

# Patient Psychology Research Review™

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**Patient Psychology Research Review**



## Welcome to the latest issue of Patient Psychology Research Review.

This month the PSY-HEART trial shows that deliberately increasing a patient's positive expectations prior to heart surgery improves their long-term recovery. These findings are exciting as they are likely to be transferable to many other medical and surgical treatments. We also report positive findings for the web-based SHUTI programme for people with insomnia, and demonstrate that the characteristics of a medical interaction can have a direct impact on the placebo response. A useful paper provides information about medication adherence, and the issue finishes with a report of the influence of patient expectations on prescribing behaviour. We hope you find these and the other selected studies interesting, and look forward to any feedback you may have.

Kind regards  
**Keith Petrie**  
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### Preoperative optimization of patient expectations improves long-term outcome in heart surgery patients

**Authors:** Rief W et al.

**Summary:** The PSY-HEART trial investigated whether preoperative optimisation of patient expectations improves outcomes after coronary artery bypass graft (CABG) surgery. 124 patients scheduled for CABG surgery were randomised to 1 of 3 treatment arms: a brief psychological pre-surgery intervention to optimise outcome expectations (EXPECT); a psychological control intervention focusing on emotional support and general advice, but not on expectations (SUPPORT); or standard medical care. Interventions were kept brief, and the "dose" of therapy was identical for both pre-surgery interventions. During 6-months' follow-up, the EXPECT group showed significantly larger improvements in disability than the standard medical care group, but the SUPPORT group did not. After controlling for baseline differences, there was a trend in favour of the EXPECT group over the SUPPORT group for disability improvements ( $p=0.09$ ). Specific advantages for EXPECT vs SUPPORT were found for mental quality of life and fitness for work. Both of the psychological pre-surgery interventions induced less pronounced increases in pro-inflammatory cytokine levels after surgery compared with standard medical care.

**Comment:** While placebo effects add to the effectiveness of most medical treatments, they have yet to be deliberately employed to improve medical outcomes. This study sought to investigate whether deliberately increasing patients' positive expectations prior to heart surgery improved long-term recovery compared to standard care and another psychological control group, which offered emotional support and behavioural advice. The study found increasing expectations reduced disability and improved quality of life 6 months after surgery. The importance of the PSY-HEART trial is that it shows the value of increasing patient and contextual variables that also contribute to treatment improvements above the value provided by the specific effects of the treatment. The study shows that by also focusing on increasing expectations we may be able to improve the benefits of many medical and surgical treatments.

**Reference:** *BMC Medicine* 2017;15(1):4  
[Abstract](#)



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## Accuracy of perceptions of fracture risk and osteoporosis treatment benefits

**Authors:** Kalluru R et al.

**Summary:** This study assessed the accuracy of patient perceptions of fracture risk and osteoporosis treatment benefits. Before undergoing bone densitometry, 200 patients completed a questionnaire that explored their beliefs about their risk of fracture and the benefits they might obtain from treatment. After the bone density measurement, the 5-year absolute risk of fracture was calculated using the Garvan fracture risk calculator. Participants were then randomised to receive 1 of 4 different written and pictorial presentations of their absolute fracture risk and the likely benefits they could expect from treatment. The median 5-year fracture risk threshold that participants regarded as high enough to consider preventative medication was 50–60% before the presentation, and did not change substantially after it. The median 5-year risk initially estimated by participants was 20% for any fracture (2–3 times higher than Garvan estimates) and 19% for hip fracture (10–20 times higher than Garvan estimates). Participant estimates of fracture risk halved after the presentation, but remained higher than Garvan estimates. Outcomes did not differ between the randomised groups.

**Comment:** While we want patients to have accurate perceptions about risk in order to make rational decisions about preventative and other medical treatments, it is sometimes sobering to see how inaccurate and resistant to information perceptions of risk actually are. This study not only shows how much participants overestimated their personal risk of a fracture and hip fracture, but when they were provided with information about their actual level of risk using different methods, their perceptions showed strong resistance to change. The development of effective ways to convey risk information to patients remains an important area for medicine.

