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Impact of UK National Clinical Communication Guidelines on Adults' Perceptions of Doctors and Treatment Commitment

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ABSTRACT

UK national guidelines recommend how healthcare professionals should communicate with patients. However, the impact of following, or violating, these guidelines on how much the healthcare professional is respected, liked, or trusted, and the mechanisms underpinning, and consequences of, these perceptions have not been tested. To address these gaps, two UK-based, pre-registered studies using within-subjects designs required participants to rate how much they respect, like and trust general practitioners (GPs), as well as how competent, assertive, moral, and warm they are, and their commitment to adhere to their advice. After these baseline assessments, participants were presented with a series of vignettes where hypothetical GPs violated (Study 1, $N = 329$, and Study 2, $N = 329$) and followed (Study 2 only) recommended communication guidelines. Violations reduced respect for GPs more than liking and liking more than trust. Following communication guidelines increased liking for GPs the most followed by trust and respect the least. Violations of, and following, communication guidelines impacted (reduced/increased, respectively) patients' commitment to treatment adherence via trust, primarily, as well as respect. Summarizing information and checking patients have understood the most important information impacted how GPs were evaluated more than the other tested communication recommendations, suggesting this specific recommendation could be prioritized over the other tested recommendations. Furthermore, by impacting how much patients trust and, to a lesser extent, respect their GP, how committed patients are to following treatment advice could be affected by how GPs communicate with their patients.


Effective communication between health professionals and patients is important to ensure that patients' conditions are accurately diagnosed, relevant treatment advice can be provided and understood, and patients experience good, safe interpersonal care (e.g., Brédart et al., 2005; Burgener, 2020; Ong et al., 1995; Sharkiya, 2023). Moreover, poor communication can negatively impact patient wellbeing (e.g., Rodin et al., 2009) and care (e.g., Guppy et al., 2024) and increase the risk of non-adherence (by around 19% according to a meta-analysis by Haskard Zolnerek & DiMatteo, 2009), which is important given that between a third and a half of medication for long-term conditions are not taken as prescribed (National Collaborating Centre for Primary Care, 2009). Guidelines for healthcare professionals in the United Kingdom (UK) have been developed to improve how they communicate with their patients, increase the likelihood that patients make informed choices and ultimately increase patients' treatment adherence (e.g., National Collaborating Centre for Primary Care, 2009; National Clinical Guideline Centre, 2012). Currently, in the UK, overall satisfaction with the National Health Service (NHS) is at its lowest (24%) since records began in 1983; a key factor being waiting times to see a general practitioner (GP) and hospital waiting times (Jefferies et al., 2024). Using guidelines to potentially improve how GPs communicate with their patients and aid satisfaction and treatment

adherence which, in turn, can reduce demand on services is thus particularly important at this time. However, there have been limited tests of the impact of such guidelines, as well as the specific components within the guidelines, on patient-related outcomes and potential underlying mechanisms such as how much patients trust, respect, and like their healthcare professionals.

Perceptions of doctors could relate to treatment relevant outcomes: the role of trust, respect, and liking of doctors

Identifying the factors that can influence how much patients trust (a strong belief in the actions, abilities, or truthfulness of an individual such that one can assume that they have their best interests at heart, Fugelli, 2001), respect (admiring or holding an individual in high regard because of their traits, actions, achievements, status or for being human, Lalljee et al., 2009; Subramani & Biller-Andorno, 2022), and like (a preference or fondness for certain individuals because of their traits or actions) their doctor is important as these can aid the effectiveness of health systems (Wiig et al., 2024) and relate with treatment adherence and (especially self-reported) health outcomes (Benkert et al., 2019; Birkhäuser et al., 2017; Chandra et al., 2018), engagement with care or seeking treatment (Kannan & Veazie, 2014; Rambaran & Harmon, 2024;

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Richmond et al., 2024), treatment satisfaction (Hall et al., 2002; Williams & Calnan, 1991) and perceptions regarding the quality of care (Hong & Oh, 2020). In addition, understanding the factors that can enhance respect for doctors is important given doctors do not always feel respected.

How can doctors become more respected, liked, and trusted? A new test of the Morality-Agency-Communion model

According to Lipworth et al. (2013), threats to doctors' status in society can negatively impact respect but how doctors communicate, act, and their personal qualities remain key determinants of respect, as well as trust (Chandra et al., 2018) and liking (Hildenbrand, 2023). According to the Morality-Agency-Communion (MAC) model of respect and liking (Prestwich et al., 2021), displaying particular traits can influence the degree to which individuals are respected and liked. Specifically, individuals who are competent (e.g., efficient or capable) or assertive (e.g., confident) are respected more than liked, while those who are warm (e.g., friendly) are liked more than respected. Moreover, those who are moral (e.g., have integrity) are particularly well respected and liked.

Within consultations, doctors can be viewed as competent, assertive, moral, and/or warm. For instance, they could display their competence, through clinical and communicational knowledge and skills (Black & Craft, 2004), warmth, by developing empathetic relationships and treating patients as individuals (Howe et al., 2019), assertiveness, by communicating opinions or knowledge with patients and morality by doing so in a non-patronizing manner while respecting their autonomy (Richard et al., 2023). Furthermore, morality is particularly important in this context as a key goal of healthcare is to support the fundamental needs of health (Pellegrino, 2001). In keeping with the MAC model, therefore, how well doctors communicate with their patients (e.g., how competently or warmly they do this) should impact on how much they are respected and liked. To date, however, the MAC model has not been applied within healthcare contexts and has not been extended to consider how the bases of competence, assertiveness, morality, and warmth relate to trust.

Other frameworks and evidence indicate how perceptions of competence, assertiveness, morality, and warmth can influence how much doctors are not only respected and liked but also trusted. Doctors who display competence and care (relevant to both warmth and morality) are likely to be trusted, those who are competent but score low on caring are likely to be respected, those who are caring but score low on competence are more likely to be seen with affection (liked), and those who score low on both competence and caring are likely to be distrusted (e.g., Greene & Ramos, 2021; Paling, 2003). Other work has also linked morality and competence (e.g., Fugelli, 2001), interpersonal qualities, and compassion (that could have both moral and warmth bases), adhering to privacy and confidentiality (linked with morality) and reliability (that can indicate underlying competence and morality) with trust (see, Pearson & Raeke, 2000, for a review). Qualitative evidence tends to also emphasize the role of competence and interpersonal skills for building trust and these factors seem important

across cultures (e.g., Chandra & Mohammadnezhad, 2020; Isangula et al., 2020). In addition, as interactions that create anxiety or doubt can lead to distrust (see Gabay, 2015), assertiveness (e.g., confidence in diagnoses) could also positively influence trust. Consequently, competence, morality, warmth, and assertiveness could all play a role in increasing trust in doctors.

