Placebos in Australian general practice

A national survey of physician use, beliefs and attitudes

Kate Faasse, Ben Colagiuri

Background and objective
International surveys indicate that placebo use by general practitioners (GPs) is remarkably high, but usage in Australia is currently unknown. To address this, the aim of this study was to examine rates of use and beliefs about placebos in Australian general practice.

Method
This study was conducted using a cross-sectional internet-based survey of a random sample of Australian GPs from a national database between February and April 2018. In total, 641 GPs opened the email invitation and 136 (18%) took part.

Results
Thirty-nine percent of GPs had used an inert placebo, and 77% had used an active placebo. GPs primarily used placebos because they believed placebos could provide genuine benefit and viewed themselves as having a strong role in shaping patients' expectations. Of concern, antibiotics were the most common type of active placebo prescribed.

Discussion
Placebo use by Australian GPs is fairly common, particularly the use of active placebos. Ethical issues surrounding the prescription of placebos in general practice are discussed.

PLACEBOS play a crucial part in evidence-based medicine as controls in double-blind randomised controlled trials.[1] However, mounting research shows that the placebo effect is an important psychobiological phenomenon in its own right.[2] Placebo treatments have been found to produce genuine therapeutic benefit in conditions ranging from pain, nausea and sleep to hypertension, immune function and even Parkinson's disease.[3–5] Although recent advances in research are helping to uncover the mechanisms of the placebo effect, little is currently known about if and how placebos are actually used in general practice in Australia.

The placebo effect occurs when features of the treatment context trigger expectancies that drive health improvement.[6] In the archetypical example, saline injections administered under the guise of morphine were sufficient to relieve wounded soldiers' pain.[7] However, placebo effects are not confined to sham treatments. The placebo effect also contributes substantially to active treatments. For example, positive information delivered in addition to treatment has been found to enhance outcomes for pain, cardiovascular function and Parkinson's disease.[8]

The history of medical treatment appears inextricably linked with the history of placebo use; until the early-to-mid-twentieth century, placebos comprised a large proportion of all medical treatments.[9,10] However, with the advent of placebo-controlled trials, placebos became viewed primarily as a control condition. Although placebo-controlled trials have played and continue to play a pivotal part in evidenced-based medicine, these developments also meant that placebos were increasingly viewed pejoratively, with patients often being considered to be experiencing solely psychosomatic symptoms or malingering responding to placebos.

Recent research showing placebo effects across various conditions and patient populations has renewed interest in this area. Surveys conducted outside Australia suggest that use of placebo treatments by medical practitioners varies widely, from 17% to 100%.[11,12] Rates appear to vary by medical specialty; for example, placebo use appears more frequent in general practice than other specialties.[13] Use also varies by the type of placebo, with 'active' placebos used more often than 'inert' placebos.[14] Active placebos comprise active treatments that are unlikely to have a specific physiological effect on the patient's condition and are used instead to enhance treatment outcomes by increasing positive expectations (eg antibiotics for a viral infection). Inert placebos are treatments with no active ingredient that are used solely to enhance positive expectations (eg sugar pills or saline injections). Although the terms 'pure' (inert) and 'impure' (active) are also frequently used in the literature,[12,14,15] 'inert' and 'active' were chosen as descriptors in this study to more clearly differentiate between 'inert' agents with

no pharmacological or physiological activity and 'active' treatments.[11–13,16,17] Because general practitioners (GPs) commonly define placebos as always being inert,[18] it was considered important to explicitly highlight the possibility that a treatment could be both active and used as a placebo. It is important to note, however, that these categories are not mutually exclusive. For example, saline nasal spray may be considered an inert placebo, but also has a specific active effect in reducing nasal obstruction. As such, the underlying disease process as well as the physician's intention to use a particular treatment to enhance expectations and facilitate the placebo effect – rather than to generate a specific treatment effect – are critical to determine whether a particular treatment is being used as a placebo.