**Reference:** *BMJ Open* 2017;7(2):e013703

[Abstract](#)

## Effect of a web-based cognitive behaviour therapy for insomnia intervention with 1-year follow-up

**Authors:** Ritterband L et al.

**Summary:** This study evaluated the use of a web-based cognitive behaviour therapy for insomnia (CBTi) intervention in adults with chronic insomnia. 303 adults were randomised to use the internet programme Sleep Healthy Using the Internet (SHUTi) or receive online patient education. The 6-week SHUTi programme was an interactive web-based programme that incorporated the primary tenets of face-to-face CBTi. Patients in the patient-education group received nontailored and fixed online information about insomnia. Outcomes were significantly in favour of the SHUTi group for Insomnia Severity Index, sleep-onset latency, and wake after sleep onset during 1 year of follow up. 56.6% of patients in the SHUTi group achieved remission status and 69.7% were deemed treatment responders at 1 year based on Insomnia Severity Index data.

**Comment:** Therapies that can be delivered over the internet are increasingly popular but few have impressive long-term data to support their use. Using a popular sleep intervention (SHUTi), this study shows excellent results over a year of follow-up for maintaining an outstanding treatment response. SHUTi is a fully automated programme and is completely self-guided. Participants go through modules on improving sleep including sleep restriction, cognitive restructuring, sleep hygiene and relapse prevention. The programme includes a number of interactive features including personal goal setting, animations and quizzes as well as videos from experts. It is really a best practice model for setting personal targets and measuring observable outcomes. The SHUTi programme can be used for an enormous number of people with sleep difficulties and can be found at <http://www.myshuti.com>.

**Reference:** *JAMA Psychiatry* 2017;74(1):68-75

[Abstract](#)

## Harnessing the placebo effect: exploring the influence of physician characteristics on placebo response

**Authors:** Howe L et al.

**Summary:** This study investigated whether a provider's social behaviour moderates the effect of patient expectations on physiological outcomes. 164 healthy adults were recruited for a study ostensibly about novel food preferences. They were told that before they participated in the food study they needed to undergo a health screening. To test the impact of expectations and provider interaction style on physiological outcomes, investigators used allergic reactions to histamine administered in a skin prick test. After inducing an allergic reaction, a health care provider administered a cream with no active ingredients and set either positive expectations (the cream would reduce the reaction) or negative expectations (the cream would increase the reaction). The provider demonstrated either high or low warmth, and either high or low competence. When the provider acted both warmer and more competent the impact of expectations on allergic response was enhanced. When the provider acted colder and less competent the impact was negated.

**Comment:** This interesting paper shows how the context of the medical interaction can have a direct impact on the placebo response with warmer and more competent providers increasing the response to an inert treatment for an allergic skin reaction. The findings may help explain why placebos work well in some clinical situations but not in others. An interesting aspect of this Stanford study is how they directly manipulated verbal and non-verbal cues from the doctor as well as the environment of the doctor's office to create different levels of perceived competence and warmth. The study will give impetus to further research designed to unpack the placebo response. At the heart of this work is how the medical interaction in itself can set the basis for effective healing.

**Reference:** *Health Psychol* 2017; published online Mar 9

[Abstract](#)

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### Understanding the dimensions of anti-vaccination attitudes: the Vaccination Attitudes Examination (VAX) scale

Authors: Martin L & Petrie K

**Summary:** This report discussed the development of the Vaccination Attitudes Examination (VAX) scale, a short measure of general vaccination attitudes. Two studies were conducted. Study 1 included 409 participants (53% female) with a mean age of 34.5 years. Study 2 included 92 participants (67% female) with a mean age of 28.6 years. Participants in both studies answered questions about their attitudes toward vaccines, prior and expected-future vaccination behaviours, perceived sensitivity to medicines, online behaviour, and demographic information. Four distinct but correlated vaccine attitudes were identified: 1) mistrust of vaccine benefit; 2) concerns about unforeseen future effects; 3) concerns about commercial profiteering; and 4) preference for natural immunity. These factors were significantly related to prior vaccination behaviour, future vaccination intentions, perceived medication sensitivity, and the tendency to obtain health information from online sources.