Disentangling the active ingredients

As well as considering the impact of good communication on perceptions of doctors' levels of competence, assertiveness, morality, and warmth and, in turn, how much doctors are trusted, respected and liked, and how committed patients are to following treatment advice, it is important to identify the impact of *specific elements* of communication on these outcomes. For instance, on the basis of correlational evidence, features of communication, such as trying to understand the patient's individual experiences (e.g., Croker et al., 2013; Tarrant et al., 2003), being clear, honest, and respectful (e.g., Rolfé et al., 2014) as well as listening to their patient (Keating et al., 2004) are all related with trust for healthcare professionals. Qualitative evidence has identified similar factors that can build trust such as asking patients what they want, being knowledgeable, kind, and empathetic and giving patients the opportunity to ask questions (e.g., Dang et al., 2017; Lyness et al., 2021). Many of these factors are also likely to influence respect and liking. However, such correlational and qualitative evidence needs to be supported with experimental evidence to strengthen causal claims. In the few experimental studies that have attempted to increase trust in doctors (e.g., Tulskey et al., 2011), few have focused on enhancing doctors' communication skills, do not separate out the effects of specific actions by either testing specific components individually against a control condition or using full- or fractional factorial designs, and tests of building communication skills or other approaches produce conflicting results (see reviews by Richmond et al., 2024; Rolfé et al., 2014). Similarly, while there is meta-analytic support that interventions that train doctors in communication skills increase the likelihood of medication adherence (Haskard Zolnierrek & DiMatteo, 2009) and that broader interpersonal interventions can benefit patients and providers (Haverfield et al., 2020), it is generally difficult to disentangle which features of such multicomponent interventions are effective or which specific elements of guidelines can contribute to positive effects. Where there have been experimental tests of more specific strategies linked to aspects of communication guidelines, they have been focused on different outcomes. For example, Griffey et al. (2015) tested the effect of the teach-back method, where patients say back to the doctor in their own words what they have been told before any misunderstandings are clarified, with the process continuing until the patient correctly recalls the information, on patient comprehension and satisfaction. This is related to recommendation 47 (summarizing information at the end and checking that the patient has understood the most important information; National Clinical Guideline Centre, 2012), albeit fulfillment of recommendation 47 could involve less demand being placed on the patient as it does not explicitly require the

patient to complete cycles of recalling information and having any misunderstandings corrected. A more recent review of 20 studies has also tested the effect of teach-back on a wider range of outcomes (Talevski et al., 2020) but these do not include perceptions of doctors (e.g., their warmth or competence) and how much patients respect, like or trust their GPs.

The current studies

Doctors in the UK may draw upon a range of different guidelines when communicating with their patients. For instance, there are guidelines around how to communicate with children (General Medical Council, 2007) as well as condition-specific guidelines such as those relating to communicating cardiovascular disease risk scores (NICE, 2024). The focus of the current contribution, however, was on testing more general clinical guidance for communication (National Clinical Guideline Centre, 2012, accessible via https://www.ncbi.nlm.nih.gov/books/NBK115230/pdf/Bookshelf_NBK115230.pdf) commissioned by the UK National Institute for Health and Care Excellence (NICE) for healthcare professionals, suitable for communicating with adult patients for a range of medical conditions. These currently active guidelines are based on NHS surveys where patients identify aspects of communication that are important to them, along with the personal and professional experience of individuals in the Guidance Development Group and evidence drawn from the medication adherence clinical guideline (National Collaborating Centre for Primary Care, 2009). However, the impact of such guidance on how doctors are perceived and how such perceptions relate to adherence outcomes in experimental studies is lacking. Consequently, the primary aim of the research was to present an original test of the impact of violating (Study 1 and Study 2) and following (Study 2) these NICE recommended communication strategies, using vignettes based on each specific recommendation, on trust, respect, and liking and, in turn, commitment to following treatment advice.

GPs who follow the specific recommendations from the National Clinical Guideline Centre (2012) such as asking the patient how they wish to be addressed and ensuring their choice is respected and used (recommendation 42), avoiding jargon, and explaining unfamiliar words (recommendation 45), encouraging discussion, and avoiding only asking questions that require a yes/no response (recommendation 46) and summarizing information at the end and checking that the patient has understood the most important information (recommendation 47) should all enhance perceptions of GP competence relative to those GPs who do not follow these recommendations. By enhancing perceptions of competence, the MAC model would predict increases in GP respect (with increases in liking being smaller). Consistent with the MAC model, some of these recommendations could also enhance respect (and liking) via morality. For example, asking how somebody wants to be addressed and checking an individual has understood the most important information both have moral aspects. Some recommendations (e.g., encouraging discussion) could impact how warm patients perceive their GP and, according to the MAC model, in turn, particularly impact liking. By influencing perceptions of GP competence, morality,

and warmth, trust for GPs should also be affected by following (or violating) these communication recommendations (e.g., Paling, 2003; Pearson & Raeke, 2000).

It is not necessarily the case that violating versus following guidance leads to equivalent changes in outcomes. For example, doctors' deprivations in affectionate communication have been reported to be a more reliable predictor of (lower) trust than the presence of affectionate communication with (higher) trust (Hesse & Rauscher, 2019). Moreover, the stronger effects of the "positive" traits of competence and assertiveness on respect than liking might not be reflected by opposite changes in respect and liking from the "negative" equivalents (incompetence and unassertiveness) (Prestwich, 2024). As such, Study 2 tested both the impact of hypothetically violating and following specific elements of communication guidelines and thus served as both a replication and an important extension of Study 1.

Secondary aims were to test: (1) whether different communication recommendations could impact perceptions of doctors and commitment to treatment similarly; and (2) the mechanisms through which specific communication strategies could impact on treatment commitment and how much doctors are respected, liked, and trusted. So far, relatively few studies have adopted an experimental approach to consider trust in the health sector (see Goudge & Gilson, 2005) and there is a dearth of studies that test the effects of communication-based strategies to enhance the respect and liking that patients have for their doctors.

