adequacy was established by resorting to power analysis (Cohen, 1988), using G\*Power Version 3.1.9.7 (Faul et al., 2007). We calculated the sample size requested to perform one-way ANOVA with the following parameters—effect size  $f = 0.25$ ,  $\alpha = 0.05$ , Power = 0.80, number of groups = 3. The first parameter indicates a medium effect size (Cohen, 1988). Given the

originality of the present study, it was not possible to choose a reference value based on previous literature. Therefore it was decided to calculate the sample size necessary to detect medium-size effects. The following two parameters reflect the most widely used significance criterion and the generally accepted minimum power level, respectively (Cohen, 1988). The sample size calculated was 159 individuals. Based on these considerations, the sample size of the study was sufficient to detect medium-size effects.

A preliminary analysis verified that participants assigned to the three groups did not differ in terms of gender [ $\chi^2(2, N = 209) = 4.34$ ;  $p = 0.11$ ], age ( $F = 1.28$ ;  $p = 0.28$ ), geographical area of residence [ $\chi^2(6, N = 208) = 9.72$ ;  $p = 0.14$ ], and education [ $\chi^2(8, N = 209) = 6.68$ ;  $p = 0.57$ ].

The study received the approval of the Ethical Committee of the Università Cattolica del Sacro Cuore of Milan, and all methods were performed following the relevant guidelines and regulations.

### 2.2 | Procedure

The first part of the questionnaire collected information about sociodemographic indicators.

#### 2.2.1 | Experimental manipulation

After completing the first part of the questionnaire, participants were randomly assigned to one of three groups and made to read an excerpt from a dialogue in which the doctor addressed the participant, who had to imagine hearing the advice on behalf of an older relative.

The text was drafted through a focus group between the authors of this study, research experts in language and social psychology, and two otolaryngology university professors, both research and clinical experts (see Acknowledgements). The drafting of the text was guided by a previous study that investigated the social representation of hearing impairment through the linguistic expressions used by the media (Manzi et al., 2021). In that study, we performed a text mining process on a set of newspaper articles, specialised threads on internet fora between non-experts and medical doctors, and peer-to-peer threads on internet fora.

We compiled a text on hearing loss in which the doctor addressed the participant directly. The participant had to imagine they were a caregiver and accompany a relation over 70. In one text, we deliberately included several medical terms—e.g., hypoacusis, acoustic devices—while in the other, colloquial terms replaced these words and phrases—e.g., hearing loss, hearing aids. In this way, the same text was used in two experimental conditions. The version that contained the medical terms was submitted to the participants grouped under 'medical language condition' and the one with a common language to the group "everyday language condition" (see Appendix). The correspondence between terms with the same meaning but expressed in medical or everyday language was established through the textual analysis results reported in Manzi et al. (2021). Participants assigned

to the control group read the same text in which all references to hearing impairment had been removed.

At the end of the reading, the participants were asked to assess the text according to six pairs of opposite adjectives on a seven-point scale ranging from 1 (e.g., formal) to 7 (e.g., informal). The items were Freddo–Caldo (Cold–Warm), Formale–Informale (Formal–Informal), Tecnico–Colloquiale (Technical–Colloquial), Scientifico–Comune (Scientific–Common), Incomprensibile–Comprensibile (Incomprehensible–Understandable), Oscuro–Chiaro (Unclear–Clear). This semantic differential scale, based on a validated Italian scale (Maggino & Mola, 2007), had the purpose of verifying whether the experimental manipulation has been successful (manipulation check) or whether the participants perceived the text as the authors had intended it. After reading the newspaper article, four outcome measures were assessed following the four hypotheses described above. Concepts' operationalisation was performed to keep the questions simple, specific and concise (Podsakoff et al., 2003).

## 2.2.2 | First outcome: Attitude towards hearing loss

This variable was assessed using a semantic differential scale based on Maggino and Mola (2007) on a seven-point scale, ranging from 1 (e.g., disabled) to 7 (e.g., normal). Participants were instructed to read each pair of adjectives and to select, with a mouse, a box more or less close to the adjective they considered more suitable to describe the concept of hearing loss. The items were Spaventoso–Tranquillo (Frightful–Calm), Disabile–Normale (Disabled–Normal), Imprevisto–Previsto (Unexpected–Expected). A mean score between the three items was calculated, with a higher score reflecting a more positive attitude towards hearing loss.