Despite the apparent ubiquity of placebo use in medical practice around the world, it is unclear how frequently placebos are used by GPs in Australia. This study sought to determine how frequently both inert and active placebos are used by Australian GPs and to understand GPs' primary reasons for prescribing placebos, and their beliefs about the efficacy and ethics of placebo use. To our knowledge, this is the first attempt to estimate the prevalence of placebo use in any form of Australian medical practice.

Methods

Participants

Participants were recruited via an email to a random sample of 1543 GPs from a national Australian database (approximately 10%) through the Australian Medical Publishing Company. Ethical approval was obtained from the UNSW HREAP-C (File 2980). A link to the online questionnaire was sent via email on 28 February 2018, and a reminder email was sent on 9 April 2018. The questionnaire was closed on 21 April 2018. Participants were offered the chance to go in a draw for one of five $100 gift cards.

Questionnaire

The full survey can be accessed online (https://unswpsy.au1.qualtrics.com/jfe/form/SV_6SAsc7jyPFUJ6Zf). In line with previous research, the questionnaire asked about inert and active placebo use separately.[14,19] Inert placebos were defined for GPs as 'inert treatments like a sugar pill or saline injection that are prescribed to enhance patient expectations and improve outcomes via the placebo effect'. Active placebos were described to GPs as being 'active treatments prescribed solely or primarily to enhance treatment outcomes by increasing positive expectations – rather than through any specific physiological or pharmacological treatment effect'. Subsequent questions were based on these definitions.

Questions were adapted for the current study on the basis of previous research;[14–16,20–22] two past studies reported using pilot testing to ensure question clarity[15] and face validity.[14] The current questionnaire was also pilot tested by a senior medical professional for question clarity and face validity. Participants were asked if they had ever used inert or active placebos in clinical practice, and follow-up questions assessed frequency of placebo use, types of placebos used and reasons for prescribing placebo treatments. Where participants responded 'no' to ever prescribing a type of placebo (inert or active), they were not asked the relevant follow-up questions about frequency, type and reasons for use for that placebo type. For type and reason items relating to inert placebos, participants were asked to select all options that applied. Because there are many possible treatments that could be used as active placebos for many different conditions, responses to these items were open-ended and coded by two independent raters with strong initial agreement ($\kappa = 0.89$); discrepancies were resolved by discussion. All participants were asked about the appropriateness of prescribing placebos with and without deception in clinical practice, their perceptions of the potential for placebo treatments to have some genuine clinical benefit and their roles in shaping patient expectations and outcomes.[14–16,20,21,23–25]

Statistical analyses

Overall, 33 (24.6%) of the participants had missing data for at least one variable and 9.4% of all values were missing. Multiple imputation was used to avoid possible bias due to data being missing not at random. This involved 100 iterations of imputation with automatic method selection and pooling these data. All analyses were carried out using SPSS v25.

Results

Participants

A total of 641 (42%) GPs opened the email invitation and 139 clicked on the survey link. A reminder email was sent to those who had not opened the initial email. An additional 135 GPs opened this email and 35 clicked on the survey link. In total, 143 read the consent page, 139 consented to the study and 136 answered at least one question. Of recipients who opened the email invitation, 18% chose to participate in the study (9% of all email invitations). It took respondents an average of 8.56 minutes (standard deviation = 8.57) to complete the survey. Table 1 summaries the physician characteristics.

Our sample was similar to the demographics of all Australian GPs with regard to gender,[26] but, when compared with the entire population of Australian GPs, yielded a somewhat lower proportion of GPs aged <35 years (5% versus 14%) and a higher proportion of GPs aged 45–54 years (36% versus 24%) . In addition, GPs from Queensland were underrepresented (11% versus 22%) in the current study.