Hypotheses

A diagrammatic representation of the hypotheses is provided in the Online Supplementary Materials (see Figure S1). The hypotheses were as follows:

Compared to baseline, hypothetically violating [following] NICE recommended communication strategies will reduce [increase] (a) respect, (b) liking, (c) trust that participants have for doctors and (d) commitment to follow doctors' advice. In addition, they will rate the doctors as less [more] (e) competent, (f) moral, (g) assertive, (h) warm, (i) positive in their overall evaluation (Study 2 only) compared to baseline (Hypotheses 1a–1i) [Hypotheses 5a–5i].

Reductions [increases] in commitment to following GP advice following hypothetical violations of [following] communication guidelines will be mediated by reductions [increases] in (a) respect, (b) liking, and (c) trust (Hypotheses 2a–2c) [Hypotheses 6a–6c].

In keeping with the MAC model of respect and liking (Prestwich et al., 2021) and evidence that trust emerges for those perceived as competent and caring (and distrust for those perceived as incompetent and uncaring (see Paling, 2003, Figure 1), it was also predicted that:

- reductions [increases] in (a) respect will be mediated by reductions [increases] in (i) competence, (ii) morality, (iii) assertiveness (Hypotheses 3ai–3aiii) [Hypotheses 7ai–7aiii];
- reductions [increases] in (b) trust will also be mediated by reductions [increases] in (i) competence, (ii) morality, (iii) assertiveness, and (iv) warmth (Hypotheses 3bi

- 3biii, 3biv pre-registered for Study 2 only) [Hypotheses 7bi–7biv];
- reductions [increases] in liking will be mediated by reductions [increases] in (a) warmth, (b) morality (Hypotheses 4a–4b) [Hypotheses 8a–8b].

Methods – Study 1 and Study 2

Both studies were preregistered on AsPredicted (Study 1: https://aspredicted.org/L3F_Y2Y; Study 2: https://aspredicted.org/MWD_WBZ) and received ethical approval from the School of Psychology Research Ethics Committee at the University of Leeds [PSCETHS-989 (Study 1) and PSCETHS-1045 (Study 2)]. As the methods for both studies were nearly identical, with the key difference being that Study 2 also tested the effect of the following guidelines, the methods for both studies are described together. Differences between the studies are highlighted, where relevant. The studies were conducted in 2024 (March, Study 1; May and June, Study 2). Data and materials from both studies can be accessed via the Open Science Framework (https://osf.io/wpbc/?view_only=82ad7bc10b39480e8ecc3bdf91b59867).

Participants

To be eligible for Study 1, participants needed to be registered as a UK national and aged 18 years or older on the Prolific participant panel. Individuals who had not taken part in related studies advertised on Prolific by the lead author and had an approval rating of at least 95 were invited to take part. The data collection for Study 2 took place in two waves. The first wave recruited psychology students from a computer-based practical class and thus was not restricted to UK nationals or required individuals to be signed up to Prolific, although all participants lived in the UK. The remaining participants were recruited from Prolific and had the same eligibility criteria as Study 1.

In both studies, the preregistered a-priori sample size was 329 to detect a minimally meaningful effect ($d = .20$) with a 90% power at $p < .01$ (one-tailed) in a repeated measure t -test. Further details regarding how these target sample sizes were achieved are provided in the Online Supplementary Materials. For Study 1, all participants were paid £0.65 including a 15p bonus based on the median completion time of just over 5 min. The final sample in Study 1 ($n = 329$, mean age = 43.41 years, $SD = 13.62$ years) comprised of 309 non-students and 17 students (3 preferred not to say), with 192 describing their gender as female or woman, 135 as male or man, 1 as cis female and 1 as female, genderqueer. Two hundred and thirty-two described their ethnicity as White (e.g., White and White British). Thirty-six were educated up to GCSE/O-Level or reported no educational qualification, 50 up to A-levels, 202 up to degree level (undergraduate or postgraduate) and 41 reported alternatives as their highest educational qualification (e.g., HNC, diploma, City and Guilds).

For Study 2, upon completion, Prolific participants were paid £0.78 including a 13p bonus based on the median completion time of just under 6 min. The final sample in Study 2 ($n = 329$, mean age = 33.07 years, $SD = 15.15$ years) comprised of 188

non-students and 141 students, with 269 describing their ethnicity as White (e.g., White and White British), 241 describing their gender as female, 86 as male, and 2 as non-binary. Most were British or Irish (including English, Welsh, Scottish, and dual nationals, 96.4%; not British, 3.3%; prefer not to say, 0.3%).

Participants completing the study within a class (27.9%) were more likely to fail the attention check than those recruited via Prolific (11.8%), $X^2(1) = 17.10$, $p < .001$. MANOVA indicated that the two groups of participants had similar baseline perceptions of GPs across respect, liking, trust, adherence commitment, overall evaluation, competence, assertiveness, morality, and warmth, $F(9, 319) = 1.45$, $p = .17$.

Design

In Study 1, deviations from the communication guidelines were manipulated within-subjects. Participants first completed baseline measures regarding their views and feelings toward GPs before being presented with four scenarios in which hypothetical GPs were described as deviating from specific recommendations. The rationale for the selection of these recommendations over other options is outlined in the Supplementary Materials (see *Selection of Recommendations*). The order of these four scenarios was randomized. Attention check items (please respond 3 on the rating scale for this item) were included to identify individuals who did not read the statements provided.

In Study 2, an equivalent design was incorporated but included an additional set of four scenarios in which hypothetical GPs were described as following specific recommendations. Whether participants first responded to scenarios where hypothetical GPs followed or violated specific recommendations was additionally randomized.

Conditions

Study 1 and Study 2

In the baseline condition, participants were asked to indicate their views on GPs along a series of rating scales. In the experimental conditions, participants were asked to complete the same measures but in relation to hypothetical GPs described as follows (note the text within parentheses were not shown to participants but are reported to indicate the specific recommendation violated by clinical communication guidance for UK healthcare professionals, National Clinical Guideline Centre, 2012; these four GPs were labeled as GP B1–B4 for Study 2):

GP Number 1. In consultations, GP 1 does NOT ask the patient how they wish to be addressed and so DOES NOT ensure that their choice is respected and used (violation of recommendation 42).

GP Number 2. In consultations, GP 2 uses jargon and does NOT explain unfamiliar words (violation of recommendation 45).

GP Number 3. In consultations, the GP does NOT encourage discussion because they only ask questions that require a yes/no response (violation of recommendation 46).