## 2.2.3 | Second outcome: Attitude towards hearing aids

This variable was assessed using a semantic differential item (Maggino & Mola, 2007) on a seven-point scale, ranging from 1 to 7. Participants were instructed to read two adjectives and to select a box more or less close to the adjective they considered more suitable to describe the concept of hearing aids. The item was Inutile–Utile (Not Useful–Useful). A higher score reflected a more positive attitude towards hearing aids.

## 2.2.4 | Third outcome: Behavioural intention to adopt hearing aids

This variable was measured with a single item. Participants had to indicate their agreement on a five-point scale, ranging from 1 (not at all willing) to 5 (very willing) regarding their propensity to adopt hearing aids in the event of future need. The item was 'If you experience

deterioration or hearing loss in the future, indicate how likely you are to purchase a hearing aid.'

## 2.2.5 | Fourth outcome: Behavioural intention of recommending the adoption of hearing aids

This variable was measured with a single item. Participants had to indicate their agreement on a five-point scale, ranging from 1 (not at all willing) to 5 (very willing) regarding their willingness to recommend hearing aids to family and friends in the event of future need. The item was "If a relative or friend suffers from impaired hearing or hearing loss in the future, indicate how likely you would recommend them to purchase hearing aids."

## 2.3 | Data analysis

The online survey was created and administered using Qualtrics Platform. The analyses were performed using the Statistical Package for the Social Sciences (SPSS) software, version 26.

A chi-square test of independence was run to examine if the three groups—medical language, everyday language, and control—differed in gender and educational level. One-way analyses of variance (ANOVA) was performed to examine if the three groups differed in age.

The items of the scales created ad hoc for the present study underwent a preliminary analysis to check the normal distribution by calculating mean, standard deviation (*SD*), and indices of skewness and kurtosis; Barbaranelli (2007) recommend concern if skewness > |1| and kurtosis > |1|. Cronbach's  $\alpha$  was calculated to examine internal consistency. Cronbach's  $\alpha$  higher than 0.60 was considered acceptable (Nunnally & Bernstein, 1994).

Various ANOVAs were performed, each considering the mean score of an outcome measure as the dependent variable and the group as the independent variable (3 levels: medical language, everyday language, and control group). Assumption checks were performed before running each ANOVA by evaluating skewness and kurtosis to check the normal distribution of the variables and Levene's test to check the variances' homogeneity. Based on the assumption checks results, ANOVA was performed using Welch's Test (unequal variances) or Fisher's Test (equal variances). Post-hoc Tukey (equal variances) or Games-Howell (unequal variances) tests were used for multiple comparisons of means.

## 3 | RESULTS

### 3.1 | Experimental manipulation

Regarding the distribution of the answers to each item of the manipulation check scale, we found that the first four items had a mean score close to 4, while the last two items had a mean score close to 6.

These scores suggested that most participants judged the text as clear (62.9%) and understandable (70.6%). This observation was endorsed by the slight asymmetrical distribution of the last two item scores. The difference between the item's distribution suggested that the text's difference was perceived more in terms of style than comprehensibility. In the subsequent analyses, the variable manipulation check was expressed in terms of the mean score of the items (see Table 1).

The ANOVA was performed considering the manipulation check scale mean score as the dependent variable and the group as the independent variable. Assumption checks suggested that the group variances were non-homogeneous (Levene's test was significant,  $F = 3.54$ ;  $p < 0.05$ ). Results highlighted a significant effect of the variable group ( $F_W = 25.3$ ;  $p < 0.001$ ;  $f = 0.52$ ). The text written in medical language was perceived as more formal and difficult to understand (Mean = 3.83;  $SE = 0.12$ ) than the text written in an everyday language (Mean = 4.90;  $SE = 0.15$ ) and the control text (Mean = 5.06;  $SE = 0.13$ ). Post-Hoc tests showed that the contrast between the medical language group and the other two groups was statistically significant ( $p < 0.001$ ). The contrast between the everyday language and the control groups was not significant.