Inert placebo use

Table 2 shows frequency of use and beliefs about inert placebos. In total, 39% of respondents had used an inert placebo at some point in their careers. Of the total sample, 14% reported prescribing inert placebos in general practice once a month or more. The GPs estimated that for every 100 patients treated, on average 4.82 – or one in 20 – are given an inert placebo. The majority (57%) of GPs who prescribe placebos reported doing so because they believe placebos can provide genuine benefit. Respondents also reported prescribing inert placebos because a patient expected or requested treatment (40%), where no good active treatment exists (34%) or as an adjunct

to active treatment (25%). Fewer GPs reported prescribing placebos to treat symptoms believed to be psychosomatic (17%), medically unexplained (11%) or malingering (9%). The most commonly used inert placebo treatments were saline nasal spray (32%) and inert aqueous creams (23%).

Active placebo use

Table 3 shows active placebo use. Overall, 77% of GPs reported prescribing active placebos during their careers, with 40% of respondents reporting active placebo use at least once per month. The GPs estimated that for every 100 patients treated, on average 8.33 – or one in 11 – are given an active placebo. Active placebos were most commonly used to treat self-limiting viral infections (39%), sleep problems (21%) and pain-related conditions (21%). Antibiotics (for viral infections [42%]), vitamin or mineral supplements (17%) and complementary therapies (10%) were the most commonly prescribed active placebos. There was some overlap in the treatments that GPs described as inert and active placebos, with vitamin and mineral supplements frequently mentioned in both contexts.

Perceptions of use

More than half (53%) of respondents said that deceptive placebo use was never appropriate. In contrast, if placebos were prescribed openly with patients' knowledge, then 49% of GPs considered their use as sometimes or always appropriate, and only 18% said use was never appropriate. GPs generally endorsed the view that placebo treatments can have some genuine clinical benefit, though the range of these responses was quite large (median [m] = 6, range = 0–10). Respondents endorsed the notion that both positive and negative expectations play a part in shaping patient outcomes (m = 7), and that the way they interact with patients influences patient expectations and outcomes both positively and negatively (m = 8). The GPs also endorsed the idea that medical students could benefit from more training about the placebo effect (m = 7).

Table 1. General practitioner sample characteristics compared with national figures from the Australian general practice workforce statistics 2016–17[24]

Characteristic	n (%)	Australia (%)
Gender (n = 136)		
Male	74 (54%)	45%
Female	62 (46%)	55%
Age in years (n = 136)		
≤35	7 (5%)	14%
36–45	28 (21%)	25%
46–55	49 (36%)	24%
56–65	35 (26%)	23%
>65	17 (13%)	14%
State (n = 136)		
ACT	4 (3%)	2%
NSW	52 (38%)	30%
NT	2 (1%)	2%
Qld	15 (11%)	22%
SA	12 (9%)	8%
Tas	5 (4%)	2%
Vic	27 (20%)	24%
WA	19 (14%)	10%
Practice (n = 136)		**Mean (standard deviation)**
Years of practice		20.5 (11.9)
Days per week		4.0 (1.48)

Note: Percentages may not add up to 100% because of rounding

Discussion

A random national sample of Australian GPs were surveyed on their use of placebos. A substantial proportion – four in 10 – of Australian GPs surveyed reported prescribing an inert placebo in clinical practice, with approximately one in 20 patients being treated with an inert placebo. The GPs' most cited reason for prescribing inert placebo treatments was because they perceived placebo treatments to have genuine benefits for patients. This finding may reflect increased knowledge about the value of placebo effects.

The second most frequently stated reason given in the current study was because a patient expected or demanded a treatment. An estimated one in five patients makes at least one request for a prescription or other medical service during clinical consultations, and such requests substantially increase the likelihood of receiving the requested outcome.[27] The decision to meet these demands may result from the increased time pressure in medical consultations or the need to expedite difficult interactions or to avoid negative patient responses to refusal.[28] Choosing to administer a placebo may be an attempt to appease the patient while minimising the risk of harm from an unneeded medication. However, it is also concerning in the sense that

providing placebos in this scenario may reinforce these patients' beliefs that every health complaint requires pharmacological intervention and that they must continue to ask for such treatments if not initially suggested by their treating practitioners. The number of GPs who report placebo use in response to patient requests or demands for prescriptions may be indicative of an unmet need in medical education to address how to best manage such situations, as well as the need for future research and more ongoing support among GPs. Medical ethics education may benefit more broadly from addressing the issues associated with placebo use in clinical practice.