GP Number 4. In consultations, GP 4 does NOT summarize information at the end and does NOT check that the

patient has understood the most important information (violation of recommendation 47).

Study 2 only

GP Number 1. In consultations, GP 1 asks the patient how they wish to be addressed and so ensures that their choice is respected and used.

GP Number 2. In consultations, GP 2 avoids jargon and explains unfamiliar words.

GP Number 3. In consultations, GP 3 encourages discussion and avoids only asking questions that require a yes/no response.

GP Number 4. In consultations, GP 4 summarizes information at the end and checks that the patient has understood the most important information.

Measures

All constructs were assessed using single items along 7-point scales (Strongly Disagree – Strongly Agree, 1–7): respect (I respect GP X very much); liking (I like GP X very much); trust (I trust GP X very much); adherence commitment (If given advice or a treatment plan by GP X, I would be committed to adhere to/follow them); competence (GP X is competent (e.g., capable and knowledgeable)); assertiveness (GP X is assertive (e.g., self-confident, assured of their diagnosis)); morality (GP X is moral (e.g., fair and honest)); warmth (GP X is warm (e.g., friendly and talkative)); overall evaluation (I have an extremely positive evaluation of GP X). All constructs were assessed in both studies except overall evaluation; this was included only in Study 2 to examine whether the main mediating effects remained after controlling for overall evaluation.

Procedure

Both studies were completed online within Qualtrics. In both studies, after providing informed online consent, participants provided their Prolific IDs or were asked to provide a 5-digit ID (non-Prolific participants in Study 2) to enable participants to withdraw their data up to a week later, if they chose. After completing a series of demographic measures, participants completed baseline items regarding their views of, and feelings toward, GPs in the following order: respect, liking, trust, adherence commitment, overall evaluation (Study 2 only), competence, assertiveness, morality, and warmth. Next, participants were presented with a series of vignettes describing hypothetical GPs who either violated (Study 1 and Study 2) or followed (Study 2 only) specific recommended communication guidance and were asked to rate these GPs on the same set of measures used at baseline. All participants were then debriefed.

Method of analyses

Two-way (scenario, 5 levels: baseline, communication 1–4 × measure, 3 levels: respect, liking, and trust) within-subjects ANOVAs, followed-up with one-way within-subjects ANOVA for each measure and repeated measures *t*-tests,

tested Hypotheses 1a–1c and 5a–5c (Study 2 only). One-way within-subjects ANOVAs tested Hypotheses 1d–1i and 5d–5i (Study 2 only). Where Mauchly's Test of Sphericity was significant, the Greenhouse–Geisser correction was used when the associated epsilon value was below .75 and the Huynh–Feldt correction used when the epsilon value exceeded .75. Bonferroni post-hoc tests were used to examine the main effects of the scenario and measure in the two-way within-subjects ANOVA. For Study 2, simple contrasts were pre-registered to maximize power. However, for ease of comparison across studies, Bonferroni post-hoc tests are reported instead.

Within-subjects mediation, via the MEMORE version 2.1 macro, was used to test Hypotheses 2–4 and 6–8 (Study 2 only). For Hypotheses 2a–2c and 6a–6c, respect, liking, and trust were tested, first, as individual mediators of the effect of the hypothetical violation on commitment to adhere to GP advice before being tested in multiple mediator models. Multiple mediator models are helpful for addressing the limitations of single mediator models that are potentially confounded by mediators not included in the model and enable competitive tests of which mediators are the most robust (e.g., whether respect, liking, or trust is the most robust mediator of the effect of the violation on adherence commitment) (Montoya & Hayes, 2017). The equivalent approach was taken for the remaining hypotheses with mediators of respect, trust, and liking (e.g., morality) tested in single and multiple-mediator models.

Sensitivity analyses were planned excluding participants who potentially completed the study more than once from the same IP address or with the same Prolific ID, or who reported being a GP. However, none of these conditions applied for Study 1. In Study 2, three participants reported being a GP but, of these, 1 responded too quickly and 1 failed the attention check and were excluded from the analyses.

Results

Study 1 and Study 2 analyses: effects of violating guidelines

Hypotheses 1a–1i: the effect of hypothetical GP communication violations on respect, liking, and trust plus other outcomes

The main effect of the scenario indicated that the GPs were rated differently across conditions (Study 1: $F(3.65, 1196.29) = 303.19, p < .001$; Study 2: $F(3.58, 1174.19) = 286.91, p < .001$). The baseline GP was rated more favourably than each of the hypothetical GPs who violated the communication guidelines (all $p < .001$). GP4 was evaluated less favourably than GPs 1–3 in Study 1 (all $p < .005$) and less favourably than GP 1 and 3 in Study 2 (both $p < .001$). In addition, GP1 was rated more favourably than GPs 2 and 3 in Study 1 only (both $p < .001$). GPs 2 and 3 were not evaluated significantly differently (Study 1: $p = 1$; Study 2: $p = .46$).

The main effect of the measure type indicated that, across GPs, ratings of respect, liking, and trust differed (Study 1: $F(1.93, 634.40) = 127.85, p < .001$; Study 2: F

(1.91, 625.87) = 86.45, $p < .001$). GPs were trusted slightly more than those respected in Study 1 ($p = .048$) but similarly in Study 2 ($p = 1$). GPs were liked less than respected and trusted in both studies (all $p < .001$).

A scenario \times measure interaction (Study 1: $F(7.53, 2470.08) = 22.75$, $p < .001$; Study 2: $F(7.16, 2347.30) = 36.21$, $p < .001$), followed-up with 2×2 within-subjects ANOVAs, indicated that violating the communication guidelines negatively impacted respect more than liking (Study 1 and Study 2: baseline GP vs. GPs 1–4, all $p < .001$, except Study 1: baseline GP vs. GP 3, $p = .005$) and trust (baseline GP vs. GPs 1–4, all $p < .001$ in both studies), as well as liking generally more than trust (baseline GP vs. GPs 1–3, all $p < .001$; baseline GP vs. GP 4, $p > .05$, in both studies) (see Figures 1 and 2).

Supporting Hypotheses 1a–1i, respect, liking, trust, commitment to adherence, overall evaluation (Study 2 only), along with perceptions of competence, assertiveness, morality, and warmth were adversely affected by each hypothetical communication guideline violation compared to baseline in both studies (see Tables 1 and 2).

