

# What Do We Mean by the ‘Nonspecific’ Effects of Acupuncture Treatment?

## A survey of experienced acupuncture practitioners and researchers

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### ABSTRACT

**Background.** People writing about acupuncture often mention its ‘nonspecific’ effects. However, there are considerable differences of opinion, indeed some confusion, regarding the meaning of this term. The objective of the present paper is to shed some light on this situation.

**Methods.** As part of an ongoing project to explore nonspecific feelings elicited by electroacupuncture-related treatment, twenty experienced acupuncture practitioners and researchers were asked about their understanding of the term ‘nonspecific’. Results. Sixteen of the twenty professionals responded, and their comments are summarised.

**Discussion/conclusions.** Acupuncture practitioners who use predominantly an East Asian medical model, even those familiar with the literature on nonspecific effects of acupuncture, have quite varied interpretations of the term ‘nonspecific’. Hopefully this short paper will encourage others not to fall into the trap of believing something is understood just because it is familiar.

**Keywords:** Nonspecific feeling, placebo, interpretation, expectation, acupuncture

*“Much confusion surrounds the ‘specific’-‘nonspecific’ typology in the literature” [1]*

*“When the body is experienced phenomenologically, how can such categories exist?” (Respondent A)*

*“Specific and non-specific are an example of a dichotomy based in Cartesian thinking; it is not the kind of thinking that (ought to) characterise acupuncture thinking” (Respondent D)*

### BACKGROUND

People writing about acupuncture often mention its ‘nonspecific’ effects. My own understanding of the term ‘nonspecific’ derives from readings in the literature of placebo, where the placebo effect is sometimes considered as evidence for or an activation

of our self-healing capacities (Caspi & Bootzin, 2002; Peters, 2001; Walach & Jonas, 2004). There are also accounts of how, in response to placebo acupuncture (more accurately, sham), bodily sensations of warmth, tingling, pulsing, flow (spreading, radiating) and electricity have been elicited – warmth and tingling being particularly associated with treatment efficacy (Kerr et al., 2011; Salih et al., 2010). Such sensations are also reported in other CAM modalities such as ‘biofield energy healing’ (Warber et al., 2004), and have been interpreted by many CAM practitioners as resulting from the flow of *qi* (Mayor, 2011). As a traditionally trained acupuncturist, in my mind the word ‘nonspecific’ is therefore associated with a complex of positive connotations.

In contrast, in the literature, the placebo effect is for some almost a term of abuse (Colquhoun & Novella, 2013), and nonspecific effects are usually tightly defined as ‘effects that are not related to the causal pathways specified in the theory about how the treatment produces change’ (Bootzin & Bailey, 2005). They ‘can refer to broad psychological effects of a treatment as well as contextual factors present in the delivery of treatment’ (ibid.), which is in itself somewhat confusing in its conflation of effects and factors. An alternative term is ‘incidental effects’ (Paterson & Dieppe, 2005), not to be confused with the ‘expanded effects of care’ (Cassidy, 1998) that may be considered beneficial by the patient or expected by the practitioner (Cassidy C. Personal communication, 6 Jan 2014). Caspi and Bootzin (2002) provide a particularly useful discussion of placebo/nonspecific/incidental effects.

In acupuncture research, it has been proposed that an interaction between different components of the treatment may produce a clinical effect that is greater than the sum of its individual elements (White et al., 2012), and it has also been suggested that some effects included in the term nonspecific may be ‘peculiar to acupuncture’ (White et al., 2001), and so in fact not nonspecific at all. Alraek and Birch have written a thought-provoking commentary that differentiates between: (a) nonspecific effects in the usual sense given above (not related to theory, so unintended), (b) non-acknowledged (and thus maybe unintended) nonspecific effects of needling, and (c) nonspecific needling components (that

may be common, for instance, to both verum and sham needling) (Alraek & Birch, 2012).

Thus there are considerable differences of opinion, indeed some confusion, regarding the meaning of the term 'nonspecific', particularly in the acupuncture research literature. The objective of the present paper is to shed some light on this situation, based on consultation with acupuncture practitioners and researchers.

## METHODS

It is known that expectation of acupuncture treatment effects may significantly impact those actually experienced (Mayor & Steffert, 2013). Two questionnaires to explore this were developed and tested on acupuncture and other complementary health practitioners in an experimental study and on students in a teaching situation (N=204). They were designed to assess expectation and experience of the relatively nonspecific feelings (whether bodily, emotional or mental) that may arise in response to acupuncture-type interventions. The questionnaires and their development are described in detail elsewhere (Mayor & Steffert, 2013; Mayor, 2014). Following this initial piece of research, a separate two-phase email survey was conducted. Twenty experienced acupuncture practitioners and researchers were invited to take part, all believed to have an interest in expectation of treatment effects and considered to be representative of those who might use the questionnaires that had been developed. The objectives of the survey were: (1) to assess content validity of the questionnaires, in other words to find out how much survey respondents agreed that the terms in the questionnaires are appropriate for inclusion in a list of the 'nonspecific effects' of acupuncture; and (2) to reduce the questionnaires from 32 items (EXP-32) to a more manageable 20 items (EXP-20). The survey sample size was based on convenience (respondents known to the author) and considerations of content validity analysis (Mayor, 2014). The flowchart for the survey process and the resulting 20-item questionnaire are shown in Appendices A and B below.