**Comment:** Refusal to vaccinate has led to recent outbreaks of vaccine preventable illnesses in many parts of the world. While failure to vaccinate is an important health behaviour, individuals arrive at this decision via different pathways. This scale identifies four distinct but correlated factors: mistrust of vaccine benefit, worries about future effects, concerns about commercial profiteering and a preference for natural immunity. This allows the possibility of using more targeted interventions directed at the most prominent concerns in individuals. Interestingly, we found in this study that anti-vaccination attitudes were associated with the tendency to get health information online and were part of a broader scepticism and conspiratorial ideology promoted by certain websites.

Reference: *Ann Behav Med* 2017; published online Mar 2  
[Abstract](#)

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### Do medical images aid understanding and recall of medical information? An experimental study comparing the experience of viewing no image, a 2D image and a 3D image alongside a diagnosis

Authors: Phelps E et al.

**Summary:** This study compared the experience of viewing 3D medical images, 2D medical images and no image at the same time as receiving a diagnosis. Two laboratory experiments were conducted, each with 126 participants. In experiment 1, participants heard three diagnoses; one was accompanied by 3D medical images, one was accompanied by 2D medical images and one with no image. Participants rated their experience via a questionnaire after each diagnosis. Experiment 2 followed the same design as experiment 1 except half the participants were told that image interpretation can be susceptible to errors. Participants reported that they preferred to view 3D rather than 2D or no images alongside a diagnosis. They also reported significantly better understanding, perceived accuracy, and increased trust when the diagnosis was accompanied by an image. In experiment 2, informing participants that medical images were not certain had no impact on their level of trust.

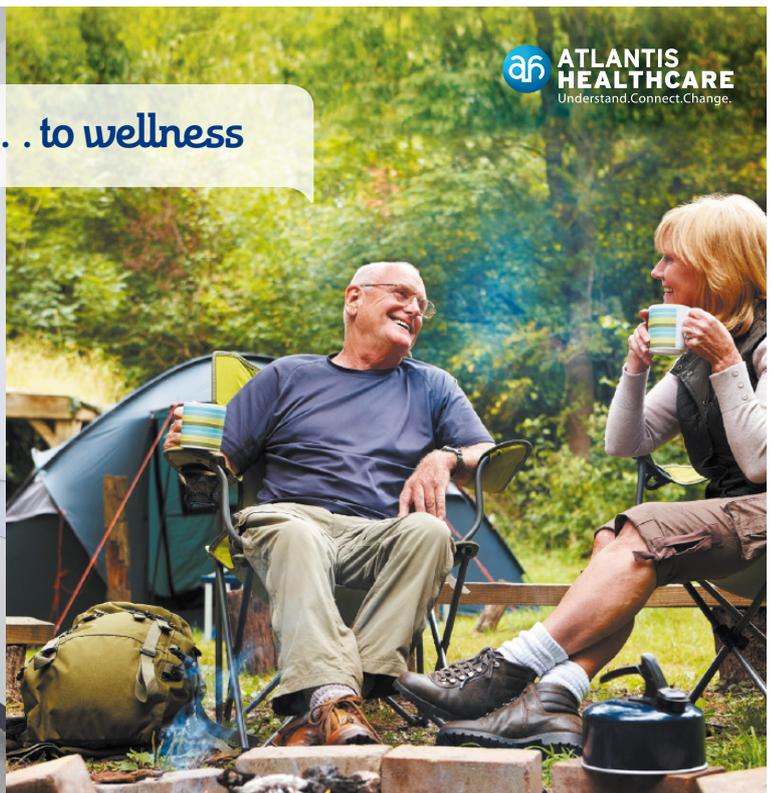
**Comment:** Imaging techniques are developing rapidly in medicine, but assessment of their value as a tool to provide patients with information about their illness has only just begun. This study found that images aided patient understanding, recall and trust in medical information. The researchers found a preference for 3D images compared to 2D images. One of the challenges in this area is turning images that are helpful for medical diagnosis into images that a patient can readily understand and help with explanations about the need for treatment. Patients generally do like images of what is going on inside their body but the images usually need some work to be viable patient education tools.