Hypotheses 2a–2c: the effect of hypothetical GP communication violations on reduced adherence commitment will be mediated by reductions in respect, liking, and trust

Respect, liking and trust were significant mediators in all single mediator models across both studies (see Tables S1 and S5). Across both studies, trust was a robust mediator across all multiple mediator models supporting Hypothesis 2c. Evidence

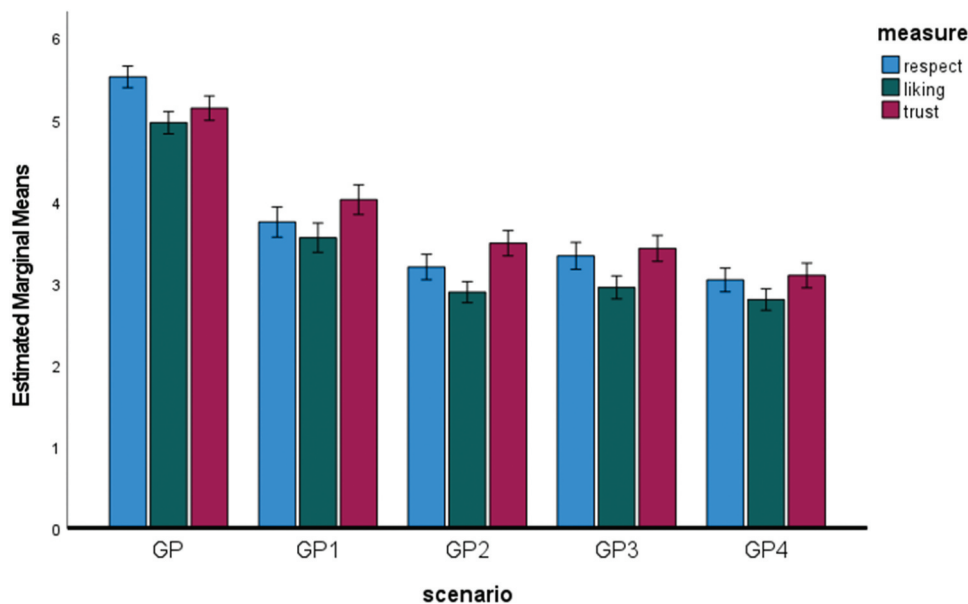


Figure 1. Respect, liking and trust across baseline and violating condition GPs in Study 1 (95% confidence intervals).

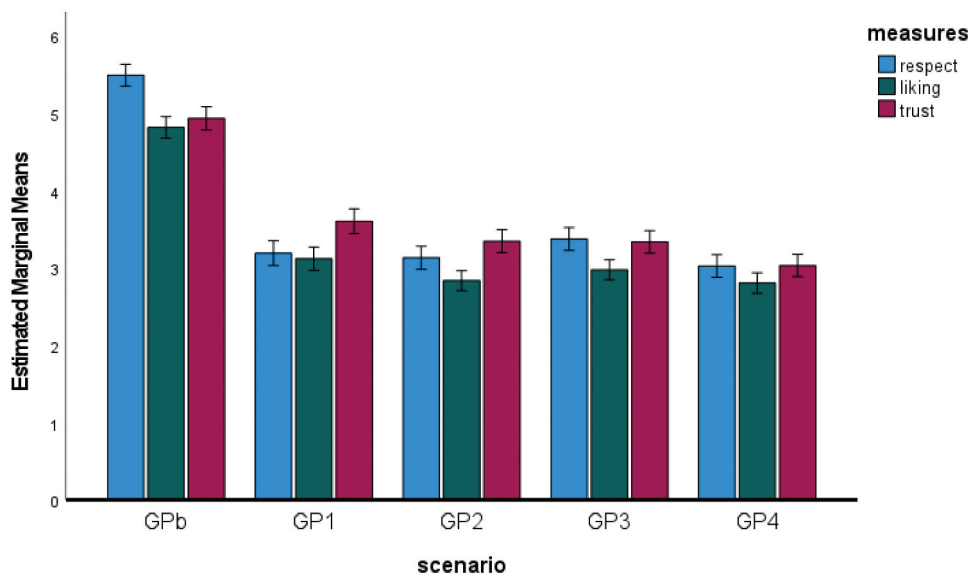


Figure 2. Respect, liking and trust across baseline and violating condition GPs in Study 2 (95% confidence intervals).

Table 1. Study 1 means and standard deviations of measures ($N = 329$).

Measure	GPb		GP 1		GP 2		GP3		GP 4		$F(4, 1312)$	η_p^2
	M	SD	M	SD	M	SD	M	SD	M	SD		
Respect	5.52 ¹	1.21	3.74 ²	1.71	3.19 ^{3,4}	1.43	3.33 ³	1.52	3.03 ⁴	1.33	297.62	.48
Liking	4.96 ¹	1.26	3.55 ²	1.65	2.88 ³	1.18	2.94 ³	1.30	2.79 ³	1.21	263.21	.45
Trust	5.13 ¹	1.38	4.02 ²	1.68	3.48 ³	1.44	3.42 ³	1.46	3.09 ⁴	1.40	194.47	.37
Adherence Commitment	5.71 ¹	1.18	4.56 ²	1.67	4.12 ³	1.47	4.12 ³	1.57	3.82 ⁴	1.52	191.79	.37
Competent	5.52 ¹	1.13	4.63 ²	1.44	4.45 ²	1.35	4.09 ³	1.46	3.86 ⁴	1.38	141.95	.30
Assertive	5.38 ¹	1.12	4.87 ²	1.47	4.78 ²	1.48	4.70 ²	1.38	4.20 ³	1.54	57.84	.15
Moral	5.37 ¹	1.19	3.86 ²	1.58	3.87 ²	1.33	3.73 ²	1.35	3.53 ³	1.37	189.05	.37
Warm	4.64 ¹	1.28	3.17 ²	1.59	2.80 ³	1.29	2.39 ⁴	1.21	2.60 ³	1.22	231.89	.41

GPb = Baseline. GP; GP 1 = does not ask the patient how they would like to be addressed; GP 2 = uses jargon and does not explain unfamiliar words; GP 3 = does not encourage discussion/uses only questions needing a yes/no response; GP 4 = does not summarize information or check patients' understanding. Significant differences from Bonferroni post-hoc tests are indicated where GP conditions do not share a superscript for a specific measure. Degrees of freedom reported are the uncorrected degrees of freedom. For adherence, $df = 4, 1308$.