Rates of active placebo use were double that of inert placebo use, with almost eight in 10 GPs surveyed having used active treatments solely or primarily to enhance positive expectations, and approximately one in 11 patients having been prescribed an active placebo. It is clear that active placebo use is more widespread than inert placebo use. This may be a function of treatment availability, with inert placebos being more challenging to procure. It may also be that the use of an active treatment as a placebo is seen as requiring less deception than an inert placebo. This level of use is concerning when considering the types of active placebos used. In the current sample, approximately one in five GPs reported prescribing antibiotics for suspected viral infections when asked about common scenarios for active placebo use. This is troubling given the increasing evidence that such practices are linked to antibiotic resistance.[29]

A recent systematic review found that between 17% and 80% of physicians outside Australia had used inert placebos in practice.[12] This places the rate of use in Australia (ie 39%) in the low-to-mid range of this estimate. The substantially higher rate of active (77%) relative to inert placebo use in Australia is consistent with data from other countries, which show that the majority (up to 100%) of medical practitioners report prescribing active placebos.[12,15] In a UK sample, 97% of GPs reported prescribing active placebos in clinical practice,[14] suggesting that Australian GPs might use active placebos

Table 2. Frequency, rationale, and beliefs about inert placebo use

Response	
Frequency of use (n = 136)	**n (%; 95% confidence interval)**
Never used	84 (61%; 53, 70)
Used at least once	53 (39%; 31, 47)
At least once/week	6 (4%; 2, 10)
At least once/month	14 (10%; 6, 17)
At least once/year	11 (8%; 4, 14)
Less than once/year	22 (16%; 11, 23)
Types of inert placebos (n = 53)	
Saline nasal spray	17 (32%; 21, 46)
Inert aqueous cream	12 (23%; 13, 36)
Saline injections	7 (13%; 6, 25)
Prepared placebo pill/capsule	6 (11%; 5, 23)
Sugar pill/artificial sweetener	4 (8%; 2, 18)
Saline infusion	2 (4%; 0, 13)
Other	23 (43%; 31, 57)
Ethics of use (n = 136)	
With deception	
Always appropriate	1 (1%; 0, 4)
Sometimes appropriate	18 (13%; 8, 20)
Occasionally appropriate	45 (33%; 26, 41)
Never appropriate	72 (53%; 45, 61)
Without deception	
Always appropriate	22 (16%; 11, 23)
Sometimes appropriate	45 (33%; 26, 41)
Occasionally appropriate	44 (32%; 25, 41)
Never appropriate	25 (18%; 13, 26)
Reason for use (n = 53)	
Provide genuine benefit	30 (57%; 43, 69)
Patient expects/requests treatment	21 (40%; 28, 53)
Option when no good active treatment exists	18 (34%; 23, 47)
Adjunct to active treatment	13 (25%; 15, 38)
Diagnose whether symptoms are psychosomatic	9 (17%; 9, 29)
Treat medically unexplained symptoms	6 (11%; 5, 23)
Diagnose patient malingering	5 (9%; 4, 21)
Other	5 (9%; 4, 21)

Table 2. Frequency, rationale, and beliefs about inert placebo use (cont'd)

Response	
Beliefs about placebo effects (n = 136)	**Median (interquartile range)**
Placebo treatment can have genuine clinical benefit for at least some patients	6 (4–8)
Patient expectations play a role in shaping their positive health outcomes via the placebo effect	7 (6–9)
Patient expectations play a role in shaping their negative health outcomes via the placebo effect	7 (5–8)
The way I interact with a patient can influence positive patient expectations and outcomes	8 (7–9)
The way I interact with a patient can influence negative patient expectations and outcomes	8 (7–9)
Medical students could benefit from learning more about the placebo effect and how to harness it	7 (6–8)