In the survey, the questionnaires were described as about 'the nonspecific effects' or 'relatively nonspecific effects' of acupuncture treatment. However, partly because no definition of the term 'nonspecific' had been provided at the outset, it rapidly became clear that respondents' interpretations of the word varied widely.

Therefore, in an attempt to clear up the unnecessary confusion resulting from inadvertently omitting to provide a definition of the term 'nonspecific' in the first phase of the survey, before the second phase of the survey was initiated a follow-up question was sent out to respondents to elucidate their understanding of the term in the survey (see Appendix A). Their interpretations

*' In acupuncture research, it has been proposed that an interaction between different components of the treatment may produce a clinical effect that is greater than the sum of its individual elements '*

varied widely, but from their earlier responses and comments, as well as some ensuing discussion, appeared broadly to be divided into three categories. In the follow-up question they were therefore asked which of three possible definitions of the term they considered they had used in the first phase of the survey: (1) Effects associated with the incidental elements of an intervention, in other words synonymous with placebo effects (researcher perspective); (2) Effects not specifically intended, or associated with a 'root' (systemic) rather than a 'branch' (local) treatment (practitioner perspective); (3) Effects incidental to a desired treatment outcome (patient perspective). Additional interpretations are possible (e.g. nonspecific as 'cookbook' rather than truly individualised treatment), and they were thus given the option to describe their understanding of the term if this differed from the three definitions provided (Appendix C).

Results were then collated and analysed for content in Microsoft Excel 2010. Further statistical analysis was not considered necessary or appropriate.

## RESULTS

**Responses to follow-up question** (for the wording of the question, see Appendix C)

Of the nineteen professionals surveyed, thirteen were acupuncture practitioners using predominantly an East Asian medical model, and one a student in training with this model; two used both a Western and East Asian medical model, and one "wouldn't agree with the use of such binary divisions". The two others were non-practitioner acupuncture researchers. Of the practitioners and student, all but two had published on acupuncture research, and only one was not familiar with the literature on nonspecific effects of acupuncture.

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Sixteen ventured responses to the follow-up question. Of these, five considered that they had responded using a researcher-style definition (#1 in Appendix C), seven that they were using a practitioner-style definition (#2 in Appendix C), and seven that they used (or were biased towards) a patient-focused definition (#3 in Appendix C). Five stated they used more than one of the definitions provided, and three were unwilling to be pigeon-holed by the three definitions provided but did provide further comments.

Such comments included:

**Respondent A**

1-3. "I don't think that such a division exists, all are intertwined"

**Respondent B**

1. "As a researcher, I find the argument about placebo irritating

2. "As a practitioner, my view is that the aim of acupuncture is to rebalance the system, therefore, effects will take place throughout the system. What we 'intend' may have very little to do with what the body's intentions are when it is stimulated to heal itself

3. "As a recipient, I am always fascinated by how my body decides it is going to react to any treatment – sometimes this seems to be a direct, linear, logical reaction to what I and my practitioner might expect; at others it takes a devious route ..."

**Respondent C** took this opportunity to highlight the distinction between the researcher's (1) and practitioner's (2) perspectives: 1 & 2. "The researcher is not at all interested in testing acupuncture as it is practised according to properly informed and generalisable understandings ... What the acupuncturist thinks is almost never really taken into consideration

3. "Items under 3 are helpful to inform 1 and 2, but are themselves (in my opinion) not nonspecific effects, they are just effects of needling (neither specific nor nonspecific)."

**Respondent D**

1. "Specific in this case means 'does what I say it is going to do.' It is an a-biological concept. ... The assumption of SINGLE EFFECTS is so powerful in [this] reductionistic medical model. ... So 'side-effects' are among the typical examples of 'nonspecific' effects. ... All subjectivity is classified 'placebo' effect. ... So I think this usage of 'nonspecific' – despite being common and widely accepted – is a form of self-lying, and a refusal to

pay attention to bodily reality, metabolism, biology, and the characteristics of ordinary human interactions.