Table 2. Study 2 means and standard deviations of measures across baseline and violation conditions ($N = 329$).

Measure	GPb		GP 1		GP 2		GP3		GP 4		$F(4, 1312)$	η_p^2
	M	SD	M	SD	M	SD	M	SD	M	SD		
Respect	5.50 ¹	1.31	3.19 ^{2,3}	1.48	3.13 ²	1.38	3.38 ³	1.36	3.03 ²	1.35	313.03	.49
Liking	4.82 ¹	1.28	3.12 ²	1.39	2.84 ³	1.19	2.98 ^{2,3}	1.19	2.81 ³	1.22	240.06	.42
Trust	4.94 ¹	1.40	3.61 ²	1.47	3.35 ³	1.38	3.34 ³	1.34	3.03 ⁴	1.33	160.29	.33
Adherence Commitment	5.70 ¹	1.21	4.39 ²	1.48	4.09 ³	1.55	4.06 ³	1.45	3.82 ⁴	1.44	185.92	.36
Competent	5.38 ¹	1.26	4.19 ²	1.42	4.41 ²	1.40	3.97 ³	1.36	3.67 ⁴	1.37	135.60	.29
Assertive	5.07 ¹	1.30	4.47 ^{2,3}	1.44	4.65 ²	1.43	4.42 ³	1.44	4.06 ⁴	1.48	39.25	.11
Moral	5.27 ¹	1.31	3.29 ²	1.54	3.59 ³	1.34	3.57 ³	1.27	3.38 ²	1.34	207.13	.39
Warm	4.57 ¹	1.31	2.83 ²	1.47	2.64 ^{2,3}	1.17	2.32 ⁴	1.06	2.55 ³	1.24	259.58	.44
Positive	4.68 ¹	1.39	3.16 ²	1.46	2.86 ^{3,4}	1.20	2.95 ^{2,3}	1.19	2.76 ⁴	1.19	208.68	.39

GPb = Baseline. GP; GP 1 = does not ask the patient how they would like to be addressed; GP 2 = uses jargon and does not explain unfamiliar words; GP 3 = does not encourage discussion/uses only questions needing a yes/no response; GP 4 = does not summarize information or check patients' understanding. Significant differences from Bonferroni post-hoc tests are indicated where GP conditions do not share a superscript for a specific measure. Degrees of freedom reported are the uncorrected degrees of freedom.

for respect was consistent across all models in Study 2 but in only one multiple-mediator model in Study 1 providing some support for Hypothesis 2a. There was less support for Hypothesis 2b, as liking was only significant in one multiple mediator model in Study 1 and in none of the equivalent models in Study 2. In Study 2, a further set of mediation analyses were conducted, adding positive evaluation as an additional mediator. The results of these mediation analyses were consistent with the previous set of analyses with all significant mediators remaining significant and vice-versa.

Study 2 analyses: effects of following guidelines

Hypotheses 5a–5i: the effect of hypothetical GPs following communication guidelines on respect, liking, and trust plus other outcomes

The main effect of the scenario indicated that the GPs were rated differently across conditions, $F(3.54, 1160.26) = 89.95$, $p < .001$. The baseline GP was rated less favourably than each of the hypothetical GPs who followed the communication guidelines (all $p < .001$). GP4 was evaluated more favourably than GPs 1–3 (all $p < .001$). GPs 1–3 were evaluated similarly (all $p > .05$).

The main effect of the measure type indicated that, across GPs, ratings of respect, liking, and trust differed, $F(1.93, 633.91) = 100.47$, $p < .001$. GPs were respected more than

liked and trusted (both $p < .001$) and similarly liked and trusted ($p = 1$).

A scenario \times measure interaction, $F(6.42, 2105.64) = 21.68$, $p < .001$, followed-up with 2×2 within-subjects ANOVAs, indicated that following the communication guidelines positively impacted liking more than respect (all $p < .001$), trust more than respect (all $p < .001$) and liking generally more than trust (baseline GP vs. GP1, $p = .005$; baseline GP vs. GP2, $p = .048$; baseline GP vs. GP3, $p = .01$; baseline GP vs. GP 4, $p = .19$) (see Figure 3).

Supporting Hypotheses 5a–5i, respect, liking, trust, adherence commitment, along with perceptions of competence, assertiveness, morality, warmth, and overall evaluation were positively impacted by hypothetically following each communication guideline compared to baseline (see Table 3). The only exceptions to this were that ratings of adherence commitment and competence were not significantly higher for GP1 compared to baseline.

Hypotheses 6a–6c: the effect of hypothetical GPs following communication guidelines on increased adherence commitment will be mediated by increases in respect, liking, and trust

Respect, liking, and trust were significant mediators in all single mediator models (see Table S9). Trust was a robust mediator across all multiple mediator models, even when controlling for overall evaluation, supporting Hypothesis 6c.

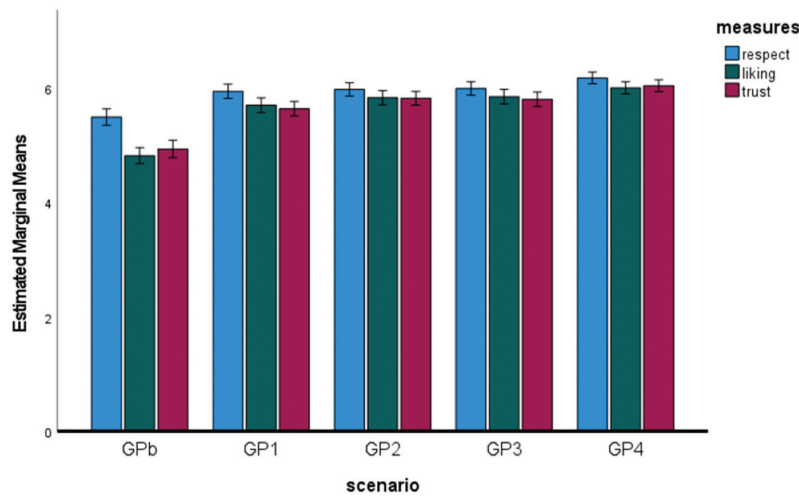


Figure 3. Respect, liking and trust across baseline and following recommendation condition GPs in Study 2 (95% confidence intervals).

Table 3. Study 2 means and standard deviations of measures across the baseline and following recommendation conditions (N = 329).