### 3.2 | First outcome: Attitude towards hearing loss

Regarding the distribution of the answers to each item of the semantic differential scale created to assess the attitude towards hearing loss, we

found a mean score between 2.30 and 3.25. This result suggests that most participants had a negative attitude towards hearing loss, closer to the concepts of frightful, disabled, unexpected than their opposite. Skewness and kurtosis indexed symmetrical distributions of the items. In the subsequent analyses, the variable attitude towards hearing loss was expressed in terms of the mean score of the items (see Table 2).

The ANOVA considered attitude towards hearing loss as the dependent variable and group as the independent variable. Assumption checks suggested that the group variances were homogeneous (Levene's test was not significant). Results highlighted a significant effect of the variable group ( $F = 5.81$ ;  $p < 0.005$ ;  $f = 0.24$ ). The everyday language group expressed a more positive attitude towards hearing loss (Mean = 3.32;  $SE = 0.14$ ) than the medical language group (Mean = 2.71;  $SE = 0.12$ ) and the control group (Mean = 2.88;  $SE = 0.12$ ). Post-Hoc tests showed that the contrast between the everyday and medical language groups was statistically significant ( $p < 0.01$ ). The contrast between the everyday language and the control groups approached significance ( $p = 0.052$ ). The contrast between the medical language and the control groups was not significant (Figure 1).

### 3.3 | Second outcome: Attitude towards hearing aids

The distribution of the answers to the semantic differential item created to assess the attitude towards hearing aids (Not Useful–Useful)

TABLE 1 Descriptive statistics of the items of the manipulation check scale (Cronbach's  $\alpha = 0.84$ )

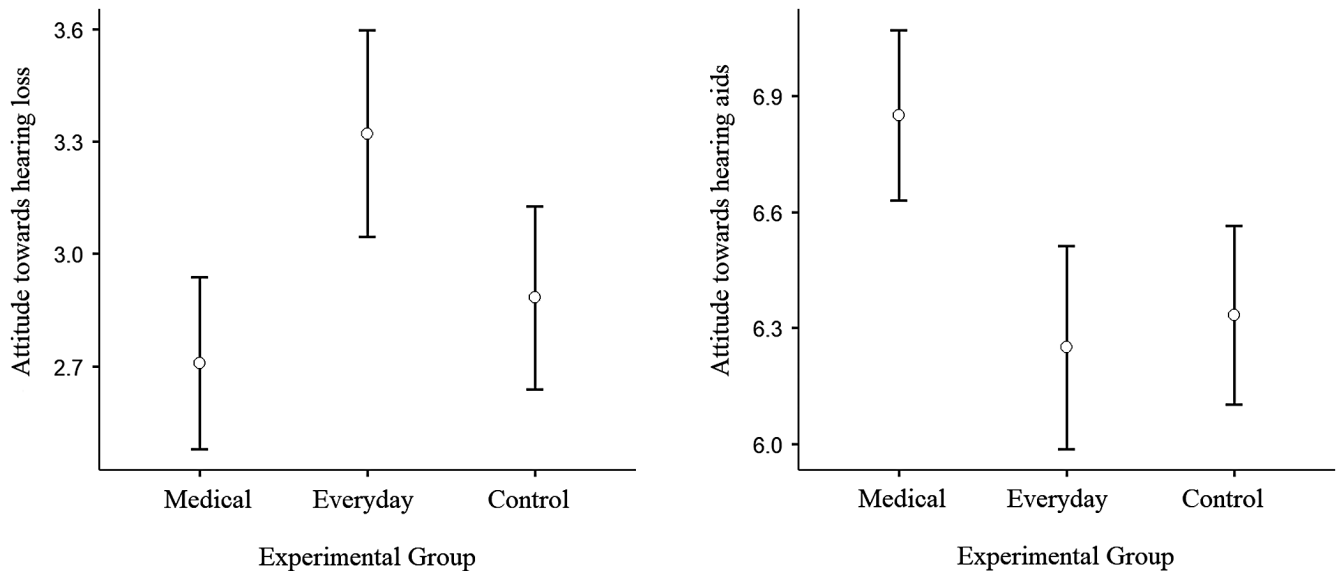
	Cold–warm	Formal–informal	Technical–colloquial	Scientific–common	Incomprehensible–understandable	Unclear–clear	Mean score
N	208	209	209	208	208	208	208
Mean	4.67	3.67	3.81	3.74	5.74	5.65	4.54
SD	1.61	1.67	1.86	1.70	1.55	1.52	1.24
Skewness	–0.57	0.03	–0.00	0.09	–1.36	–1.20	–0.40
SE	0.17	0.17	0.17	0.17	0.17	0.17	0.17
Kurtosis	–0.47	–0.99	–1.17	–0.99	1.16	0.96	–0.42
SE	0.34	0.34	0.34	0.34	0.34	0.34	0.34

Note: Participants were asked to assess the text according to the six pairs of opposite adjectives on a seven-point scale ranging from 1 (e.g., cold) to 7 (e.g., warm). In the ANOVA, the variable manipulation check was expressed in terms of the mean score of the items.