2. "I think a reasonably competent acupuncturist EXPECTS that treatment will affect the WHOLE BODY, ... In fact, if the practitioner or researcher is using, i.e. thinking via, the energy flow model of EAM [East Asian Medicine], then s/he cannot possibly think that treatments are going to address only one part. *Qi* flows – it reaches all parts – all parts are affected. This is in MARKED CONTRAST to reductionistic/biomedical thinking.

3. "Trained in biomedicine, most EAM patients come in ready to report specifics and ready with a list of 'diseases' all specified. Among the tasks of a professional acupuncturist is to lead the patient to see their complaint as a complaint of the WHOLE, not the part ... Yes, patients are often surprised by the expanded effects of care, and usually delighted by them. ... somehow the little needles (and the remarks of the practitioner) have opened up possibility. ... Acupuncture practitioners should be guiding their patients to EXPECT the expanded effects, in which case they are not incidental; actually, again, if they are thoughtfully using the energy model, and explain this to the patients."

**Other comments received**

Respondent C was the most challenging and articulate in critiquing inexact usage of the term 'nonspecific': "Your focus on patient reports of feelings, changes they perceive related to the acupuncture, cannot be labelled as specific or nonspecific." C's preferred definition of these self-reported feelings is as 'secondary' or 'additional' treatment effects, part of "the package of changes associated with improvements in the general health status ... intended by treatment, especially root treatment" (thus, very much as seen from the practitioner's perspective rather than those of the researcher or patient).

C, like several other respondents (D, E, F, G), was emphatic that nonspecific effects should not be confused with placebo. This is particularly pertinent in research, where an artificial polarisation between 'specific' and 'nonspecific' can force researchers to attribute to placebo any effects of needling (including non-inert sham) which cannot be explained by a currently accepted hypothesis/mechanism. In other words, "the term nonspecific is a term that refers to anything other than the known/anticipated mechanism related effect of the test treatment ... [and] reflects the knowledge and biases of the researcher."

Respondent E was concerned that labelling a response as nonspecific "would encourage the critics to further lambast acupuncture (or other therapies) ... Just like the so-called myth of 'junk' DNA, the nonspecific outcomes of acupuncture may in fact have very important roles to play in its efficacy but also in treatment." Respondent G echoed this: "Benefits [may] happen simply because a needle has been inserted, this does not necessarily relate exclusively to placebo as it could be a genuine physiological response." Along similar lines, respondent F suggested: "Often it could be the so-called 'nonspecific' effects ["not specific to the presenting problem of the patient"] which together actual[ly] provide the specific treatment outcome – perhaps the nonspecific effects are essential for there to be a specific treatment ... outcome." F added that "any therapy that utilises touch" may give a potentially beneficial outcome (e.g. relaxing, connection to the practitioner) "that is not necessarily specific to the treatment for their presenting problem." For D, "All placebo effects are genuine physiological responses" – there is no real dichotomy between the two.

Respondents A, C and F pointed out that what would be considered nonspecific would depend on the context, including the patient, type of acupuncture used, and the condition being treated (e.g. whether 'systemic', 'musculoskeletal' or 'psychoemotional'): "What is nonspecific is not fixed."

Respondent C noted that nonspecific effects could sometimes be negative intended or unintended effects, and respondent F that it would be important "to ensure the nonspecific effect is actually nonspecific and is not being misinterpreted as an adverse reaction". Another respondent (G) added that "acupuncture advocates may have a bias toward selecting what they believe to be positive nonspecific effects and not want to include negative ones."

Respondents B and D preferred the word 'sensations' to 'feelings', while respondent F thought 'experience' might be a better word.

Despite such reservations, ten respondents when asked stated that they thought the EXP-32 questionnaires (possibly modified) might be useful for those who have not had prior experience of acupuncture treatment, nine that the questionnaires could be appropriate for use in a clinical setting, and ten that they could be used with other forms of treatment or self-care.

## DISCUSSION

*"Generally, I think the 'placebo' issue is way over-fussed: why can't we simply accept that the interpersonal matters"*  
(Respondent D)

We often absorb the meaning of words by a process of osmosis rather than logical deduction. It is thus very easy to use even a very specifically defined term unthinkingly, particularly if it has been overworked and become rather a cliché in a particular field. 'Nonspecific', in itself meaning 'not exact' or 'general' (Anon, n.d.), is a term that is easily abused in this way. Hopefully this short paper will encourage others not to fall into the trap that I did, believing I understood something just because it was familiar.

## CONCLUSIONS

It is clear that acupuncture practitioners who use predominantly an East Asian medical model, even those familiar with the literature on nonspecific effects of acupuncture, have quite varied interpretations of the term 'nonspecific'. Their understanding is based more often on a practitioner or patient perspective than on a research-based understanding. In particular, those with a strong commitment to an East Asian (whole-body) model appear to be most vociferous in their condemnation of the equation of nonspecific with placebo. It would be interesting to compare the present results with those from a survey of acupuncture practitioners using predominantly a Western medical model.