Measure	GPb		GP 1		GP 2		GP3		GP 4		F(4, 1312)	η_p^2
	M	SD	M	SD	M	SD	M	SD	M	SD		
Respect	5.50 ¹	1.31	5.95 ²	1.14	5.98 ²	1.08	5.99 ²	1.08	6.18 ³	0.94	32.34	.09
Liking	4.82 ¹	1.28	5.70 ²	1.20	5.83 ²	1.15	5.85 ^{2,3}	1.17	6.01 ³	0.98	104.53	.24
Trust	4.94 ¹	1.40	5.64 ²	1.17	5.82 ³	1.11	5.81 ^{2,3}	1.16	6.04 ⁴	0.96	86.16	.21
Adherence Commitment	5.70 ¹	1.21	5.76 ¹	1.12	5.98 ²	1.05	6.03 ²	1.04	6.22 ³	0.88	30.42	.09
Competent	5.38 ¹	1.26	5.52 ¹	1.15	6.03 ²	1.03	5.86 ³	1.13	6.07 ²	0.94	49.12	.13
Assertive	5.07 ¹	1.30	5.40 ²	1.13	5.83 ³	1.05	5.54 ²	1.10	6.06 ⁴	0.91	77.37	.19
Moral	5.27 ¹	1.31	5.90 ^{2,3}	1.09	5.83 ^{2,3}	1.10	5.78 ²	1.10	5.95 ³	0.99	39.96	.11
Warm	4.57 ¹	1.31	5.95 ²	1.09	5.89 ²	1.13	6.05 ²	1.17	5.91 ²	1.00	150.64	.32
Positive	4.68 ¹	1.39	5.58 ²	1.20	5.72 ^{2,3}	1.16	5.79 ³	1.20	5.97 ⁴	1.03	115.55	.26

GPb = Baseline. GP; GP 1 = asks the patient how they would like to be addressed; GP 2 = avoids jargon and explains unfamiliar words; GP 3 = encourages discussion/ avoids only using questions needing a yes/no response; GP 4 = summarizes information and checks patients' understanding. Significant differences from Bonferroni post-hoc tests are indicated where GP conditions do not share a superscript for a specific measure. Degrees of freedom reported are the uncorrected degrees of freedom.

Respect mediated the effect of GP1 and GP2 adhering to communication guidelines on adherence commitment in both multiple mediator models (and for GP4 in one multiple-mediator model), providing some support for Hypothesis 6a. There was limited support for Hypothesis 6b, as liking was only significant in one multiple mediator model.

Mediators of the effect of hypothetical GP communication violations/following communication guidelines on respect, trust, and liking

Mediators of the effect of hypothetically violating or following communication guidelines are presented in Tables S2–S4, Tables S6–S8, and Tables S10–S12. In brief, across the two studies, hypothetical violations of communication guidelines negatively impacted respect consistently via reductions in perceived competence and, to a lesser extent, morality. Hypothetically following communication guidelines increased respect via increased perceived competence. Reductions in trust from hypothetical guideline violations were mediated by reductions in perceived competence and morality. Reductions in perceived warmth also played a role but support for this was

weaker in Study 2 than in Study 1. Increases in perceived competence and morality mediated the effect of hypothetically following communication guidelines on trust. Changes in warmth were the most consistent mediator of reduced liking following hypothetical guideline violations and increased liking when following guidelines. Fuller descriptions of these findings are presented in Supplementary Materials Section A.

Discussion

In this original test of the impact of hypothetically violating or following a set of national recommendations for how healthcare professionals should communicate with their patients, GPs were rated differently across a range of outcomes including how much they were respected, liked, and trusted, and there were consequences on ratings of commitment to adhere to treatment. By changing how much GPs are trusted (and to a lesser extent, respected), hypothetically violating or following communication guidelines can impact the extent to which patients report how committed they are to adhering to treatment advice and guidance. Impacts on respect were most consistently mediated by changes in how competent GPs were perceived to be (and to

a lesser extent how moral they are); impacts on liking were most consistently mediated by how much GPs were seen as warm; impacts on trust were mediated by changes in perceived competence and morality (and to a lesser extent, warmth). Assertiveness played a smaller mediating role.

The impacts on respect, liking, and trust of GPs were somewhat asymmetric. Hypothetical violations negatively impacted respect the most then liking and trust the least; hypothetically following the communication guidelines positively impacted liking the most then trust and respect the least. While this could suggest that respect is easier to lose than gain, these asymmetric effects on respect could have emerged because in both studies, at baseline, GPs were respected more than trusted or liked. As a consequence, there was more room for respect to decrease and less room for respect to increase.

The findings were somewhat consistent with the MAC model of respect and liking (Prestwich et al., 2021) with competence being a consistent mediator of the effect of hypothetical communication on respect and morality doing similar in Study 1, in particular; and warmth being found to be a robust mediator of hypothetical communication on liking and morality having some role for GPs 3 and 4. The MAC model indicates that assertiveness is likely to impact respect more than liking. However, in absolute terms, greater changes might be needed in assertiveness than competence and morality to achieve equivalent changes in respect. Moreover, for the violation conditions, assertiveness changed less than competence, morality, and warmth suggesting that these manipulations primarily led to changes in variables other than assertiveness. Consistent with previous research, perceptions of competence, morality, and warmth were related to levels of trust (e.g., Paling, 2003; Pearson & Raeke, 2000).

Competence was identified as a mediator for liking. Initially, this seems counter to a body of evidence that indicates competence is generally important for respect and less important for liking. However, several key points should be made. First, competence was also identified as a mediator of the effect of hypothetical communication on respect. Second, when considering GP competence, an important component of this is likely to be based on perceptions of their interpersonal competence, or narrative competence (to listen and absorb the information that the patient provides, interpret it, and respond in a way that reflects authentic engagement), which has been argued to be an important component of trust (Charon, 2001; Mechanic & Meyer, 2000) and, given the interpersonal component, is likely to be important for liking. Third, lack of competence may be similarly detrimental for respect and liking (Prestwich, 2024). Fourth, competence did not mediate the effect of hypothetical communication on liking in Study 2 after controlling for overall evaluation.