TABLE 2 Descriptive statistics of the items of the attitude towards hearing loss scale (Cronbach's  $\alpha = 0.62$ )

	Frightful–calm	Disabled–normal	Unexpected–expected	Mean Score
N	209	209	208	208
Mean	2.30	3.24	3.25	2.93
SD	1.18	1.48	1.57	1.07
Skewness	0.92	0.62	0.22	0.56
SE	0.17	0.17	0.17	0.17
Kurtosis	0.47	–0.19	–0.95	–0.10
SE	0.34	0.34	0.34	0.34

Note: Participants were instructed to read each pair of adjectives and to judge the concept of hearing loss on a seven-point scale ranging from 1 (e.g., frightful) to 7 (e.g., calm). In the ANOVA, the variable attitude towards hearing loss was expressed in terms of the mean score of the items.



**FIGURE 1** Participants who read the everyday dialogue showed a more positive attitude towards hearing loss than the participants who read the other two dialogues (on the left). On the contrary, participants who read the medical dialogue showed a more positive attitude towards the hearing aids, deeming them more useful than the participants who read the other two dialogues (on the right). *Note.* The scales of the attitude towards hearing loss (on the left) and hearing aids (on the right) range from 1 to 7

had a mean score of 6.51 (on a 7-point scale,  $SD = 1.03$ ;  $N = 208$ ). This result suggests that most of the participants expressed favourable attitudes toward hearing aids. This observation is confirmed by the item scores' asymmetrical distribution (Skewness =  $-3.58$ ;  $SE = 0.17$ ; Kurtosis =  $15.0$ ;  $SE = 0.34$ ).

Considering the strong negative asymmetrical distribution of this variable, we corrected the violation of the assumption of normality by inverse transformation (Fidell & Tabachnick, 2003). The transformed variable had a symmetrical distribution (Skewness =  $-0.98$ ;  $SE = 0.17$ ; Kurtosis =  $-0.63$ ;  $SE = 0.34$ ). The ANOVA was performed considering the item's transformed mean score as the dependent variable and the group as the independent variable. Assumption checks suggested that the group variances were non-homogeneous ( $F = 50.66$ ;  $p < 0.001$ ). Results highlighted a significant effect of the variable group ( $F_W = 12.9$ ;  $p < 0.001$ ;  $f = 0.32$ ). The medical language group expressed a more positive attitude towards hearing aids (Mean =  $6.85$ ;  $SE = 0.04$ ) than the everyday language group (Mean =  $6.25$ ;  $SE = 0.17$ ) and the control group (Mean =  $6.33$ ;  $SE = 0.14$ ). Post-hoc tests showed that the contrast between the medical language and the other two groups was statistically significant ( $p < 0.001$ ). The contrast between the everyday language and the control groups was not significant (Figure 1).

### 3.4 | Third outcome: Behavioural intention to adopt hearing aids

The mean score of this outcome measure was close to 4.5, suggesting that most participants said they would adopt hearing aids in case