## Limitations

Survey respondents were selected in a biased manner, from researchers and researcher-practitioners known to the author and who were judged to have an interest in the survey content. All but two of the fourteen practitioners who took part were trained primarily using an East Asian model of acupuncture. No attempt was made to cast the net wider and include a sample more balanced between those trained using East Asian and more Western medical models. If this was done, results would no doubt have been very different.

## Implications

Survey design is not a simple matter, and should be subject to scrupulous peer review. Misunderstandings are always possible if technical or overused terms are used without due care and proper definition. In particular, discussions of 'nonspecific' effects of treatment should be worded in such a manner as not to further polarise those who base their understanding on what

they consider to be holistic or medico-physiological models. More widely, both practitioners and researchers need to take care over the language they use. Becoming a more research-conscious practitioner or practice-aware researcher is in itself a delicate balancing act, but something we can all strive towards.

### Conflict of interests

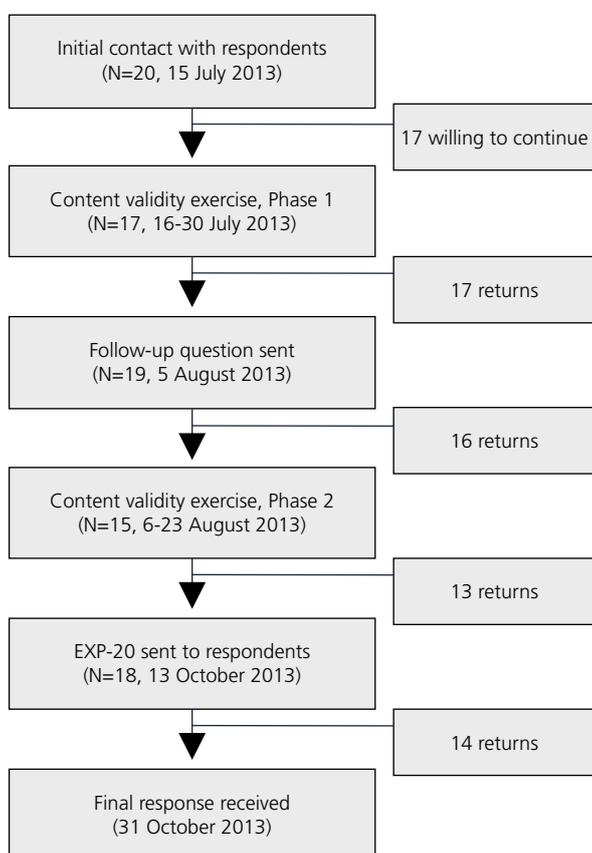
The author uses both East Asian and Western models of acupuncture in his clinical practice, although trained originally in the former. At different times in his career he has favoured

one model over the other (Mayor, 2007; Mayor, 2011), but has always attempted to retain awareness of any conflict between them and within himself. No funding was received for this project.

### Acknowledgements

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### Appendix A. Study sequence



### Appendix B. EXP-20 questionnaire items

The final list of 20 items adopted for questionnaires compiled to assess expectation and experience of nonspecific feelings that may arise in response to acupuncture-type interventions. Questionnaires are administered shortly before and immediately after a single treatment [2].

Item number	Short-term nonspecific feelings
1	Aliveness
2	Being spaced out
3	Being stressed
4	Calmness
5	Cheerfulness
6	Clarity
7	Heaviness
8	Inner bodily flow
9	Intestinal rumblings
10	Mental energy
11	Mental focus
12	Pain
13	Relaxation
14	Relief
15	Sensory acuity
16	Sleepiness
17	Tension
18	Tingling
19	Warmth
20	Wellbeing

### Appendix C. Follow-up question sent to survey respondents

You recently kindly completed a survey form about some questionnaires on the nonspecific effects of acupuncture treatment. The purpose of the survey was to explore the content validity of these questionnaires.

I have now analysed the results of the survey, and this has clearly been a useful exercise.

However, what I foolishly omitted to do when sending out the survey in the first place was to provide a definition of 'nonspecific effects'.

It appears that this may mean different things to different people. For example:

(1) To the researcher, it may mean those effects associated with the

incidental elements of an intervention, in other words synonymous with placebo effects;

(2) To the acupuncture practitioner, it may mean those effects which are not specifically intended, or those associated with a 'root' rather than a 'branch' (local) treatment;

(3) To the acupuncture recipient, it may mean those effects which are incidental to their desired treatment outcome.

I am therefore writing to you again now to ask whether you could please confirm the definition of 'nonspecific' that you understood in the first survey – whether (1), (2) or (3) above.

If you had a different understanding, it would be helpful to know what that was.

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