Comparing across the four hypothetical GP scenarios, only Scenario 3, linked to encouraging discussion, impacted warmth more than Scenario 4; no other scenario impacted any ratings more than Scenario 4. Scenario 4 related to summarizing/not summarizing information at the end and checking/not checking that the patient has understood the most important information. This is particularly pertinent given that summarizing information and checking understanding

has been present in some, but not all, consensus statements, frameworks, and guidelines for healthcare professionals' communication across Europe (Bachmann et al., 2013). An important practical implication of this, especially given demands on GPs' time in the UK that could jeopardize adherence to guidelines, is that this particular guideline (as summarized in Scenario 4), at least for how GPs are perceived, could be prioritized over others.

A fuller understanding of how the effect of guidance violations, as well as following such guidance, on outcomes might vary across sociocultural factors might help to underpin the development of tailored communication-based strategies that health practitioners can utilize within their consultations. For example, the strength of associations between certain aspects of consultations (e.g., being given enough time in consultations, being involved in decisions about care) and trust has been shown to vary across age and ethnicity (Crocker et al., 2013).

Aside from providing original tests of hypothetically violating and following a range of specific national communication recommendations, illustrating the impacts of these on perceptions of doctors and commitment to follow their advice and identifying that some recommendations might impact on these outcomes more than others, there are several theoretical strengths. First, to date, there have been no published tests of the MAC model in the context of health, and thus the research presents a unique application and test of this model. Second, there is a need to differentiate between several constructs assessed in this research. Respect, trust, and liking, as well as factors that underpin them, such as morality and competence are interlinked. For example, in their conceptual model of trust based on content analyses of internet forums, Krot and Rudawska (2016) identify benevolence (comprising respect, empathy, and communication skills), integrity (a key component of morality), and competence as three key underpinning dimensions of trust between patients and doctors. Gregory and Austin (2021) also identify respect and affability (which is likely to be strongly related to liking) as two factors underpinning trust in healthcare professionals. Moreover, Crits-Christoph et al. (2019) developed a trust/respect scale that formed a single factor, failing to differentiate between the two. Thus, in addition to the need to identify practical steps that doctors can follow to increase commitment to treatment adherence and factors that might influence this, including how much the doctor is respected, liked, and trusted and perceived as competent, moral, assertive, and warm, there is a theoretical need to unpack the interrelationships between such constructs. By identifying the factors that impact more on respect, liking, or trust, as well as presenting competitive tests of these within mediation models, the research goes some way to help differentiate these constructs.

There are limitations. First, the studies utilized hypothetical rather than real-life scenarios and the descriptions were brief, centered on the phrasing of the recommendation rather than expressed more indirectly (e.g., in the form of a conversation between the doctor and the patient). However, vignette methodologies have been argued to be valid approaches to studying judgments and decision-making in clinical contexts with high internal and fair external validity (e.g., Evans et al., 2015;

Hughes & Huby, 2002). As such, they can be a useful approach when researchers want to test the effect of specific manipulations (such as the effect of specific recommendations) while excluding factors that might confound the results (which is why the scenarios were brief, focused on the wording from the recommendations and did not contain extraneous details). In addition, vignettes are useful for examining situations which are difficult to test ethically, such as testing the effect of violating recommendations. While the chosen approach provides good internal validity regarding testing the effect of violating or following specific recommendations on outcomes, the downside is a relative lack of external validity. Tests on a wide range of specific communication strategies in real-life settings would be a useful next step. This could take the form of a cluster randomized trial with separate conditions for each recommendation and a control condition. As trials are typically expensive and even smaller scale pilot or feasibility trials can be expensive in terms of time, effort and resources, justification for such studies through the identification of potential signals that the approaches could be effective are warranted. Across the two studies, the results provide such a signal by indicating the potential benefits of promoting specific communication recommendations for how GPs are perceived (e.g., in terms of their competence), evaluated (e.g., in terms of how much they are respected) and to enhance commitment to treatment plans.

Second, the study utilized self-report outcomes. While this is not an issue for measures of respect, liking, trust, and perceptions of competence, warmth, morality, and assertiveness that are best assessed through self-report, a commitment to follow specific treatment advice rather than adherence to treatment advice is assessed, and these are not synonymous with one another. Many psychosocial models of behaviour (such as the Theory of Planned Behaviour, Ajzen, 1991) posit intention as a direct precursor to behaviour. In the medication adherence literature, however, evidence regarding intentions being a predictor of adherence is mixed (e.g., Holmes et al., 2014). Treatment commitment, albeit related to intention, has been largely absent from such models yet are likely to reflect a more persistent form of motivation than intention and thus could be a more promising target for change. Although there is likely a positive relationship between commitment and adherence (individuals with little to no treatment commitment to adhere would be unlikely to adhere and vice-versa), the factors influencing adherence are likely multifaceted (e.g., Kardas et al., 2013) and factors, such as practical barriers and lack of information or patient knowledge could still potentially disrupt the relationship between commitment and adherence (e.g., DiMatteo et al., 2012).

Third, although the studies found trust plays a mediating role between communication and commitment to adherence, it was not established how trust might influence commitment and adherence-related outcomes. Previous research has, however, suggested that trust could increase patient self-efficacy and positive outcome expectations, which, in turn, can increase adherence (Lee & Lin, 2009).

Fourth, while many analyses were conducted to try to account for the interrelationships between the various mediators, serial mediations provide an alternative approach to

account for potential confounders and these were not conducted. Such analyses are problematic, however, when there is no clear causal ordering of the variables (e.g., respect, liking, and trust). Fifth, single-item measures were used to assess the various constructs despite multi-item measures being available (e.g., Richmond et al., 2022). This approach was taken to reduce demand on participants and given there is no consensus on how best to measure constructs such as trust (Richmond et al., 2024), single items with clear face validity were used. Finally, while the experiments identified the impact of specific recommendations, some tested recommendations contained more than one behaviour (e.g., not summarizing information at the end and checking understanding) and, as such, it is not possible to determine the impact of each of the specific behaviours in these conditions.

In conclusion, two studies that utilized experimental vignettes to test the potential impact of following/violating communication guidelines provide a signal that doctors who follow the recommendations might be more likely to be respected, trusted, and liked, be seen as more competent, assertive, moral, and warm and generate stronger treatment commitment in their patients. Strategies that enhance the likelihood that GPs follow such guidance should, therefore, be tested in real-world settings and their impact on perceptions of GPs and treatment adherence assessed. Changes in competence, morality, and warmth mediate the effects of hypothetically following/violating communication guidelines on trust, competence and morality play a role with respect, while warmth and morality influence liking. Changes in trust, in particular, account for the effect of hypothetically following, or violating, communication recommendations on commitment to follow treatment advice.

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