CI, confidence interval

comparatively less. When interpreting the current results in light of previous research, it should be noted that previous studies had higher response rates than the current study (36–100%.)[12,14,19] In addition, data from these studies were published between 1973 and 2013. Given the recent increased interest in the placebo effect, both in research and media coverage, increased placebo literacy among physicians may also have influenced results. Future systematic reviews of placebo use in clinical practice should look at changes in use and beliefs over time.

Views about the ethics of placebo use were closely linked to whether deception was involved: almost all participants (86%) believed that placebo use was never or only occasionally appropriate if it involved deceiving patients. However, only 53% of respondents believed that deceptive placebo use was never appropriate; that is, almost one in two could imagine scenarios in which the deceptive use of an inert placebo treatment might be warranted. Further post-hoc analysis of the current results indicates that participants' responses to this question appear to be linked to their stated reasons for placebo use. Those who reported prescribing placebos for genuine psychological or physiological benefit were significantly more likely to endorse deceptive placebo use than other respondents ($P = 0.003$). As noted in previous discussions of placebo use in clinical practice,[18] deceptive placebo use presents a conflict between the ethical principles of beneficence (prescribing placebos if they have benefit for the patient) and respect for patient autonomy (not deceiving one's patient). Some ethicists argue that placebo administration with deception is never acceptable,[30] while others suggest that in some circumstances this practice may be acceptable.[31] The results of the current study suggest that individual GPs may be weighting these principles differently when making judgements about the appropriateness of deceptive placebo use.

The use of non-deceptive, or openly prescribed, placebos may also offer some resolution to this ethical conflict.[32] More than 80% of respondents described placebo use as being appropriate – at least occasionally – if patients were not deceived. However, it is interesting that 50% of the respondents believed that openly prescribed placebos were occasionally or never appropriate to use, and only 16% of GPs believed that non-deceptive placebo use was always appropriate, given that this open placebo use suggests ethical prescribing. Again, post-hoc analysis revealed that responses appeared to be linked to reasons for placebo use; those who reported prescribing placebos because they believed them to produce genuine benefits were significantly more likely to also hold more positive beliefs about the appropriateness of open placebo use when compared with other respondents ($P = 0.015$). GPs surveyed generally held positive views about the potential for placebo treatments to have genuine clinical benefit, and typically endorsed that patient expectations and physician influences can shape patient outcomes, both positively and negatively. Interestingly, the majority of GPs surveyed believed that medical trainees could benefit from learning more about the placebo effect and how to harness it.

These findings have important clinical and ethical implications. First, it is encouraging that the primary motivation for prescribing placebos is to provide clinical benefit, although a smaller proportion of GPs surveyed reported prescribing placebos to identify psychosomatic complaints or malingering, which could compromise the patient–practitioner relationship.[33] Second, the current sample of Australian GPs deemed non-deceptive placebo use more far more appropriate than deceptive use. This is again encouraging as it aligns with international consensus guidelines discouraging deceptive placebo administration in clinical practice.[34] Third, while certainly not unique to Australia,[11,15] it was concerning that a common scenario for active placebo use was prescribing antibiotics for suspected viral infections, which risks individual and public health via increased antibiotic resistance.[29,35] Finally, most GPs surveyed believed that medical students could benefit from education about the placebo effect and how to harness it, supporting assertions that the inclusion of evidence-based education about placebo effects in medical curricula could be valuable.[36,37]