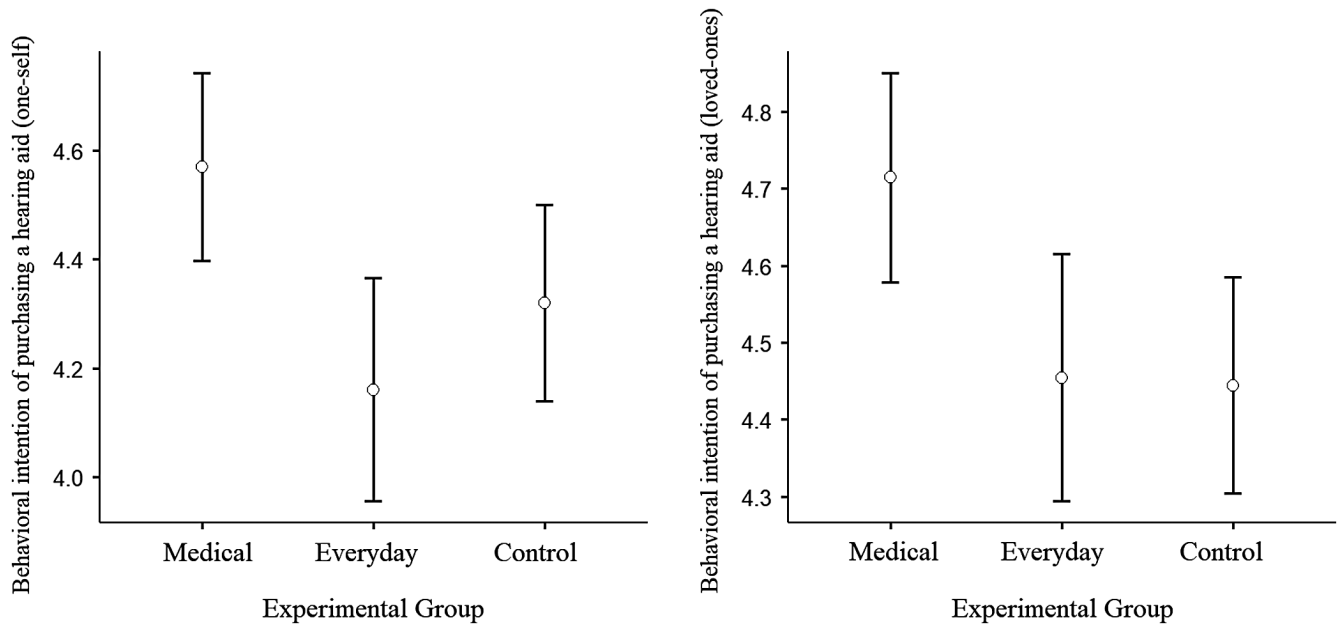
**TABLE 3** Descriptive statistics of the items referring to the behavioural intention of adopting hearing aids

	Ref. to one-self	Ref. to family/friends
N	207	204
Mean	4.37	4.55
SD	0.79	0.61
Skewness	-1.13	-1.16
SE	0.17	0.17
Kurtosis	0.95	0.93
SE	0.34	0.34

*Note:* Participants had to indicate their propensity to adopt hearing aids in the event of future need or their willingness to recommend hearing aids to family and friends on a five-point scale, ranging from 1 (not at all willing) to 5 (very willing).

of hearing loss. The distribution of this variable is symmetrical (see Table 3).

The ANOVA was performed considering the behavioural intention to adopt hearing aids as the dependent variable and group as the independent variable. Assumption checks suggested that the group variances were homogeneous. Results highlighted a significant effect of the variable group ( $F = 4.81$ ;  $p < 0.01$ ;  $f = 0.22$ ). The medical language group reported that they would be more likely to adopt hearing aids when needed (Mean =  $4.57$ ;  $SE = 0.09$ ) than the everyday language group (Mean =  $4.16$ ;  $SE = 0.10$ ) and the control group (Mean =  $4.32$ ;  $SE = 0.09$ ). Post-hoc tests showed that the contrast between the medical and everyday language groups was statistically significant ( $p < 0.01$ ). The other contrasts were not significant (Figure 2).



**FIGURE 2** Consistent with what was observed for the attitude towards hearing aids, the participants who read the medical dialogue expressed a higher intention to adopt hearing aids than the participants who read the other two dialogues, both for themselves and for their family or friends. *Note.* The scales of the behavioural intention to adopt hearing aids (on the left) and of recommending the adoption of hearing aids (on the right) range from 1 to 5

### 3.5 | Fourth outcome: Behavioural intention of recommending the adoption of hearing aids

The mean score of this outcome measure was close to 4.5, suggesting that most participants said they would recommend adopting hearing aids to family and friends in case of hearing loss. The distribution of this variable is symmetrical (see Table 3).