Reference: *Patient Educ Couns* 2016; published online Dec 30  
[Abstract](#)

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## Medication adherence: a practical measurement selection guide using case studies

**Authors:** Zullig L et al.

**Summary:** This report described common problems and processes for measuring medication adherence, and discussed possible solutions. Three case studies (from the perspectives of an academic researcher, a health care payer, and a clinical care provider) were presented. The researchers found that the most appropriate measure of medication adherence depends on the context (whether it is a tightly controlled clinical trial setting or a clinical setting), the intended purpose (research or clinical), the available resources (data, personnel, materials, and funding), the time available (a quick screening or comprehensive review), and the phase of interest (initiation, implementation, or discontinuation). A medication adherence measure should be selected according to each situation's unique objectives, resources, and needs.

**Comment:** This is a useful paper as it provides information about recent reviews on medication adherence and methods for measuring adherence. The paper then considers three case studies; an academic researcher, a health care payer and a clinical care provider, and looks at what measures may be suitable in their individual cases. It is good for considering that there is not one measure that is likely to be suitable across each of these different conditions and covers some of the factors to consider when looking at measuring medication adherence.

**Reference:** *Patient Educ Couns* 2017; published online Feb 10  
[Abstract](#)

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## Sleep habits and susceptibility to upper respiratory illness: the moderating role of subjective socioeconomic status

**Authors:** Prather A et al.

**Summary:** This study evaluated the moderating effects of socioeconomic status (SES) on sleep habits and susceptibility to upper respiratory illness. 732 healthy individuals were quarantined and given rhinovirus (RV) or influenza virus before being monitored for 5–6 days. Symptom severity, including mucus production and nasal clearance time, and levels of nasal cytokines were measured prior to administration and each day during 5–6 days of follow-up. Measures of self-reported sleep and objective and subjective measures of SES were also obtained. Subjective SES (but not objective SES) moderated the associations between shorter sleep duration and the increased likelihood of a clinical cold. In participants with low subjective SES, those who slept for  $\leq 6$  hours were at increased risk for developing a cold compared with  $\geq 8$ -hour sleepers (odds ratio, 2.57). There was no association between sleep duration and colds in participants with high subjective SES.

**Comment:** The common cold studies have provided some exciting findings of the role of stress and susceptibility to common colds. In these studies participants are housed in large hotels and have cold viruses put up their nose. The researchers wait and see who gets sick. If they do develop colds some lucky research assistant weighs the tissue to see how much virus gets shed. The factors associated with whether participants get colds are then investigated. Duration of sleep has a strong association with susceptibility to developing an infection. In this study the investigators also found that subjective social status or where participants placed themselves on a 9-rung ladder on where they stand to other people in terms of income, education and occupation moderated the effect of sleep with a stronger effect in people with lower subjective SES. It seems possible that high SES may buffer the negative effects of short sleep on developing a cold.

**Reference:** *Ann Behav Med* 2017;51(1):137-46  
[Abstract](#)

## Expectations for antibiotics increase their prescribing: causal evidence about localized impact

**Authors:** Sirota M et al.

**Summary:** This study investigated whether patients' expectations influence antibiotic prescribing. Family physicians expressed their willingness to prescribe antibiotics (experiment 1; n=305) or their decision to prescribe (experiment 2; n=131) and assessed the probability of a bacterial infection in hypothetical patients with infections either with low or high expectations for antibiotics. Overall, expectations for antibiotics increased the physicians' intention to prescribe, but expectations for antibiotics did not change the perceived probability of a bacterial infection.

**Comment:** Antibacterial resistance has become an important topic. The important issue in the area is how best to reduce inappropriate or excessive antibiotic prescribing. One issue that has received attention is reducing patient expectations for antibiotics. This study using a case vignette methodology demonstrates the strong influence of patient expectations on prescribing behaviour. The study suggests that influencing patients' expectations about getting antibiotics or improving how these expectations are managed may be important avenues for interventions to reduce inappropriate prescribing.

**Reference:** *Health Psychol* 2017; published online Feb 16  
[Abstract](#)

### Independent commentary by Professor Keith Petrie

Keith Petrie is Professor of Health Psychology at Auckland University Medical School. He worked as a clinical psychologist in medical settings before taking up a faculty position in Auckland. His early work in pain clinics and medical wards sparked his interest in the field of health psychology and, in particular, the different ways patients cope with medical symptoms and treatment. His research group also does work on adherence to treatment, psychoimmunology, symptom reporting as well as the placebo and nocebo response.  
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