The study was strengthened by recruitment from a large national database of GPs. However, the study was limited by a relatively low overall response rate, with 42% of GPs opening the email and 18% of these completing the survey. A paper-based postal survey might have

secured a higher response rate, but as a result of constraints of funding and time, the decision was made to administer an online survey. This decision was in line with previous research assessing GP use of placebos in clinical practice.[14] GP responses are generally low owing to frequent study participation requests and heavy workloads. Although rates can range from almost zero (0.1%)[31] to almost all invited respondents (96%),[32] many studies report response rates of approximately 30%.[38] The relatively low response rate in the current study may limit the generalisability of the findings to all GPs in Australia. Respondents may have differed from non-respondents in both knowledge and use of placebos in clinical practice; for example, GPs with greater knowledge of the placebo effect may have been more willing to complete the survey, or those who regularly prescribe placebos in clinical practice may have been reluctant to disclose this information. In addition, no demographic data were collected from non-responders, therefore it was not possible to determine how demographic characteristics might differ between responders and non-responders.

The survey was deliberately brief to minimise participant burden, and responses were predominantly in check box or Likert-type scale form. However, this leaves some unanswered questions, including whether GPs who reported placebo use in clinical practice did so with deception, whether deception is deemed necessary to elicit placebo effects, why active placebos are used more often that inert placebos and whether physicians' reasons for prescribing active versus inert placebos differ. For example, GPs may face requests from patients for active but inappropriate treatments, and may prescribe such treatments to act as active placebos because of time pressure or the desire to avoid difficult interactions. Future research – both quantitative and qualitative – should address such questions. The survey design may also have contributed to response bias: the survey required GPs to retrospectively recall placebo use over time, and the use of pre-populated lists, in addition to the inclusion of 'prescribing antibiotics for a viral infections or herbal treatments for mild sleep problems' as examples in the definition of active placebos, may have shaped participants' responses. Research using, for example, brief daily survey methods could be usefully employed to obtain a more accurate assessment of placebo use in general practice.

Table 3. Active treatment given solely or primarily to enhance patient expectations

Frequency of use (n = 136)	n (%; 95% CI)
Never used	31 (23%; 17, 31)
Used at least once	105 (77%; 69, 83)
At least once/week	22 (16%; 11, 23)
At least once/month	33 (24%; 18, 32)
At least once/year	32 (24%; 17, 31)
Less than once/year	18 (13%; 8, 20)
Most common condition (n = 72)	
Viral infection	28 (39%; 28, 50)
Insomnia/sleep difficulty	15 (21%; 13, 32)
Pain-related condition	12 (17%; 10, 27)
Fatigue	6 (8%; 4, 17)
Depression	4 (6%; 2, 14)
Anxiety/distress	4 (6%; 2, 14)
Cramps	3 (4%; 1, 12)
Cough	3 (4%; 1, 12)
Other	8 (11%; 5, 21)
Most common treatment (n = 71)	
Antibiotics	30 (42%; 31, 54)
Vitamins or minerals	12 (17%; 10, 27)
Complementary treatments	7 (10%; 5, 19)
Analgesics	6 (8%; 4, 18)
Antidepressants	3 (4%; 1, 12)
Physical therapy	3 (4%; 1, 12)
Cough mixture	2 (3%; 0, 10)
Melatonin	2 (3%; 0, 10)
Other	8 (11%; 6, 21)

CI, confidence interval

Conclusion

Most Australian GPs surveyed have used a placebo in practice, with active placebos more commonly used than inert placebos. Consistent with international guidelines, most GPs endorse the use of placebos only when administered without

deception. A substantial number of GPs report prescribing antibiotics as an active placebo treatment. Given that evidence increasingly points to the efficacy of openly administered placebo treatments,[18-20] future research should explore the acceptability and usefulness of such treatments in general practice in Australia.

Authors

Kate Faasse PhD, Senior Lecturer, School of Psychology, University of New South Wales, NSW. k.faasse@unsw.edu.au

Ben Colagiuri PhD, Associate Professor, School of Psychology, University of Sydney, NSW

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correspondence **ajgp@racgp.org.au**