The ANOVA was performed considering the behavioural intention of recommending hearing aids as the dependent variable and group as the independent variable. Assumption checks suggested that the group variances were not homogeneous ( $F = 10.3$ ;  $p < 0.001$ ). Results highlighted a significant effect of the variable group ( $F_W = 5.42$ ;  $p < 0.01$ ;  $f = 0.21$ ). The medical language group reported that they would be more likely to recommend adopting hearing aids when needed (Mean = 4.71;  $SE = 0.07$ ) than the everyday language group (Mean = 4.45;  $SE = 0.08$ ) and the control group (Mean = 4.44;  $SE = 0.07$ ). Post-Hoc tests showed that the contrasts between the medical language group and the other two groups were statistically significant ( $p < 0.05$ ). The remaining contrasts were not significant (Figure 2).

## 4 | DISCUSSION

The study investigates how the family doctors' language may shape attitudes and behavioural intentions in the area of hearing. Overall, the results suggest that reading a dialogue in which the doctor uses medical language may favour positive attitudes toward hearing aids and encourage people to rely on hearing aids when needed.

Regarding the first outcome, the results suggested that reading a dialogue that uses everyday language may favour positive attitudes towards hearing loss, confirming our original hypothesis. Indeed, the participants who read the everyday dialogue judged the concept of hearing loss closer to the adjectives 'calm,' 'normal,' and 'expected.' On the contrary, the participants who read the medical and control dialogue judged the concept of hearing loss closer to the adjectives 'frightful,' 'disabled,' and 'unexpected.' This result suggested that participants who read the everyday dialogue associated hearing impairment less with pathology and more with a normal phenomenon. These findings align with research highlighting the importance of language in attitude formation (Holtgraves, 2013; Sato, 2006). Also, in line with previous studies, the results show the importance of verbal labels to counteract the negative image associated with a health condition (Koike et al., 2016; Sato, 2006).

Regarding the second outcome, the results showed the opposite pattern, refuting our original hypothesis. The participants who read the medical dialogue showed a more positive attitude towards hearing aids, judging them as more useful than those who read the other two dialogues. This result is interesting from two points of view. First, the effectiveness of language manipulation in modulating the attitude towards hearing aids is relevant if considered in the light of literature focused on hearing aid users. Indeed, patients who had a positive attitude toward hearing aids before using them have shown more inclination to rely on them and higher satisfaction with them (Knudsen et al., 2010; Kochkin, 2007; Meyer & Hickson, 2012). Second, the role of language in modulating the attitudes towards hearing loss and hearing aids appears to be conflicting. Our findings show that the minimalisation of hearing loss may discourage

people from adopting hearing aids, thus proving counterproductive (Kochkin, 2007). Combined, our findings suggest that doctor–patient communication based on medical language, although less reassuring about hearing loss, is more effective in persuading people about the usefulness of hearing aids.

The last two outcomes were consistent with the results for attitude towards hearing aids, and again, they refuted our original hypotheses. The participants who read the medical dialogue expressed a higher intention to adopt hearing aids and recommend hearing aids to their family and friends in case of future need than the participants who read the other two dialogues. Therefore, the medical language favoured a positive attitude towards hearing aids and the behavioural intention to adopt them. Considering that the sample was drawn from the general adult population—under 60—these results must be interpreted cautiously. In fact, the behavioural intention of adopting hearing aids refers to a hypothetical and future need. The most interesting aspect of these results is that the medical language encourages would-be caregivers to adopt hearing aids for their kin. Several studies within the theory of planned behaviour conceptual framework have highlighted the impact of attitude and behavioural intention on the decision-making process, underlying that these aspects can even predict future health condition of individuals by measuring their willingness to undertake treatments when diagnosed (Armitage & Conner, 2001). Crucially, it has been demonstrated that if family and friends show a positive attitude towards hearing aids, they can encourage the help-seeking process and hearing aid adoption (Kochkin, 2007; Mahoney et al., 1996; van den Brink et al., 1996) as well as continuity in hearing aid use over time (Hickson et al., 2014).

The conclusions drawn from the present study seem in conflict with past studies, which evidenced that the use of medical language by health professionals may be problematic for patients, while everyday language may promote better understanding (Bourhis et al., 1989; Ong et al., 1995). It should be emphasised that most of the participants in this study judged the dialogues clear and understandable, as evidenced by the results of the manipulation check scale. Therefore, it is legitimate to conclude that the medical language is more effective, notwithstanding the challenges in immediately comprehending its whole meaning. Interestingly, similar suggestions come from studies that focused on other issues related to communication in the context of healthcare. For example, Cummings and Kong (2019) observed a significantly higher propensity to vaccinate against influenza among respondents exposed to a text written in medical language than in everyday language. The authors argued that people exposed to medical language perceived greater severity of the disease and consequently expressed greater intentions to adopt the advised health behaviour than people exposed to everyday language. Considering that psychosocial literature has demonstrated that behaviour is a function of attitudes and intentions (Ajzen, 1985; Ajzen & Fishbein, 1977), it can be deduced that improving attitudes towards hearing aids and the intention to use them can favour usage behaviour. Interestingly, Meister et al. (2008) examined the relationship between the intention to

use hearing aids—measured before hearing aid had been fitted—and hearing aid adoption 3 months later. After 3 months, the degree of predisposition to use hearing aids proved to have been predicted quite accurately.

The present study results contrast with our previous study results (Manzi et al., 2021). Indeed, we had found that the use of everyday language in the press could positively influence people's attitudes towards hearing aids. The results of the two studies can be reconciled by deducing that everyday language is effective when used in media communication, as it diminishes the stigma associated with hearing aids. However, in a medical context, everyday language may lead to a more superficial attitude towards the usefulness of hearing aids and is not altogether conducive to tackle hearing loss. Therefore, in a medical context, formal and technical language seems to be more effective. When used by a doctor, it is also plausible that everyday language may come across as 'odd' because people are not used to it. The scarce habit of hearing a doctor speaking in everyday language and the consequent perceived inappropriateness (Ong et al., 1995) could negatively influence attitude and intentions toward hearing aids. Moreover, the use of everyday language by medical professionals might be viewed as lacking professionalism and, as a result, promoting mistrust among their talkers. Trust towards health professionals is one determining factor that prompts the decision to seek help for hearing loss and adopt hearing aids (Kochkin, 2012; Preminger et al., 2015).

The present study has limitations related to the generalizability of the results. First, we explored attitudes and intentions in a sample of adults aged 19–60 enrolled through a snowball sampling method. Therefore, the present convenience sample is not representative of the general Italian population. Moreover, it would be desirable to replicate the study on a sample of older adults affected by some degree of hearing loss to understand if the propensity to use hearing aids—in this case, led by necessity—is influenced by language. It should also be noted that our results are related to the Italian linguistic-cultural context. Cross-cultural differences play an important role in determining the impact of language on individual perception and attitudes; hence it would be desirable, in the future, to explore the phenomenon investigated in this study in other languages and other cultures where, for example, the degree of power distance varies. Finally, the choice of proposing written dialogues and not observing a real interaction with a doctor limits the ecological validity of the results. On the other hand, this methodological choice made it possible to draw specific deductions about the linguistic content of the dialogues provided—eliminating the distracting effect of variables related to non-verbal communication. Moreover, it allowed to reach a large sample with good cost-effectiveness, i.e., in a short time and using an online survey, when it was impossible to conduct face-to-face experiments due to the covid-19 pandemic.

In conclusion, the present study has, for the first time, experimentally investigated the impact of different forms of the language used by health professionals on attitudes towards hearing loss and hearing aids and the intention to adopt/recommend



hearing aids. Hearing aids are an effective rehabilitative option for improving communication and the psychological and social well-being of individuals experiencing the onset of hearing loss. A better understanding of the factors contributing to adopting these rehabilitative tools can facilitate appropriate strategies to promote them.

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## CONFLICT OF INTEREST

The author(s) declared no potential conflicts of interest concerning the research, authorship, and/or publication of this article.

## AUTHORS CONTRIBUTION

Conceptualisation, C.M. and P.S.; methodology, C.M., R.A. and P.S.; formal analysis, R.A.; investigation, R.A. and E.C.; resources, C.M.; data curation, C.M. and R.A.; writing—original draft preparation, R.A.; writing—review and editing, C.M., E.C. and P.S.; visualisation, R.A.; supervision, C.M. and P.S.; project administration, C.M.; funding acquisition, C.M. All authors have read and agreed to the published version of the manuscript.

## DATA AVAILABILITY STATEMENT

The data presented in this study are available on request from the corresponding author. The data are not publicly available due to privacy and ethical restrictions.

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